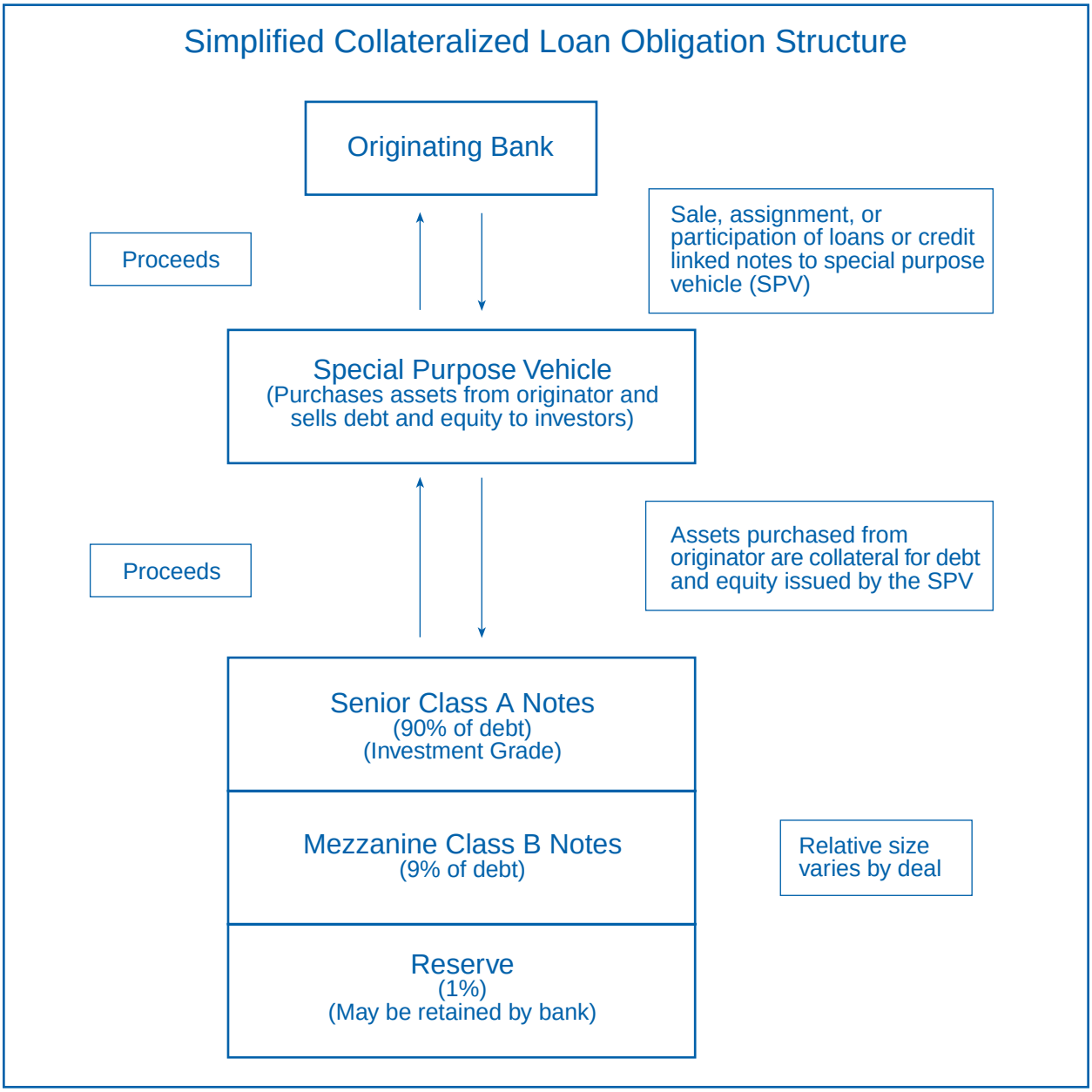
CHART 2



tain borrower relationships. The issuer may transfer the actual loan, the cash flow from the loan, or the default risk to investors.

CLOs typically rely on an asset manager or servicer to "manage" or protect the investors' interest in the collateral. The investment style or role of the asset manager may change depending on the purpose of the CLO. Securitizations that use an asset manager to actively manage the performance and market value of the collateral are referred to as "market arbitrage" or "market value" transactions. In these deals, the asset manager can trade assets into and out of the securitized pool in order to maximize the market value of the securitized portfolio. In contrast, most bank-issued CLOs are designed as "cash flow" transactions, in which the asset manager's role is more as a servicer than as a portfolio trader. These structures rely primarily on the ability of the collateral to make stable cash flow payments over a predetermined period and emphasize the credit quality of the collateral and the predictability of interest and principal payments rather than liquidity and market performance, as in market value transactions.

An Introduction to Delinked and Linked CLO Structures

The variables in structuring a CLO are many. The relative size of the senior and subordinated tranches, the form of credit enhancement, the ability of the asset manager or servicer to adjust the asset pool, and the method and degree to which ownership of the underlying loans is conveyed to investors vary among CLOs. Despite the variations, two basic structures have emerged: "delinked" structures and "linked" structures. The primary difference between these two is the extent to which the SPV "owns" the securitized assets. An issuer may consider many factors when determining the type of structure to use, including the ability or desire of the issuer to transfer the loans without notifying the borrower, the credit quality of the loans, the investment rating of the bank issuer, and the desired capital treatment of the securitized loan.

In a delinked structure, the collateral is transferred from the issuer to the SPV. Delinked structures are generally treated as "true sales" for accounting purposes, and the loans in the CLO are removed from the issuer's balance sheet. Delinked CLOs are structured to insulate the investor from the credit quality problems or insolvency of the issuer. Ratings on delinked CLOs are predicated on the projected performance of the collateral and the credit enhancement structure rather than the credit quality of the issuer. Some delinked CLOs are similar to structures used in credit card securitizations that capitalize on the flexibility of a revolving master trust. The master trust structure is advantageous because it allows for the securitization of different types of assets, such as fixed or floating rate or revolving or term loans.

In linked transactions, also known as credit linked notes, the issuer retains ownership of the underlying collateral, and the *cash flow generated by the collateral pool* is conveyed or sold to the SPV. All or part of the credit risk from the underlying assets is transferred to the CLO investor using credit derivatives. As in delinked CLO structures, credit protection is provided through the layering or tranching of the debt sold and other credit enhancements.

Investors in linked CLOs are not completely insulated from the credit risk of the issuer. Because the issuer retains ownership of the underlying loans, a default or bankruptcy by the issuer could affect the transmission of cash flow to the CLO investors. As a result, investors in linked CLOs bear both the credit risk of the securitized loan pool and, to some degree, the risk that the issuer may become insolvent. *Because of this dual exposure, ratings on linked structures are typically capped by the credit rating of the issuer.*

The accounting and regulatory capital treatments of delinked and linked CLOs also differ. Linked structures generally do not qualify for sale treatment under generally accepted accounting principles because the assets remain under the control of the issuer. Issuers of linked CLOs may be granted some regulatory capital relief under the Basle Accord if the cash received from the securitization is assigned as collateral for the underlying loans. The Basle Accord, which governs capital adequacy requirements for Bank for International Settlements member countries, reduces the risk weighting on commercial loans that are secured by cash or certain types of risk-free marketable securities such as Treasury bills.[4] While linked CLOs may provide some form of capital incentive for foreign banks under the Basle Accord, linked structures offer little relief to U.S. banks because U.S. banks must maintain minimum leverage capital ratios in addition to risk-based capital ratios. Since the securitized loans count as assets of the bank issuer in a linked structure, the leverage ratio (roughly, book equity to book assets) is not reduced. Consequently, the linked CLO structure has been more popular among foreign banks.

The Role of Investment Rating Agencies

Although the approach may vary among rating agencies, the criteria used to determine the investment rating for CLOs are similar. Rating agencies evaluate the ability of the securitization vehicle to make interest and principal payments to holders of the debt. This analysis requires an evaluation of the credit quality of the underlying collateral pool, including the projected cash flow

[4] Under the Basle Accord and the U.S. risked-based capital guidelines, assets collateralized by cash or Treasury securities generally receive a preferential risk-weighting that may range from 0 to 20 percent. For background information regarding the risk weightings for collateralized transactions applicable to federally regulated institutions, see Federal Deposit Insurance Corporation Financial Institution Letter number 64–96 dated August 22, 1996.

generated by the pool, the credit enhancement, and any additional protection provided to the investors based on the structure of the securitization. The rating agencies set limits on the amount of industry and borrower concentration in a pool and statistically evaluate the effect of diversification among loans when estimating potential defaults and losses from the securitized assets over the life of the transaction. If the underlying collateral is not already rated—most commercial loans are not—the rating agency will grade the underlying loans and assign a rating to the security on the basis of the credit quality of the loans and the underwriting criteria used by the lender. Estimates of default probabilities, timing of default, and recoveries in the event of default are assigned to the loans and vary by collateral type and credit grade. These estimates are generally based on historical default studies authored by the various rating agencies.

Implications for Insured Institutions

The advent of CLOs poses new opportunities and risks to banks. The ability to transfer all or part of a commercial loan's credit risk to investors may have several consequences. When issuers of CLOs securitize their highest grade assets, they are effectively lowering the weighted average credit quality of their retained assets. An institution's loan loss reserving policies and capital adequacy should take into account the implications of its CLO strategy.

While the issuance of CLOs may be confined to larger banks that have considerable commercial loan portfolios, smaller banks or other types of institutions that desire a greater exposure to this type of lending may consider investing in CLOs. These instruments offer banks the opportunity to invest in a diversified pool of commercial loans. Because of credit enhancement features and diversification advantages, the most senior debt issued by the CLOs can earn a higher investment rating than the average rating on individual loans in the pool. Despite the investment rating, banks that invest in CLOs should be aware that CLO structures are less standardized than other ABS investments, and therefore, performance and underlying risk will be both issuer and deal specific.

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The Payment System: Emerging Issues

- **Essential to the transfer of value in the U.S. economy, the once-arcane and bank-centered payment system is undergoing considerable change as new technologies bring new opportunities, new exposures, and new competitors into the payments business.**

- **For most banks, the major issues lie in small-value payments, where they struggle for advantage in adapting new technologies into new products and services while protecting their traditional payments business from technologically adept nonbank competitors.**

- **For regulators and a handful of the largest banks, large-value payments present the most serious challenges, as technology has enabled increasing payment velocity and volume but also has created the potential for systemic failures.**

The payment system is the heart of the U.S. economic infrastructure, moving an estimated $670 trillion annually among consumers, businesses, financial institutions, and governments.[1] Despite this volume—an amount equal to roughly 90 times the U.S. gross domestic product—the payment system remains transparent to most users because of its dependability in moving value safely. Historically, banks have been essential to this movement, reaping, according to the ***Bank Administration Institute,*** an estimated $117 billion each year in revenues both as payment agents and as the holders of the funds from which those payments are made.

Broadly speaking, the payment system encompasses the numerous payment products, players, and the infrastructure that together transmit value throughout the economy. More specifically, it can be defined as a collection of individual systems constructed around specific payment products. Credit cards, for example, represent a payment system. So do debit cards, checks, foreign exchange, and even cash. This product-based definition is a relevant one for many bankers, since it centers on the products and services that generate revenue rather than on the less glamorous "back office" functions that are measured instead by their cost. A second definition segments the payment system by payment size. Using this definition, the payments world is divided into systems that carry *small-value* or *retail* payments and those that carry *large-value* or *interbank* payments. This latter classification is oriented more toward infrastructure than product but is convenient from a regulatory perspective because the seriousness of the risk posed varies considerably by payment size.

However defined, the payment system today is a source of new opportunities and exposures—a result of a host of new technologies that the "information revolution" has spawned. These technologies create different issues for banks and regulators. For banks, the issues involve adapting the technologies into new products and services while protecting their payments business from nontraditional competitors that specialize in its creation and use. For regulators, the issues involve managing the risks—principally systemic risk—that accompany the large increases in payment volume and velocity enabled by technology. Taken together, these issues frame a payment system that can be both a political and a technological battleground, with significant incentives for participants to shape payment products and channels in a way that favors their own objectives.

Small-Value Payments: A Technological Brawl

Nowhere has the battle to shape the payment system been more contentious than in the small-value segment, where emerging information technology can best be leveraged into new fee-based retail products. There are two battles here. The first involves *maintaining the monopoly over the payments infrastructure* that connects each bank with the Federal Reserve and, by extension, with every other depository institution in the United States.[2] While this infrastructure is interbank—that is, it is dedicated to settling accounts between institutions and does not directly extend to their customers—the ability to aggregate and settle individual retail payments through it has enabled the banking industry to maintain its centrality to the nation's monetary flows.

[1] Estimate for 1996 from the National Automated Clearing House Association; www.nacha.org/resources/marketing/direct-payment/us-payments-96.gif.

[2] Depository institutions were granted exclusive access to this infrastructure upon its creation by the Federal Reserve Act of 1913.

The second battle involves exploiting new technologies either to attract new customers or to serve existing ones more profitably. This battle is both highly visible and highly technical and underscores the potential of the passing of information to eclipse the passing of value as the most critical profit opportunity in payments. The best example of this potential is *bill presentment*, the process of posting vendor invoices—such as credit card or utility statements—on the Internet to facilitate electronic payment. The crucial question concerns where the customer transaction data will lie. If they lie on vendors' sites or on the sites of nonbanks that concentrate such data, those entities will effectively "own" the customer by owning the information needed to cross-sell or otherwise add value during the billing process. Owners of customer-specific data also can tailor new services—a process that can develop loyalty as well as related sales. Losing this battle would be doubly costly for banks because, regardless of where the data reside, electronic payments will eliminate most of the float in the payment process, to the benefit of vendors and largely at the expense of banks.

Another battle is building between banks and nonbanks with respect to *digital cash* and *stored value* applications. These applications are directed at the micropayment sector—that is, payments that are normally considered too small for credit cards. Whether they reside on a computer or a smart card, these applications substitute electronic data for actual cash, with the amount stored on each card covered dollar for dollar by balances on account with an issuer. The struggle is for the right to issue this value, and the ***American Bankers Association*** has contended that regulated depository institutions alone should be permitted to do so.[3] The battle here is for more than just fees, for the interest on the balances that back this electronic value could provide issuers with substantial new sources of income.

With some new payment technologies, the distinction between opportunity and risk can blur. As the Internet enables the distance between shopper and shopkeeper to increase, the need to authenticate unseen customers, merchants, and banks increases as well. At the same time, the open nature of the Internet requires that the privacy and integrity of transaction information be protected. The building blocks to accomplish this are neither simple nor easily interwoven—successfully combining cryptographic protocols, specialized security hardware, and existing information systems is a dif-

[3] *The Role of Banks in the Payments System of the Future,* www.aba.com.

Emerging Issues in Small-Value Payments

Maintaining the payment system monopoly. Access to Federal Reserve payment services has historically been limited to depository institutions. Maintaining that monopoly—and thus maintaining its centrality to current and future payment products and services—is an important issue to the banking industry.

Electronic bill presentment is the process of presenting bills and receiving payments electronically. Internet bill presentment may be one of the most hotly contested services, because the owner of the site where invoices are posted could cross-sell to customers as well.

Digital cash and stored value are applications in which electronic data substitute for cash. Such applications can run on either smart cards or personal computers. An important issue is who holds the balances that back electronic value, because, unlike with paper cash, issuers may be able to earn interest on the digital balances held by consumers.

Securing online transactions. Ensuring the integrity, privacy, and authenticity of electronic transactions is widely desired by those engaged in electronic commerce. With larger payments, desirability will become necessity. Current implementations use combinations of encryption algorithms and specialized hardware.

Banks as certificate authorities (CAs). Authenticating Internet payers and payees may require a complex public key infrastructure in which trusted organizations supply decryption keys to authenticate the counterparties to a transaction. Some banks are already acting as CAs. Others are weighing the benefits and largely uncertain exposures of providing such a service.

Electronic Funds Transfer '99 (EFT 99). On January 2, 1999, the U.S. government will be required to make benefit and vendor payments electronically. This mandate raises issues of how to provide service to the "unbanked," how to provide service internationally, and for vendors, how to integrate remittance data with the payment itself.

Development of financial electronic data interchange (EDI) standards. For bank commercial customers to benefit from electronic payments, banks must be able to handle remittance information—information that accompanies payments and identifies sender and transaction detail. Standardizing such data is an important step in enabling banks to receive them and pass them on to their customers.

Point of sale check truncation. Checks are costly to handle and time-consuming to collect. Check truncation reduces cost and eliminates float by converting the check into an electronic transaction at the point of sale. Although banks will have fewer checks to handle under check truncation, they will lose float and the return on investment in check-handling equipment.

ficult matter in itself if the whole is not to be weaker than the individual parts.

The VISA and MasterCard Secure Electronic Transaction (SET) protocols, designed to protect Internet credit card transactions, illustrate the complexity that banks and their customers will need to navigate in *securing online transactions*. Under SET, all banks and merchants will use digital certificates to authenticate themselves to consumers and each other for each Internet transaction.[4] These certificates are electronic messages that contain a decryption key for the sender that is itself authenticated by a trusted third party. The infrastructure for storing, distributing, and vouching for these keys, known as a Public Key Infrastructure (PKI), will contain several tiers of certificate authorities (CAs) and will be difficult and costly to implement. Banks not only will use these certificates, but many are considering becoming—or have already become—CAs themselves. While *banks acting as certificate authorities* may represent a logical progression in banking services, there is little evidence of a homogeneous legal infrastructure or legal precedent sufficient to guide digital signature disputes. These voids leave unanswerable the question of whether the expected gains from providing such services will compensate for the potentially long-tailed liability from doing so.

A major stimulus for electronic payments could come on January 2, 1999, when the U.S. government is required by law to convert its vendor and benefit payments from paper checks to electronic transfers—the so-called *Electronic Funds Transfer '99 (EFT 99)* program. Three separate challenges arise from this mandate. The first is that the "unbanked"—those segments of the population that are socially, economically, or geographically distanced from a financially bank-centric world—must eventually be provided with a cost-effective means to receive, store, and spend their electronic value.[5] The second challenge is that the EFT mandate applies internationally as well as domestically. Given the need for each international payment to settle in two currencies and countries, the ability to provide efficient cross-border EFT will vary considerably from country to country.[6]

[4] Depending upon card brand and SET version, consumer certificates may be required as well.

[5] Because of resistance from bankers and benefit recipients, compliance waivers are envisioned that will make the program largely voluntary until the details of the special electronic transfer accounts (ETA) are worked out.

[6] www.fms.treas.gov/eft.

Perhaps more challenging to many financial institutions is that electronic payments to vendors, unlike those to individuals, will require electronic remittance data to accompany the payment itself. This information goes beyond simple routing instructions and includes the information—such as purchase order or invoice numbers—necessary for the vendor to apply the payment correctly. According to a study by ***Booz-Allen & Hamilton,*** only slightly more than 5 percent of financial institutions were able to receive and forward such remittance information as of early 1997.[7] Developing this capacity will therefore be an industrywide challenge. Once again, there is an opportunity disguised as a cost. The development and implementation of *financial electronic data interchange (financial EDI)* standards will enable financial institutions to retain control of—and add value to—business-to-business transactions when commercial payments migrate to the Internet.

The U.S. government is not alone in seeking an end to costly paper-based payments. Vendors too are pressing for the elimination of the slow check presentment process wherein checks must physically be moved from vendor to vendor bank to issuer bank before funds can be transferred. *Point of sale check truncation* shortens this process by converting the check into an electronic payment at the point of sale, leaving the customer with an executed check and the vendor with a transaction that will settle like a debit card—and in doing so eliminates much of the potential for check fraud. While this process is beginning to displace physical presentment, the outlook for banks is mixed. As the volume of checks that must be physically handled decreases, so too will the income from float and the returns from past investments in check-handling capacity.

Large-Value Payments: Making the World a 'Good and Final' Place

Unlike small-value payments, the issues surrounding large-value payments are not strategic ones for banks, and less technological wizardry pervades them. Instead, the common factor is the systemic risk posed by payment failures. For this reason, regulators—particularly the Federal Reserve and the world's other central banks—take very seriously the payments "plumbing" that is otherwise obscure even to many bankers. In an

[7] *Remittance Data Study,* Booz-Allen & Hamilton; www.fms.treas.gov/eft/remit.html.

electronic and intangible world where a bank's accumulated exposures can routinely exceed its equity, the overriding objective for payment system designers, users, and regulators is "good and final" payment—a term referring to funds that are both irreversible and fully collected.

Recognition is building concerning the payment system's *vulnerability* and just how critical it is to the U.S. economy. An October 1997 report issued by the ***President's Commission on Critical Infrastructure Protection (PCCIP)*** warned that "the nation's core payment systems…seem to present a serious physical vulnerability within the financial system."[8] The source of that vulnerability, in the eyes of the commission, stemmed not so much from a lack of security as from the critical importance of those systems to settling financial transactions throughout the economy and the lack of available alternatives if they failed. As such, it was feared that the payment infrastructure provides an enticing target for cyber-terrorists and information warriors and that such threats will only grow in the future.

Concentration refers to the fact that while banks are central to payments and all enjoy equal access to Federal Reserve payment services, some banks are clearly more central than others. According to March 1998 Call Report data, a mere 25 banks hold nearly two-thirds of the U.S. banking industry's transaction accounts.[9] Should one of these large banks suddenly fail, its inability to fund settlements could result in a loss of payment system liquidity and disruption of domestic and foreign financial systems alike. While this concentration is not new, what *is* new is the considerable increase in concentration that the new megamergers promise.[10] How and whether to inoculate the payment system from the weight of these super-institutions will become an issue for the regulatory community.

The criticality of a nation's payment system is not confined within its own borders. Because of globalization and the increasing velocity of payments, threats to one country's system become threats to those of other countries as well. There are a number of these emerging cross-border concerns. The most immediate and visible is the *Year 2000* or *Y2K problem*. Because banks and the payment networks that join them are heavily computerized, the latent points of vulnerability to software and hardware failures have grown factorially with the number of interconnected internal and external systems. In this context, the concern is that any banks that have failed to correct their Y2K exposures will transmit that failure via the payment system to other institutions throughout the world, delaying or even arresting settlements in the process. This concern is heightened because, in both Asia and Europe, bank resources needed to fix Y2K are being consumed instead by more immediate problems. In Asia, it is surviving the decay in currencies and credits. In Europe, it is *the Euro,* which rates as an issue in itself—demanding the modification

Emerging Issues in Large-Value Payments

Payment system vulnerability. According to the PCCIP, the nation's core payment systems may present a serious physical vulnerability within the financial system.

Payments concentration. Payment services are concentrated in a relatively few large banks, and that concentration is growing as megamergers are creating a smaller number of superbanks.

Y2K. The Year 2000 problem threatens to disrupt payments by transmitting computer problems via the payment system from banks that have not fixed the problem to banks that have.

The Euro. Bank and interbank systems in Europe and abroad must be modified to accept the Euro. In addition, the resources required to implement the Euro must be diverted from resolving Y2K problems.

Foreign exchange settlement risk. Foreign exchange transaction exposures can be many times a bank's capital. The failure of a major creditor to pay could drain essential liquidity from international markets.

Achieving finality in gross payment systems. Making a given country's domestic payments irrevocable and immediate is a major step in avoiding the international spillover of internal financial crises.

Collateralizing net payment systems. According to the BIS, systems that do not permit immediate final settlement must be collateralized to ensure the eventual satisfaction of member positions in the event of a participant's failure. Like finality, collateralizing helps prevent the internationalization of a domestic failure.

[8] www.pccip.gov/report_index.html, p. A39.

[9] Transaction accounts, in essence, are those accounts from which third-party payments can be made. The data used here are based only on transaction accounts held on behalf of other public and private financial institutions here and abroad—accounts from which interbank transfers are made.

[10] As of March 31, 1998, the top three U.S. bank holding companies held approximately 25 percent of all reported interbank transaction deposits. The mergers announced through June 30, 1998, would increase that concentration to over 34 percent.

of bank and interbank payment systems throughout the world in anticipation of that currency's January 1, 1999, launch.

Although less well known to the general public, *foreign exchange settlement risk* remains of considerable concern to the Bank for International Settlements (BIS) and its member central banks. This exposure arises because cross-border payments, unlike domestic payments, have no single central bank to guarantee settlement, leaving U.S. banks exposed to their foreign counterparties and correspondents—sometimes for several days—for more than $244 billion in daily trades.[11] Potential solutions to this problem include netting—offsetting risks so that only the differences are due—and simultaneous settlement. An ongoing effort by several of the world's largest banks to provide simultaneous cross-border settlement, a project known as the Continuous Linked Settlement Bank, will require considerable international cooperation since it will effectively span the central banks in each country whose currency it settles.

Efforts by individual countries to solidify their payments infrastructure are ongoing as well. *Achieving finality* in payments—a term meaning that a completed payment is irrevocable—is the most prevalent, and recognizes that payments must be irreversible to establish the liquidity for those that follow. One way of speeding up finality is with real time gross settlement (RTGS) systems. "Real time" means that there is no delay in settlement. "Gross settlement" means that transactions are settled in the full amount for which the original payment instructions were entered. FedWire, the U.S. Federal Reserve's large-value payment system, is an RTGS system. Many other countries also have them, and still more are developing or planning them. Complementary to RTGS systems are net or provisional settlement systems, which total up the accumulated debits and credits for each participant over the course of some period—usually one day, offset them against each other, and settle at the end of the period. The New York Clearing House's Clearing House Interbank Payment System is one such system. Although their use leads to smaller, or *netted,* settlement amounts for each participant and substantially lower liquidity demands on the payment system as a whole, payments in such systems are not final until the last creditor pays. Thus, there is a daily threat of recalculation and a potentially fatal change in mem-

[11] *Settlement Risk in Foreign Exchange Transactions,* March 1996, and *Central Bank Survey of Foreign Exchange and Derivatives Market Activity,* May 1996; Bank for International Settlements; www.bis.org/publ.

Sources of Additional Payment System Information

Electronic Bill Presentment

Checkfree . . . . . .www.checkfree.com/ebill
Microsoft-First Data
Corp . . . . . .www.msfdc.com

Digital Cash and Stored Value

Cybercash . . . . . .www.cybercash.com
Digicash . . . . . .www.digicash.com
Mondex . . . . . .www.mondex.com
VISACash . . . . . .www.visa.com

Securing Online Transactions

Certicom . . . . . .www.certicom.com
Entrust . . . . . .www.entrust.com
RSA . . . . . .www.rsa.com
SETCO . . . . . .www.setco.org

Certificate Authorities

Certco . . . . . .www.certco.com
Digital Signature Trust . . .www.digsigtrust.com
GTE Cybertrust . . . . . .www.cybertrust.gte.com
Verisign . . . . . .www.verisign.com

Electronic Funds Transfer '99, Financial EDI, and POS Check Truncation

National Automated
Clearing House
Association . . . . . .www.nacha.org
U.S. Treasury Financial
Management Service . .www.fms.treas.gov/eft

Payment System Vulnerability

President's Commission on
Critical Infrastructure
Protection . . . . . .www.pccip.gov

The Euro, Foreign Exchange Settlement Risk, Payments Finality, and Collateralization

Bank for International
Settlements (BIS) . . . .www.bis.org/publ
Federal Reserve Board
of Governors . . . . . .www.ny.frb.org
New York Clearing
House Association . . .www.chips.org
U.S. Federal Reserve . . . .www.bog.frb.fed.us

bers' liquidity positions if a major creditor bank fails. For such systems, the BIS is encouraging member *collateralization* levels sufficient to cover at least one, and preferably two, of each system's largest net creditor banks at any one time.[12] While these are not new issues in developed nations, the increasing extent to which financially underdeveloped and underregulated countries are involved in global payments confers new importance on the development of finality and collateralization in payment systems worldwide.

Differing Perceptions, Common Threat

Banks are united neither in their perceptions of these issues nor in their desire for regulation to address them. With respect to small-value payments, large and small banks have disagreed over whether the Federal Reserve should withdraw from providing retail payment services—a debate that ended in favor of the small bank faction earlier this year when the Fed announced that it would remain an active and, according to some large banks at least, a subsidized competitor in clearing and settlement. There also has been disagreement, again along lines of size, over whether the issuance of new products such as stored value cards should be limited to regulated depository institutions. In large-value payments, the differences are due more to relevancy than competition. Few small banks will feel compelled to address foreign exchange exposures or the vulnerabilities of the national and international payments infrastructure.

Whatever their individual perceptions of the issues surrounding the payment system, all banks are susceptible to its interruption. Likewise, they are strategically vulnerable—individually and as an industry—if they fail to preserve their role as a trusted gateway for the settlement of their customers' obligations. This is perhaps the most critical of all payments issues facing banks, for while their daily operations may depend on their continued success in maintaining the payment system's dependability, nothing short of their payments franchise may rest on their ability to market this success to their customers as a feature essential to the entire range of current—and future—payment services.

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[12] *Report of the Committee on Interbank Netting Schemes of the Central Banks of the Group of Ten Countries* (Lamfalussy report), November 1990; BIS; www.bis.org/publ.

Region's Job Growth Strong, but Drought Having Significant Effects on Agriculture

- **Job growth in the Dallas Region continued its rapid pace in early 1998, with Texas and Colorado still leading the Region. Oklahoma recently has seen its job growth accelerate; meanwhile, job growth in New Mexico has weakened throughout the year.**

- **As of this writing, the 1998 drought is expected to cause $4.9 billion in economic losses in Texas and $2 billion in Oklahoma. Estimates indicate that 40,000 Texas jobs, from handling and transporting commodities to retail supply and sales, could be affected.**

- **Hardest hit will be cotton and cattle producers in West and South Texas.**

Job Growth: Fairly Robust but Slowing

Nonfarm employment continued to grow faster in the Dallas Region than in the nation in the first half of 1998. Perennial leaders **Texas** and **Colorado** have the most diversified economies in the Region, with strengths in international trade, high technology, construction, and financial services.

Oklahoma continues to track the nation fairly closely. The state is shedding its dependence on energy and agriculture in favor of an economy oriented more toward manufacturing and exports. **New Mexico** has seen its sluggish job growth weaken further, waylaid by cuts in defense spending, reduced exports to Asian markets, and weakening worldwide demand for semiconductor chips (see Table 1).

Analysts expect the Region's four state economies to continue along their expansion paths, although at a slower pace, for the balance of 1998. Although the Region's employment growth rate is expected to slow, job growth is still expected to outpace that of the nation. The key to the continued expansion will be a healthy (but slowing) national economy. Until recently, the U.S. economy received rave reviews for its robust growth, low inflation, declining unemployment rates, strong housing market, and low interest rates. Numbers for the U.S. gross domestic product (GDP) in the first quarter of 1998 confirmed a continued strong economy, growing at 5.5 percent without any hint of inflation.

Second quarter's GDP was soft at 1.4 percent, however, and most economists believe that real U.S. output growth in the second half of 1998 will average somewhat below that recorded in the first half of the year. Fueling growth will be strong gains in consumer spending, residential construction, and business investment in productivity-enhancing equipment. Constraining growth will be a ballooning trade deficit, caused by Asia's economic crisis and a strong U.S. dollar; a rising backlog of inventories built up from previous quarters; and this summer's General Motors strike. All three are likely to be negative factors affecting GDP growth for several quarters.

Following is a brief summary of the economic outlook for the four states of the Dallas Region:

Colorado

Colorado's job growth remains among the strongest in the nation. Analysts expect Colorado to continue to post strong employment growth this year. The state's highly diversified industrial base continues to attract immigrants and corporate relocations. The leading industries include high technology, financial services, and business services.

Table 1

Employment Growth Slows as the Year Progresses
(Year-to-Year Percent Change)

	Jan-98	Feb-98	Mar-98	Apr-98	May-98
United States	2.9	2.8	2.6	2.6	2.6
Colorado	3.9	3.6	3.5	3.0	3.1
New Mexico	2.0	1.7	1.7	1.3	1.2
Oklahoma	2.6	2.5	2.6	2.8	3.2
Texas	3.8	3.9	3.7	3.8	3.6

Sources: U.S. Bureau of Labor Statistics; Haver Analytics

Table 2

1998 Texas Projected Economic Losses from Drought for Selected Commodities ($ Millions)		
Commodity	Producer Losses	Statewide Economic Impact
Cotton	500	1,800
Corn	225	755
Sorghum	140	470
Forage Crops	330	1,100
Horticultural Crops	100	333
Livestock Sales	126	440
Added Livestock Feed Costs	325	—
Projected Total Losses	1,746	4,898

Source: Texas Agricultural Extension Service

ble for 25 percent of total U.S. cotton production. Cotton production losses will vary by crop districts. According to Dr. Carl Anderson, cotton marketing economist for ***Texas A&M University***, losses in the Lubbock area (3.4 million acres) are expressed in terms of nonirrigated and dryland irrigated acreage. Lubbock-area nonirrigated producers are experiencing crop losses of approximately 90 percent. Meanwhile, irrigated producers will experience a 20 percent loss in average yield. Producers in the Rolling Plains region (900,000 acres) are coping with a 50 percent loss, as are Black Lands producers (200,000 acres). Ironically, according to Anderson, producers who will fare best in this situation will be those who lose their entire crop. That is because these producers will not have to expend additional inputs for defoliation and harvesting, but they will receive full crop insurance payments. Table 3 shows Texas crop conditions as of July 12, 1998.

Damage assessments for Oklahoma are not as gloomy as for Texas. According to the ***Oklahoma State Department of Agriculture,*** a loss of between $500 and $600 million to producers could translate into a total economic impact of $2 billion for the state. Loss estimates per commodity are in the beginning phase of analysis. Oklahoma cotton producers could experience a 70 percent decrease in production, translating into a $38 million loss; hay producers are expected to lose $80 million; and corn and grain sorghum producers could lose more than $100 million. Nonirrigated peanut producers will not be able to salvage their 1998 crop, although irrigated

Table 3

Texas Crop Conditions as of July 12, 1998 (Percent)					
Commodity	Excellent	Good	Fair	Poor	Very Poor
Corn	2	20	30	25	23
Cotton	2	21	32	22	23
Peanuts	10	34	37	13	6
Range & Pasture	0	5	26	36	33
Rice	7	56	34	3	0
Sorghum	2	13	36	25	24

Sources: Texas Agricultural Statistics Service; Texas Agricultural Extension Service

peanuts are expected to produce an average crop if enough water remains adequate for irrigation.

New Mexico farmers are expected to suffer minimal damage because of this year's drought for two reasons. First, much of New Mexico agriculture is drip irrigated, and although water tables are low they remain adequate for farm production. Second, New Mexico's growing season is shorter and begins much earlier in the year than in Texas and Oklahoma. If the drought had begun three months earlier, farmers in New Mexico would have experienced severe losses as well.

Meanwhile, cattle producers have been losing upwards of $200 per head for the past 16 months. Cattle ranchers are selling their feed cattle to other ranchers or liquidating them at auction. Low cattle prices and high input costs have forced many to sell off their herds or face losing thousands of dollars. This situation has had the immediate effect of pushing prices down even further. On the demand side, the economic crisis in Asia has reduced U.S. cattle exports.

Cattle ranchers had originally held off selling their herds in hopes that prices would rise later this year. When it became clear that prices were going lower, not higher (and as the lack of water and pastureland became more of a problem), they rushed to liquidate their herds. In the interim, however, fed cattle gained weight, resulting in an even greater supply of beef hitting the market once the selling began. Ironically, ranchers are now left with the prospect of liquidating their underweight cattle. Anecdotally, ranchers are reporting that cows and calves that used to sell for $700 to $1,000 are now going for $450 to $500.

Given the current inventory and weak export market, cattle prices are likely to remain soft through most of 1998. However, a shortage of feed cattle next year will likely drive cattle prices much higher in 1999.

Cattle ranchers face a heavier financial burden than farmers because of the absence of adequate production insurance for livestock. Financial losses combined with the loss of pasturelands will affect them significantly.

If the drought persists through this summer, farmers and ranchers in Texas (the state hit hardest) could face economic losses mirroring those of 1996, which totaled more than $5 billion. Many farmers and ranchers who lost quite a bit of their equity during the drought of 1996 will not be in a position to take on additional debt or take advantage of low-interest government loan programs.

Several factors will determine the extent of losses and the eventual effect on the financial position of farmers and ranchers:

- *Greater drought losses.* The ***National Agricultural Statistics Service*** will be releasing updated production estimates by mid-August. If the drought continues unabated, production and economic losses may be greater than originally estimated, putting even more pressure on producers, suppliers, and lenders.
- *The Asian economic crisis.* Agricultural producers are suffering from the twofold effect of a strong U.S. dollar relative to most Asian currencies. The strong dollar has had the effect of decreasing U.S. agricultural exports while increasing imports. The loss of foreign markets may continue to hurt producers for months after the drought ends.
- *Worldwide overproduction.* Bumper crops of corn and wheat worldwide (as well as large carryover stocks from last year) have contributed to weak commodity prices for these two items and are likely to keep prices depressed for several more months.
- *Downward spiral in cattle prices.* The forced liquidation of cattle is expected to have two effects on prices. First, prices will plummet because of the excess meat brought to market. Second, a large jump in cattle prices will follow several months later, when ranchers begin to restock their operations. Bankers will need to be aware of these potential price swings.
- *Potential farm real estate price depression.* Farm real estate prices are currently stable. However, if commodity prices continue to fall, production is further damaged by the weather, or interest rates rise significantly, then farm land prices may begin to fall.

Not all the news is bad. Several mechanisms are in place that will assist farmers and ranchers with drought-related impacts.

- The recent Presidential Disaster Declaration will allow producers to obtain low-interest loans, and the Disaster Declaration will help farmers collect crop insurance payments.
- Production Flexibility Contract (PFC) payments (pursuant to the Federal Agriculture Improvement and Reform Act of 1996) will provide farmers with badly needed cash flow assistance and help stabilize farm incomes. Moreover, federal legislation was introduced in late July that would allow farmers the option of receiving their contract payments for 1999 immediately after the beginning of the fiscal year, October 1, 1998. Thus, production flexibility contract payments for 1999 could be paid in the fourth quarter of 1998 to help producers cope with the 1998 drought.
- Crop insurance payments. The Palmer Drought Severity Index places most of the Dallas Region in various stages of drought, which will help farmers collect crop insurance payments. Congress also is considering a bill that would provide an additional $500 million in emergency assistance. Unfortunately, the program does not cover everyone. It does not provide for farmers who have had catastrophic or repeated disasters, nor does it offer adequate coverage for livestock producers (see Table 4).

Adrian R. Sanchez, Regional Economist
Stephen L. Kiser, Economic Analyst

Table 4

Texas Crop Insurance Payments

Year	Total Policies	Acres Covered	Amount Paid Out
1993	54,942	7,640,197	$101,549,241
1994	57,494	7,966,890	$103,565,560
1995	121,977	15,071,453	$262,515,932
1996	115,409	16,388,693	$390,855,998
1997	98,047	14,650,979	$141,639,482
1998*	95,000	14,000,000	$511,000,000

* Projected
Note: Policies jumped in 1995 after Congress made crop insurance mandatory but dropped by 1997 after it reverted to a voluntary program.
Source: U.S. Department of Agriculture

Region's Farm Banks Face Second Drought in Three Years

- **The Region's financial institutions continue to report strong earnings and good asset quality.**
- **With the drought of 1998 and depressed commodity prices, banks with significant exposures to agriculture are being tested again.**
- **While farm banks fared well in response to the 1996 drought, many farmers still have not fully recovered.**

Most Banks in the Dallas Region Continue to Show Financial Strength

Coinciding with the robust national economy, financial institutions in the Dallas Region continue to report strong earnings and asset quality. While return on assets (ROA) is slightly higher than in the nation as a whole (see Chart 1), banks and thrifts in the Dallas Region average higher net interest income, lower noninterest income, and higher noninterest expense than the rest of the country. Although the net interest margin has fallen from a high of 4.35 percent during the second quarter of 1997, the ratio remains at a healthy 4.05 percent, or 15 basis points more than the national average. Declining asset yields, probably the result of the flattening yield curve and a continuing high level of competition, contributed 21 basis points to the margin's compression. Despite the decline in interest margins, profitability has been sustained through increases in fee income and security gains. Should interest margins continue to decline, the ability to maintain current profitability levels may be jeopardized.

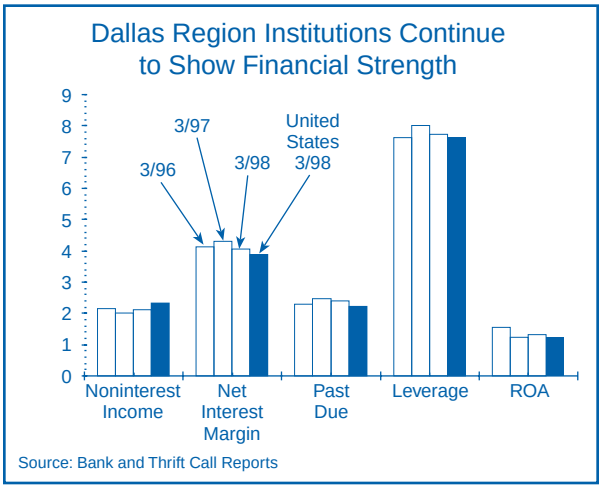
The overall capital position of the Region's institutions remains strong. Although the leverage ratio declined from a high of 8.05 percent as of September 30, 1997, to 7.74 percent currently, it is still 10 basis points higher than the nation as a whole.

Not all financial institutions in the Dallas Region share equally in the current good times. As of March 31, 1998, 75 banks and thrifts reported losses for the quarter. These banks accounted for $8.6 billion in assets. During the same period, 449 insured entities reported an ROA of less than 1 percent (the Region's average was 1.22 percent). Combined assets for these banks equaled $71.6 billion. It is significant that, even during this current period of economic strength, 30 percent of the Region's banks and thrifts reported earnings below the 1 percent benchmark. While this percentage may seem high, it compares favorably with the nation, where 37 percent of all insured institutions reported ROAs below 1 percent during the same period.

1998 Drought Conditions Stress Texas and Oklahoma Again

For the second time in three years, **Texas** and **Oklahoma** have been plagued by severe drought conditions. The onset of this year's drought was swift, and damage estimates continue to be revised upward as the dry weather persists during a critical period for farmers and ranchers. The drought in 1996 hit North and West Texas and western Oklahoma particularly hard, and this year's drought is affecting all of Texas and is reaching into Oklahoma and **New Mexico**. (See the ***Regional Economy*** article in this publication for a discussion of the drought's economic impact on the Region.) Wheat producers, who suffered in 1996, have narrowly escaped the worst of this year's drought; however, cotton, corn,

CHART 1



hay, and livestock producers face severe problems. As the drought continues, farmers are financially stressed by crop losses and early livestock liquidations because of feed shortages and falling prices. There is increasing concern about the effect of this situation on financial institutions that have significant exposure to agriculture.

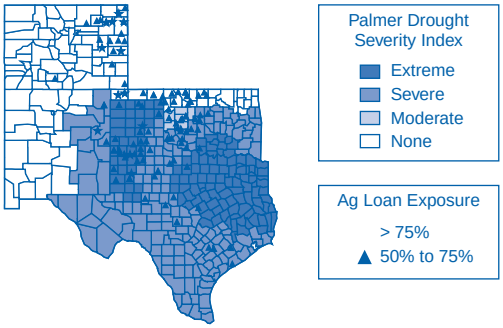
Insured Institutions' Exposure to Agricultural Stress

There are 374 insured financial institutions in the Dallas Region with agriculture loan concentrations of over 25 percent of total loans. For this article, these banks are designated as "farm banks." While the total assets held by these farm banks—at $19.7 billion—account for only 5 percent of the banking assets in the Dallas Region, they represent 25 percent of the Region's banks. In this group, 334 are in nonmetropolitan statistical (or rural) areas. Many of these institutions, which average $53 million in total assets, serve major roles in their communities for providing loans and other banking services. Table 1 shows the exposure of insured institutions to agriculture in the Dallas Region, categorizing farm banks by the extent of their credit exposure to agricultural lending. For many of these rural farm banks, agriculture is the principal economic driver for their trade area; thus, the influence of agricultural events permeates the entire loan portfolio (not just from farm loans) and all aspects of the bank's operation. Texas and Oklahoma have by far the most farm banks in the Region. Texas has 198 farm banks (53 percent of the farm banks in the Region), representing approximately $11 billion in assets. Oklahoma has 121 farm banks with $5.6 billion in assets.

Chart 2 overlays the location of farm banks with high concentrations of farm loans (over 50 percent) on top of a ***Palmer Drought Severity Index*** map. While the drought severity data are subject to revision, the July 25, 1998, publication shows "extreme" and "severe" drought conditions where many of the Region's farm banks are located. As of this writing, 114 of the Region's 374 farm banks are in areas of extreme drought and 138 are in areas of severe drought.

CHART 2

Palmer Drought Severity Index and Banks with Agricultural Loan Concentration over 50 Percent



Sources: National Oceanic and Atmospheric Administration, July 25, 1998; Bank and Thrift Call Reports, March 31, 1998

As the 1998 drought has worsened, severe and extreme drought conditions have crept into some counties with the highest concentrations in agriculture. One such area is the "high cotton" or **Lubbock** area located in West Texas, where this year's cotton crop has been devastated. The Lubbock area normally produces 50 percent of the Texas cotton crop and approximately 25 to 30 percent of the total U.S. cotton crop. This cotton producing area is encompassed in the extreme drought area in Chart 2. There are 39 farm banks in the Lubbock area (see Table 2, next page). These institutions—10 percent of the Dallas Region's farm banks—have approximately $2.8 billion in assets. In addition to farm banks in the Lubbock area, Table 2 shows the number of banks and

TABLE 1

THE REGION'S FARM BANKS ARE LOCATED PRIMARILY IN TEXAS AND OKLAHOMA

Ratio of Farm Loans to Total Loans	Dallas Region		Texas		Oklahoma	
	# of Banks	Assets ($ Millions)	# of Banks	Assets ($ Millions)	# of Banks	Assets ($ Millions)
25 to 50 percent	260	14,777	152	8,878	78	3,705
50 to 75 percent	102	4,565	43	2,022	41	1,806
75 percent or more	12	452	3	87	2	52
Total	374	19,794	198	10,987	121	5,563

Source: Bank and Thrift Call Reports

Table 2

Farm Banks Located in Extreme Drought Areas						
	Lubbock, Texas		Texas		Oklahoma	
Ratio of Farm Loans to Total Loans	# of Banks	Assets ($ Millions)	# of Banks	Assets ($ Millions)	# of Banks	Assets ($ Millions)
25 to 50 percent	20	1,779	71	4,463	11	439
50 to 75 percent	17	903	27	1,353	2	71
75 percent or more	2	73	3	87	0	0
Total	39	2,755	101	5,903	13	510

Sources: Bank and Thrift Call Reports (March 31, 1998); National Oceanic and Atmospheric Administration (July 25, 1998)

their total assets in areas of extreme drought conditions throughout Texas and Oklahoma. In all of Texas and Oklahoma, there are 114 institutions with $6.4 billion in assets located in extreme drought areas.

Farm Bank Performance

The performance and condition of the Region's farm banks are compared with nonfarm banks for three periods: a period just before the onset of the 1996 drought (March 1996), an interim period after the drought (March 1997), and the most recent period for which data are available (March 1998). Table 3 shows financial performance data for Texas and Oklahoma farm banks. These data suggest that the 1996 drought did not have a material effect on farm banks in Texas or Oklahoma, in the aggregate. In fact, farm bank operating profitability improved over the past two years, and they outperformed nonfarm banks in both states. Similarly, capital protection in farm banks is strong and far exceeds that of their nonfarm bank counterparts. Most interestingly, asset quality as measured by net charge-offs and nonperforming assets to total assets also has shown continued improvement since the 1996 drought. This is not to suggest that all farm banks have performed equally well. At the March 31, 1998, reporting period, 13 farm banks had lost money and 94 had an ROA of less than 1 percent.

On the whole, these performance measures speak well for managers of farm banks, particularly when considering the difficult agricultural conditions and the growing competition from large banks and nonbank agricultural lenders.

While farm banks as a group appear to have navigated their way through the 1996 drought without visible difficulties, the cumulative effects of another bad year are likely to present more challenges to farm banks than before. Many borrowers will need their debts extended and will have less collateral protection, and if interest rates rise, the already weakened condition of some farm borrowers will be exacerbated. The severity of the 1998 drought, coupled with a succession of poor production periods for many borrowers, could well result in asset quality deterioration and reduced earnings for many of the Region's farm banks.

Table 3

Texas and Oklahoma Farm Bank Operating Performance						
	Texas			Oklahoma		
	Mar. 96	Mar. 97	Mar. 98	Mar. 96	Mar. 97	Mar. 98
Number of Farm Banks	221	198	198	138	124	121
Total Assets	$11,124	$10,372	$10,987	$5,465	$5,328	$5,564
Return on Assets	1.21	1.25	1.31	1.26	1.37	1.52
Leverage Ratio	10.28	10.60	10.35	11.55	11.63	11.33
Net Charge-Offs/Loans & Leases	0.30	0.15	0.13	0.31	0.27	0.10
Nonperforming Assets/Total Assets	1.02	0.86	0.76	1.13	1.29	0.97
Net Loans/Deposits	45.25	45.37	47.05	54.31	54.96	60.67

Source: Bank and Thrift Call Reports (March 31, 1998)

Several government programs are available to mitigate the pressures on farmers (and their lenders) caused by poor weather and falling commodity prices:

- Crop insurance, typically a requirement to secure production loans;
- Production Flexibility Contract (PFC)[1] payments, which are being paid early in October 1998 (rather than early 1999) in response to poor weather conditions and weak commodity prices; and
- Disaster area status for Texas and several Oklahoma counties, which will make low-interest-rate relief loans available.

Implications for Banks

Although it is still too early to tell what the impact of this year's drought will be, many farm banks may have asset quality deterioration and reduced profitability. Loan relationships with farmers who have not recovered from the drought of 1996 will become even more strained. At a minimum the fallout from this year's and past droughts will mean bankers will have to intensify their use of risk management techniques. For banks with significant exposure to agriculture, management should consider the appropriateness of the allowance for loan and lease losses. In many agricultural areas, the entire loan portfolio (including consumer and commercial loans) may suffer deterioration from declining agricultural revenues. The drought of 1998, low commodity prices, and declining payments under the Federal Agriculture Improvement and Reform Act of 1996 suggest that farm lenders should evaluate their risk management practices in light of their heavy reliance on the agricultural economy and an economic environment that is subject to rapid change.

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[1] PFC payments, also referred to as Agriculture Market Transition Act Contract Payments (AMTAs), were created by the Federal Agriculture Improvement and Reform Act of 1996.

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