

# Economic Review



FEDERAL RESERVE BANK OF KANSAS CITY

September/October 1989

Europe 1992:

Some Monetary Policy Issues

Daylight Overdrafts, Payments  
System Risk, and Public Policy

Financing Rural Businesses:  
What Role for Public Policy?

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## **Europe 1992:**

### **Some Monetary Policy Issues**

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By Robin Leigh-Pemberton

The European Community is determined to weld itself into a single market, without internal barriers. To make Europe 1992 successful, it is essential that monetary arrangements in Europe be compatible with increased co-operation among central banks.

### **Daylight Overdrafts, Payments**

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By David VanHoose and Gordon H. Sellon, Jr.

The growing volume of daylight overdrafts arising from electronic payments has subjected the financial system to new types of risk. The Federal Reserve's proposed approach to the problem, if successful, would reduce such risks without impairing the efficiency of the payments system.

## **Financing Rural Businesses:**

### **What Role for Public Policy?**

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By Charles Morris and Mark Drabentstott

Lending by commercial banks in rural areas has slowed dramatically in the 1980s. But empirical evidence suggests lending has slowed mainly because of weak business conditions, not because lenders are less willing to lend. Thus, public policy should focus on low-cost programs that close some gaps in rural financial markets instead of government credit programs for rural businesses.



# Europe 1992: Some Monetary Policy Issues

By Robin Leigh-Pemberton

Some dates do rather more than identify a point in time. They come to stand for a combination of historic developments that would otherwise defy simple description. 1992 is just such a date: It symbolises the determination of the European Community to weld itself into a single market, without internal barriers.

I want to say a few words today about what this means for central bankers, but I shall also range more widely as the 1992 project has been accompanied by an important debate on the possibility of economic and monetary union in Europe. This debate has already been fairly emotive, partly because it is coloured by dif-

ferent views on the desirability of ultimate political union and partly because it raises issues concerning economic sovereignty, not least of which is whether we would have to give up our individual currencies and monetary policies. I shall try to avoid the more emotive aspects this afternoon—rather, I want to use the opportunity of being here in Jackson Hole to consider what lessons the United States can offer Europe in the field of monetary arrangements.

## Monetary policy in a European marketplace

Let me begin with some observations about the broad economic and financial background to the 1992 project, as it is essential that the institutions and instruments of monetary policy be designed to work with the grain of market realities and not against it.

As I am sure you are all aware, far-reaching changes are underway in the legal and regulatory framework of financial markets in Europe. By the end of 1992, financial institu-

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Robin Leigh-Pemberton is Governor of the Bank of England. The article is based on the luncheon address at the symposium on "Monetary Policy Issues in the 1990s," sponsored by the Federal Reserve Bank of Kansas City at Jackson Hole, Wyoming, August 30 - September 1, 1989. The views expressed in this article are those of the author and do not necessarily reflect the views of the Federal Reserve Bank of Kansas City.

tions incorporated in one member state will be able to conduct business throughout the Community. Capital movements, already largely free, will by then be entirely so. And the way should be open for free competition among financial institutions from both inside and outside the Community. Despite some initial fears, it is, I hope, now clear that in the field of financial services, we will have almost the opposite of what has been caricatured as “Fortress Europe”: We will have “Market Place Europe.” The scale of the changes will be so great that in an American context it would almost be as if nationwide inter-state banking and the repeal of the Glass-Steagall Act were to be effected at the same time.

Meanwhile, goods markets will become even more integrated, and the remaining professional and administrative barriers to labour mobility will be eliminated. Goods, capital, and labour will be able to move as freely between the member states of the European Community as they can around the United States, although it will of course take time before that freedom is fully exploited.

Finally, there will be a significant development in the monetary field as within a few years the currencies of all member countries will participate in the Exchange Rate Mechanism of the European Monetary System.

As a result of all these developments, Europe will increasingly have to be seen as a single economic and financial area. This will have important implications for the autonomy with which individual European countries can conduct monetary policy and also, taken together with the globalisation of markets and the integration of the world economy, for Europe’s financial relations with the United States and Japan.

## Goals of monetary policy

It is perhaps therefore more important than ever that we should be clear about our monetary policy objectives. The first and overriding goal must, of course, be the establishment and maintenance of price stability. This is one of the greatest services that finance can render industry—or at any rate *instability* is certainly the greatest *disservice*. History also suggests that the credibility of the authorities’ commitment to price stability is a valuable resource that is easier to squander than to re-acquire.

A second objective is exchange rate stability, which I put second because to my mind it has to be seen as following from a collective achievement of the first objective, and not as a goal that is independently attainable. Our immediate aim is to achieve and sustain exchange rate stability within Europe. On a global scale, international co-operation in the management of exchange rates between the three major economic groupings—Europe, North America, and Japan—has made significant advances in recent years, though we are still a long way short of anything that could be described as exchange rate stability. In pursuing this objective, the monetary policies of the three blocs must be consistent and, more particularly, aimed at internal price stability.

A third objective is to ensure the stability of financial systems. It has been recognised since at least the nineteenth century that the macro-economic goals of price and exchange rate stability can be undermined if the financial system is unstable. For this reason, all central banks have developed ways of channelling liquidity to the banking system in periods of pressure and the arrangements for the prudential supervision of individual firms have been

progressively strengthened.

I imagine most of us could agree, at least in broad terms, on these goals. The more difficult question is how we can achieve them in the changing economic and institutional circumstances of the 1990s.

## **The road to monetary union**

We have all learned that economic interdependence limits the extent to which a single country, particularly a small or medium-sized country, can pursue an independent monetary policy. In Europe, this has led to increased co-ordination of monetary policy decisions and recently to calls for moves to eventual economic and monetary union, which some see as an inevitable and logical conclusion of current trends. There is far less consensus, however, on the form such a union should take or on how rapidly it would be reasonable to pursue it. As you will probably know, the Delors Committee saw monetary union as ultimately comprising a single Europe-wide currency with a single monetary policy-making authority, which it called the European System of Central Banks. In addition, it envisaged that the arrangements for monetary policy would be supported by mechanisms for co-ordination in the fields of fiscal and regional policy.

The institutional structure would have some similarities with your own in the United States, in that the overall policy stance would be determined collectively—as it is by the Federal Reserve Board and the Federal Open Market Committee—while policy implementation (and, more particularly, market intervention) would remain in the hands of the national central banks. Consideration would, however, have to be given to how any new institutional structure

would be made politically accountable—a question not addressed specifically in the Delors report.

Wisely, in my opinion, the Committee refrained from expressing views on the timetable within which monetary union should be approached and the new institutions should be established. Nor, significantly, did it make any claim that the model it described was *the only possible* model.

## **Limitations of the U.S. model**

It is at this point that a comparison with the United States can be instructive. It is sometimes suggested that when internal barriers to goods and factor mobility have been removed, Europe will be “just like the United States” and could then benefit from monetary arrangements on the Federal Reserve model. Put in other terms, the advocates of rapid progress towards monetary union suggest that, once the 1992 programme is fully implemented, Europe will be an “optimum currency area” needing a single currency and monetary authority. This neglects some important practical differences between Europe and the United States, however. In at least four respects, Europe is much further away than the United States from being an optimum currency area.

In the first place, the degree of integration in goods markets is significantly lower in Europe. Despite the tremendous growth in trade of recent years, the four largest European countries export only about ten percent of their GNP to partner countries in Europe. This is significant, but still probably falls somewhat short of the comparable figure for regions of the United States.

Secondly, labour mobility is—and is likely

to remain—much lower than in the United States. The European Community is probably even more culturally diverse than the United States, and while in my view this has many benefits, it does obviously limit labour mobility. In consequence, labour is less ready to move from place to place in response to developments requiring economic adjustments, and other adjustment mechanisms have to bear more of the burden.

A third difference lies in the lack of fiscal instruments to cushion the costs of adjustment to economic disturbances. In the United States, income tax and national social security provisions act to some extent as an automatic mechanism for transferring resources from richer to poorer regions, and from those with high to those with low employment. No such automatic fiscal mechanisms exist at the Community level in Europe.

The fourth difference lies in the disparate relative sizes of the central and regional governments in the United States as against Europe. In the United States, Federal government spending represents some 25 percent of GDP and is 20 times as great as California's state expenditure. In Europe, by contrast, the Community's budget represents only just over 1 percent of Community GDP and is only one tenth of the expenditure of West Germany.

What do these differences mean for the process of economic and monetary union in Europe? In the first place, they suggest to me a need for gradualism and pragmatism. Consider the role of goods and factor mobility. This is essential to the success of a common monetary area, since it provides the means by which disturbances in demand or prices in individual regions are spread throughout the union. In other words, it is a safety valve against the

intensification of localised inflationary or deflationary pressures. Europe, as I said, is gradually becoming more integrated and the degree of goods and factor mobility is increasing, but there are serious economic—and political—risks in allowing the process of monetary union to run ahead of integration in the underlying markets for goods, labour, and capital.

For the same reasons, the business cycles in the European economies cannot be expected always to be precisely in phase, so that the monetary policy needed in one part of Europe will for the foreseeable future not necessarily be the same as that needed elsewhere. (This is of course true in the United States also, and, indeed, was one reason for the choice of a federal structure for the central bank—but the original goal of regional autonomy in monetary policy has proved unattainable in a union with a single currency.)

## **Coping with regional differences**

If Europe is not yet an optimum currency area, we need to consider how Community monetary arrangements might take account of prospective regional differences in economic conditions. I think three broad options can be identified. The first would be to allow interest rates to continue to diverge to some extent as cyclical conditions vary. Some such flexibility is in fact provided by the existence of fluctuation bands around central exchange rates within the present Exchange Rate Mechanism and the possibility of realignments.

A second way of coping with different national or regional policy requirements would be through an intensification of policy co-ordination. Our collective objective must be to pursue policies which are consistent with

Community-wide price stability, taking full account of the interdependence of individual national economies.

A third option would be to make use of other policy instruments. I am afraid the Delors report has been much misunderstood on this matter. Two of the mechanisms it suggested—fiscal policy co-ordination and regional transfers—have been widely criticised. Another mechanism—that of competition policy—has been given much less attention than I believe it deserves. Allow me to elaborate briefly on these points.

In the Delors Committee, we saw fiscal policy as having importance for monetary management for several reasons. First, the fiscal stance of individual member states has implications for capital market pressures, and therefore interest rates, throughout the Community. Second, an inappropriate fiscal-monetary policy mix can make it harder for countries to reconcile the objectives of internal and external stability. Third, excessive fiscal deficits can lead to unsustainable borrowing and a loss of creditworthiness by the borrowing country. I believe these are important and legitimate concerns, particularly given that the individual member states, and not the central Community bodies, carry the main fiscal responsibility. However, neither I—nor, I think, my colleagues on the Committee—saw a need for specific and detailed budgetary rules. We were simply expressing a rather straightforward proposition—namely, that the mix of monetary and fiscal policy is as important in a monetary union as in an individual country and that limits, which might be quite wide, should be put on the size of individual deficits.

Let me turn now to regional policy. I am not a believer in government intervention as a

means of overcoming regional disparities in incomes or employment, for the simple reason that I do not think it can deliver durable results. But I am enough of a realist to recognise that greater economic integration will not necessarily benefit all regions equally. Within a country like the United States, the effects of regional differences in economic welfare can be partly offset by the kind of transfers that arise from the national income tax and welfare system, and ultimately through inward or outward migration. Such offsets are, as I noted earlier, less readily available in Europe and it seems to me legitimate to ask what mechanisms should exist in their place. Indeed, I believe it is incumbent on those who would like to accelerate the pace of monetary union to explain how regional disparities could be solved satisfactorily in economic terms and acceptably in political terms.

The third element stressed in the Delors report—and the one which has received too little attention—was competition policy. Europe still has its fair share of rigidities and I therefore believe reforms that strengthen the role and efficiency of markets can be seen as not only desirable in their own right, but part and parcel of a move towards greater economic integration. If rigidities in the functioning of markets can be reduced or removed, natural adjustment mechanisms will be more effective and exchange rate adjustment will become less important.

## Summary

My remarks this afternoon have ranged quite widely over some of the issues that will be presented by the 1990s. As central banks, we have long recognised that our freedom to

conduct an independent monetary policy is constrained by the economic and financial links that bind our countries together. These constraints have typically been greater for small countries than for large ones, although in Europe we now realise that even countries that are large in a European context may have limited freedom to formulate policies independently.

Growing economic and financial integration in Europe in part reflects similar trends taking place on a global scale. The monetary

arrangements devised for Europe should therefore be compatible with increasing co-operation between the major regions of the industrial and, indeed, the developing world. It will be of key importance for the world economy in the 1990s that the three major economic blocs co-ordinate their efforts towards price stability, an effectively functioning international payments system, and an open trading regime. I believe that the 1992 process will make Europe a stronger partner in all these endeavours.

# Daylight Overdrafts, Payments System Risk, and Public Policy

By David D. VanHoose and Gordon H. Sellon, Jr.

**T**he payments system in the United States has been markedly transformed in recent years by advances in computer and telecommunications technology. For many corporations, financial institutions, government agencies, and individuals, electronic payments have supplanted the more traditional use of checks for large-value transactions.

The increased use of electronic payments has clearly improved the efficiency of financial markets by lowering the cost and increasing the speed of financial transactions. At the same time, however, the growth of electronic payments has subjected the financial system to new types of risks. The Federal Reserve has been especially concerned about the risk

inherent in "daylight overdrafts" on electronic funds transfer systems. Daylight overdrafts are intraday loans by the Federal Reserve to other financial institutions or by one financial institution to another. Because daylight overdrafts are unsecured, they expose the Federal Reserve and other financial institutions to potentially serious financial loss that could threaten the stability of the payments system.

For several years the Federal Reserve has been assessing the risks of daylight overdrafts and has instituted policies to contain these risks. In March 1986, the Federal Reserve implemented a policy to slow the growth of overdrafts. And, in May 1989, the Federal Reserve Board proposed for public comment a new and more comprehensive approach to the overdraft problem. If successful, the Federal Reserve's new proposal will reduce risks caused by daylight overdrafts without impairing the efficiency of the payments system.

This article examines the nature of the

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daylight overdraft problem and discusses how Federal Reserve policies are designed to control overdrafts and reduce payments system risk. The first section of the article documents the growth of electronic payments and daylight overdrafts. The second section discusses the types of risk created by daylight overdrafts, how these risks might be controlled, and the policy tradeoffs between risk reduction and other payments system goals. The final section describes both current Federal Reserve overdraft policy and the Federal Reserve's new proposal to curb overdrafts and reduce payments system risk.

## **I. ELECTRONIC PAYMENTS: THE SOURCE OF DAYLIGHT OVERDRAFTS**

Advances in electronic funds transfer technology have allowed corporations, financial institutions, government agencies, and investors to use electronic payments systems to complete financial transactions quickly and inexpensively. Accompanying the growth in electronic funds transfer, however, has been a significant increase in daylight overdrafts. Overdrafts on the two principal electronic funds transfer systems, Fedwire and CHIPS (the Clearing House Interbank Payment System), have become the main focus of Federal Reserve payments system policy.

### **The role of electronic payments**

The payments system in the United States is currently a mixture of electronic and nonelectronic funds transfer systems. Traditional payments means, such as cash and checks, still account for the vast majority of smaller trans-

actions. In contrast, electronic funds systems, such as the Fedwire and CHIPS systems, are the primary means of making large-dollar payments.

Traditional payment mechanisms account for most of the *volume* of transactions (Table 1). Purchases of goods and services using cash and checks account for well over 90 percent of the volume of transactions. In contrast, wire transfers and other electronic payments systems account for only one-third of 1 percent of the total volume of payments transactions.

Electronic funds transfers, however, account for most of the *value* of transactions in the U.S. payments system (Table 2). Wire transfers, such as those involved in large wholesale financial transactions, account for over 80 percent of the dollar value of transactions. In contrast, all nonelectronic means combined provide only 17 percent of the value of transactions.

### **Fedwire and CHIPS**

The principal wire transfer systems used for electronic payments are Fedwire and CHIPS. Fedwire, an electronic payments system managed by the Federal Reserve, is open to all depository institutions that maintain accounts with the Federal Reserve. CHIPS is a privately owned and operated electronic network linking 141 U.S. depository institutions and U.S. branches of foreign-based institutions. Both systems allow their users to exchange large-dollar payments quickly and with a minimum of paperwork.

The two funds transfer networks process a large amount of electronic payments on a daily basis. For example, in the first six months of 1989 the value of daily electronic payments

**TABLE 1**  
**Volume of electronic and nonelectronic payments, 1987**

Type of instrument	Number of transactions (\$ millions)	Percent of total transactions	Type of instrument	Number of transactions (\$ millions)	Percent of total payments
Cash	278,600	83.42	Wire transfers	84	0.03
Checks	47,000	14.07	Other	1,020	0.30
Other	7,276	2.17			
<b>Total nonelectronic</b>	<b>332,876</b>	<b>99.66</b>	<b>Total electronic</b>	<b>1,104</b>	<b>0.33</b>

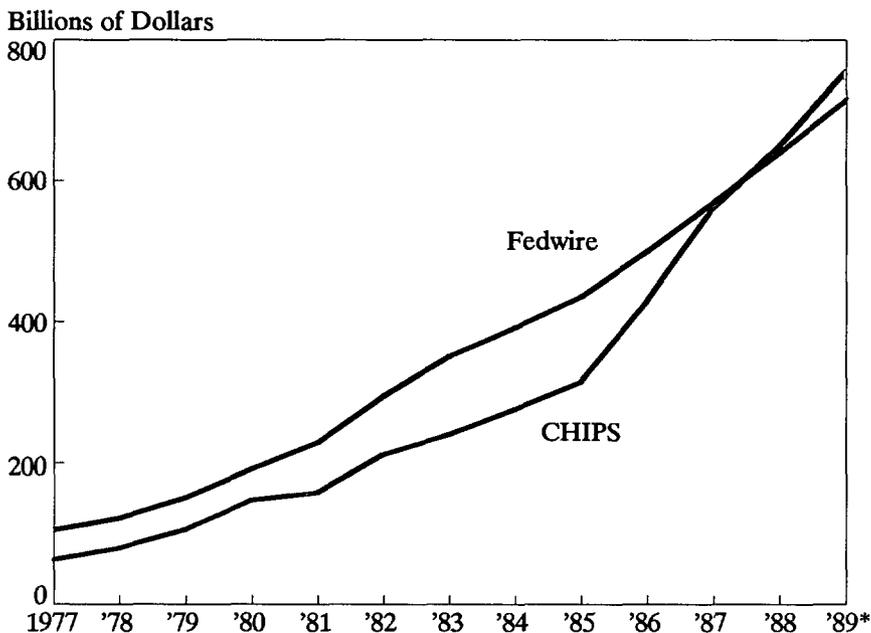
Source: Berger and Humphrey 1989.

**TABLE 2**  
**Value of electronic and nonelectronic payments, 1987**

Type of instrument	Total dollar value (\$ billions)	Percent of total payments	Type of instrument	Total dollar value (\$ billions)	Percent of total payments
Cash	1,400	0.41	Wire transfers	281,000	82.11
Checks	55,800	6.30	Other	3,601	1.05
Other	434	0.12			
<b>Total nonelectronic</b>	<b>57,634</b>	<b>16.83</b>	<b>Total electronic</b>	<b>284,601</b>	<b>83.16</b>

Source: Berger and Humphrey 1989.

**CHART 1**  
**Average daily transactions on CHIPS and Fedwire**



\*1989 data through June.

Source: Board of Governors of the Federal Reserve System.

averaged \$754 billion on CHIPS and \$715 billion on Fedwire. In addition, the size of transactions on the two networks is very large. The average size of a CHIPS transaction is currently about \$5.2 million, while Fedwire payments average about \$3.0 million.

Both payments networks have grown rapidly over the past 12 years. From 1977 to June 1989, CHIPS transactions have increased more than tenfold, from \$65 billion in 1977 to \$754 billion in the first half of 1989 (Chart 1). Over the same period, Fedwire transactions have grown from \$106 billion to \$715 billion.

The two wire-transfer systems tend to

specialize in different types of transactions. On Fedwire the main types of transactions are transfers of federal funds between depository institutions and purchases and sales of government securities. The federal funds transactions arise from intrabank purchases and sales of federal funds as well as third-party payments by corporations and nonbank financial institutions. On the CHIPS network most wire transfers involve foreign exchange trading and Eurodollar transactions.

Federal funds transactions on Fedwire involve the exchange of balances held by depository institutions at Federal Reserve

banks. When a depository institution makes a payment over Fedwire, it requests the Federal Reserve bank to transfer funds from its own account to that of another institution. Upon receiving the wire, the Federal Reserve bank will immediately debit the account of the sending bank and credit the account of the receiving bank. In this way, Fedwire allows institutions to complete financial transactions over great distances in a matter of minutes.

Fedwire is also used to complete book-entry security transactions. Financial institutions and investors establish book-entry security accounts at Federal Reserve banks to facilitate purchases and sales of government securities. When one institution buys a security from another, the Federal Reserve bank deducts the securities from the seller's book-entry account and credits the seller's reserve account. The Federal Reserve bank then credits the book-entry account of the purchaser of the securities and debits the purchaser's reserve account.

Electronic funds transfers on CHIPS occur in a similar manner. For example, an institution belonging to the CHIPS network wishing to complete a Eurodollar or foreign exchange transaction will request that CHIPS remove funds from its account with the network and transfer those funds to the recipient. Like Fedwire, institutions using CHIPS can transfer funds more quickly and inexpensively than by nonelectronic payments methods.

## **The origin of daylight overdrafts**

While electronic payments systems bring important benefits, they have also raised some important policy issues. One issue of concern to the Federal Reserve is the creation of daylight overdrafts. Daylight overdrafts are overdrawals

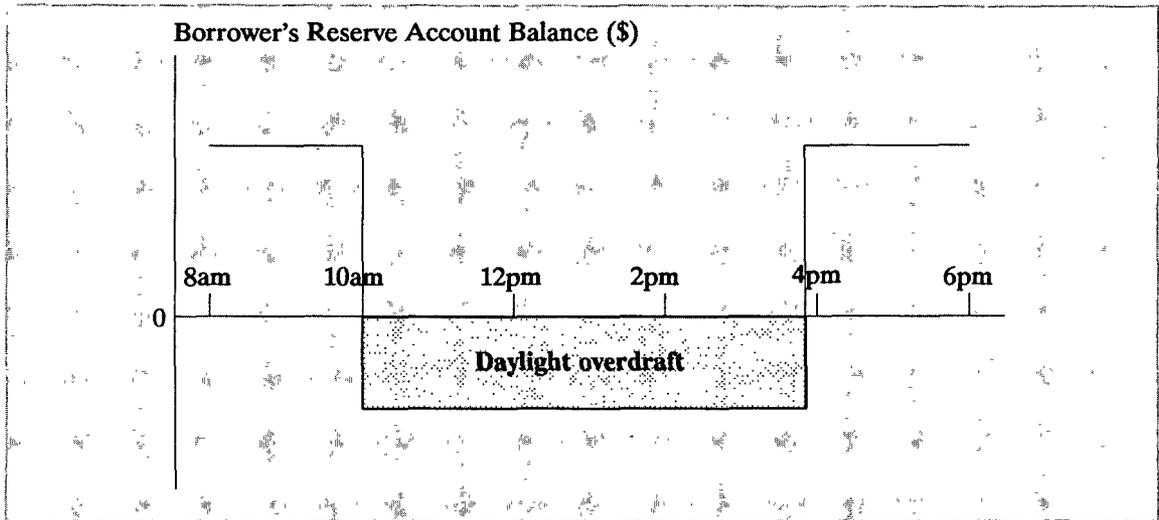
of Federal Reserve or CHIPS accounts that occur prior to final settlement at the end of the day. These overdrafts can be viewed as unsecured loans, either by the Federal Reserve or by CHIPS participants, to other network participants for intervals during the day.

All depository institutions are required to have a positive balance in their reserve account at the Federal Reserve at the close of the business day. During the course of the day, however, the account balance may be negative. This deficiency is called a daylight overdraft. On CHIPS, participants who send and receive payment messages are recorded as being in a net debit or credit position relative to other participants. These net debit positions on CHIPS can be viewed as equivalent to Fedwire overdrafts.

Daylight overdrafts result from both intentional and unintentional mismatching of payments and receipts on the two wire systems. An unintentional daylight overdraft might occur, for example, when an institution, expecting an incoming wire transfer, pays funds out of its account at the Federal Reserve or CHIPS. If the expected inflow of funds is delayed for some reason, the institution may find that it has temporarily overdrawn its account, creating a daylight overdraft.

Unintentional overdrafts may result from poor planning, inadequate communication, or computer problems. Unintentional overdrafts occur fairly regularly on book-entry security transfers on Fedwire because the seller, rather than the purchaser of the securities, generally controls the timing of the funds transfer. For example, while a securities transaction might be agreed upon early in the morning with delivery to be completed by the close of business, the seller typically has considerable

**FIGURE 1**  
**Creation of a daylight overdraft**



latitude to decide when during the day to complete the transaction. As a result, the buyer may be surprised at the timing of the transfer of funds from its reserve account and so may experience an unintentional overdraft.

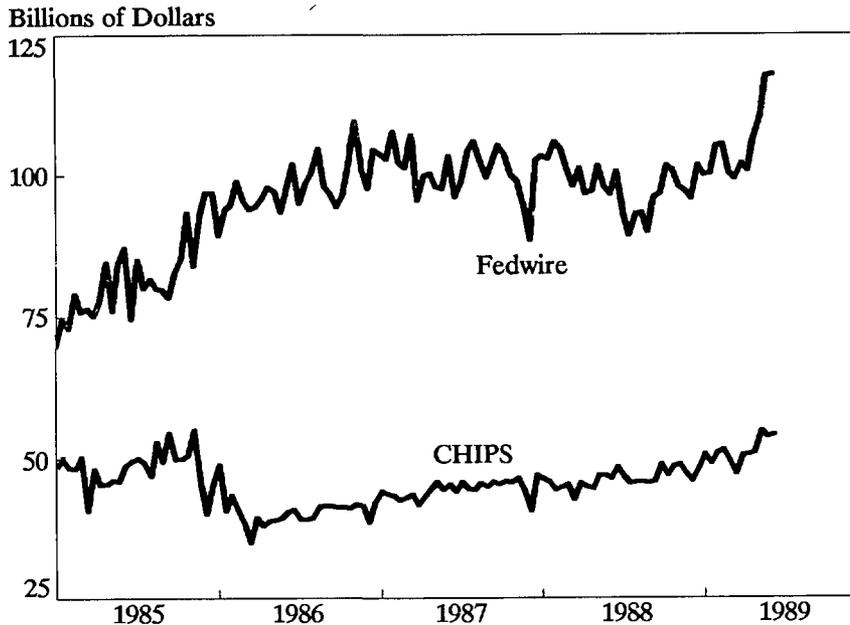
Daylight overdrafts can also be intentional. For example, many depository institutions borrow federal funds from other institutions in order to maintain a positive end-of-day balance in their reserve account. During the day, however, depository institutions may deliberately incur a negative balance in their reserve account. Figure 1 shows how an intentional overdraft may arise. At the beginning of the business day, an institution has a positive balance in its reserve account because it borrowed federal funds the previous evening. At 10:00 a.m., this institution returns the borrowed funds. Between 10:00 a.m. and 4:00 p.m. the institution may negotiate a new overnight loan that begins at 4:00 p.m. Although this institution has a positive balance in its reserve account

at the beginning and close of the day, during the day its balance at the Federal Reserve bank is negative. That is, the institution has intentionally created a daylight overdraft of its Federal Reserve account.

Overdrafts of CHIPS accounts occur along somewhat similar lines, although the types of transfers that produce CHIPS overdrafts relate to foreign exchange and Eurodollar transactions. As on Fedwire, CHIPS overdrafts can be intentional or unintentional in nature.

Whether intentional or not, daylight overdrafts occur in large part because they are costless to the institutions creating them. That is, unlike other types of short-term credit extensions, such as Federal Reserve discount window borrowing or other overnight loans, no interest is charged on daylight overdrafts on Fedwire or CHIPS. Because daylight overdrafts are free, institutions using the payments system have little incentive to control their growth.

**CHART 2**  
**Fedwire and CHIPS overdrafts**



Note: For individual institutions, overdrafts are measured as biweekly averages of their daily peak overdrafts. Aggregate overdrafts are the sum of these individual biweekly averages.

Source: Board of Governors of the Federal Reserve System.

### Dimensions of daylight overdrafts

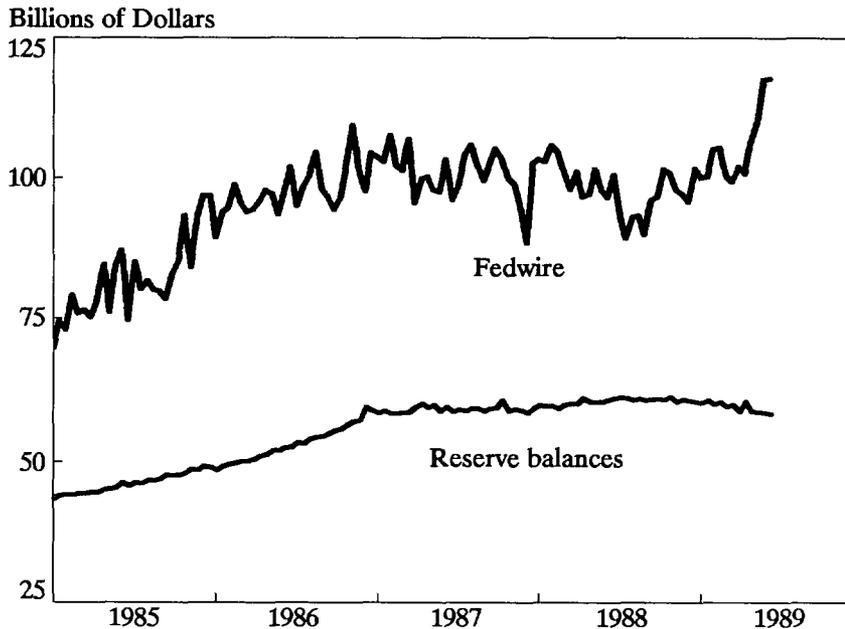
While the value of CHIPS transactions currently exceeds Fedwire transactions, the value of daylight overdrafts is much greater on Fedwire (Chart 2). In June 1989, for example, total Fedwire overdrafts reached a daily average peak of \$118 billion, compared with a CHIPS peak overdraft total of \$53 billion. The higher level of Fedwire overdrafts reflects the rapid growth of Fedwire overdrafts in the past five years (Chart 2). While Fedwire overdrafts increased \$48 billion over this period, CHIPS

overdrafts increased only \$5 billion.

The high level of Fedwire overdrafts is due both to large funds overdrafts and to sizable book-entry overdrafts. In June 1989, daily peak Fedwire funds overdrafts averaged \$76 billion, while book-entry overdrafts averaged \$69 billion.

Daylight overdrafts are extremely large relative to reserve balances. As shown in Chart 3, peak Fedwire overdrafts consistently exceed end-of-day reserve balances. Indeed, in June 1989, peak Fedwire overdrafts were approximately twice as large as reserve balances.

**CHART 3**  
**Fedwire overdrafts compared with reserve balances**



Note: Overdrafts are defined in Chart 2. Reserve balances are average end-of-day balances measured over a two-week reserve maintenance period.

Source: Board of Governors of the Federal Reserve System.

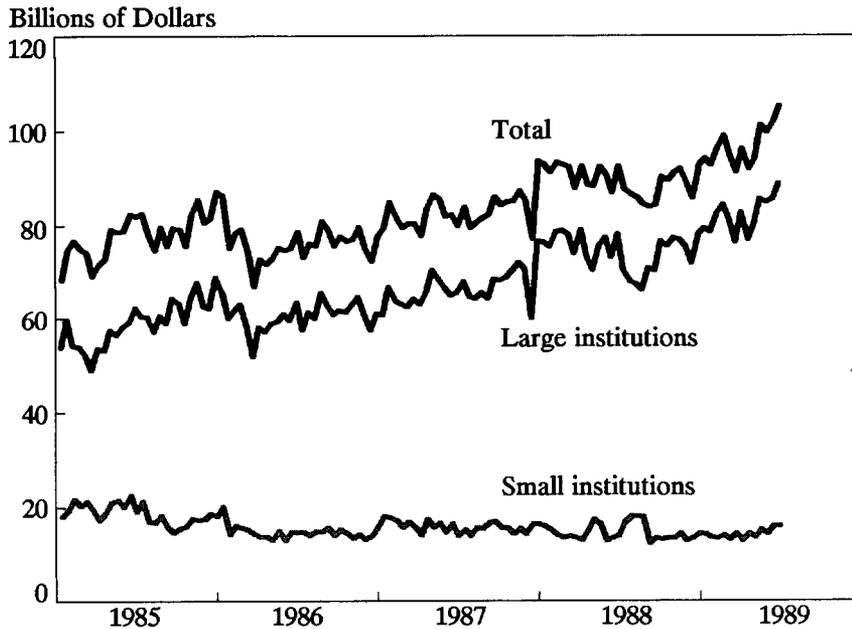
Daylight overdrafts are also widespread. On a given day, as many as 1,100 depository institutions may experience an overdraft on Fedwire or CHIPS. And, over the course of a three-month period, as many as 5,000 institutions may incur an overdraft.

While many institutions experience overdrafts, most overdrafts are concentrated in large institutions. Chart 4 shows cross-system CHIPS and Fedwire funds overdrafts broken down by size of institution. Large institutions, which comprise U.S. banks with over \$10 billion in assets and U.S. agencies and branches of

foreign banks, account for 84 percent of cross-system overdrafts.

Book-entry overdrafts are even more highly concentrated in a small number of large institutions. Four large banks dominate book-entry securities transfers. These four institutions clear most of the transactions in the government securities markets and account for two-thirds of all book-entry overdrafts (Chart 5). Moreover, the ten largest book-entry overdrafters account for 80 percent of the overdrafts.

## CHART 4 Funds overdrafts by size of institution



Note: Overdrafts are cross-system overdrafts on Fedwire and CHIPS. Cross-system funds overdrafts are the combined overdrafts on the two wire systems at a given time of day. This measure differs from the measure of peak overdrafts used in Charts 2 and 3. For more details see Belton (1987). Large institutions include U.S. banks with more than \$10 billion in assets and U.S. agencies and branches of foreign banks. Small institutions include banks under \$10 billion in assets and nonbank financial institutions.

Source: Board of Governors of the Federal Reserve System.

## II. DAYLIGHT OVERDRAFTS AND PAYMENTS SYSTEM RISK

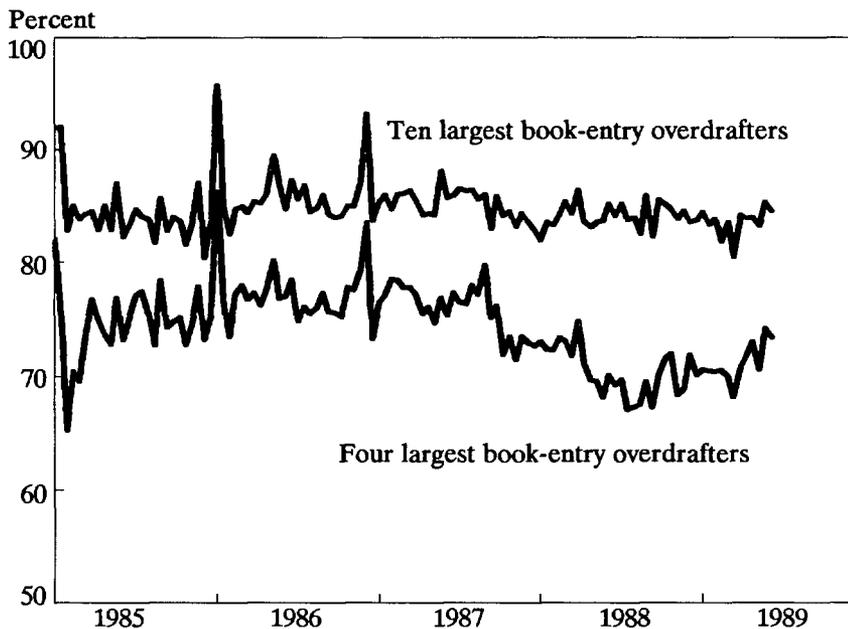
The growth in daylight overdrafts on Fedwire and CHIPS has exposed the Federal Reserve and network participants to significant amounts of credit risk. While policies can be implemented to control overdrafts and their risks to the payments system, risk reduction must be balanced against other objectives of

payments system policy.

### Risks caused by daylight overdrafts

Daylight overdrafts are a public policy issue because the risk of default on these intraday loans exposes both the Federal Reserve and CHIPS participants to potentially serious financial loss. This risk exposure arises because daylight overdrafts, unlike most loans, are

**CHART 5**  
**Concentration of book-entry overdrafts**



Source: Board of Governors of the Federal Reserve System.

unsecured. The lender of intraday funds has no security or collateral in the event of a default by an overdrafter. In addition, daylight overdrafts tend to be much larger than traditional loans.

Daylight overdrafts result in different types of risk exposure on Fedwire and CHIPS. These different risks stem from the way in which payment settlement occurs on the two systems.<sup>1</sup>

An important characteristic of the operation of Fedwire is settlement finality. All transfers of funds over Fedwire are final. That

is, institutions that receive funds on this system during the day are legally entitled to these funds, no matter what time of day they are received and irrespective of the ability of the sending institution to cover its payments later in the day. In the event of failure by a sending institution, the Federal Reserve guarantees the payment. Thus, on Fedwire, settlement finality means that the Federal Reserve, rather than network users, bears the risk caused by daylight overdrafts.

In contrast to Fedwire, CHIPS currently lacks settlement finality. On CHIPS, settlement of net debit and credit positions occurs at the end of the day. At that time, institutions with

<sup>1</sup> For a more detailed discussion of payments system risk, see Gilbert 1989.

a net debit position relative to other institutions make payment to those institutions. Unlike Fedwire, however, there is no guarantee that this payment will be made. Thus, CHIPS participants are directly exposed to the credit risks caused by daylight overdrafts.

While it does not have direct credit exposure on CHIPS, the Federal Reserve is concerned about the problem of systemic risk. Systemic risk refers to the possibility that default by one institution on a private wire system could lead to additional defaults by other institutions, threatening the stability of the entire payments system. For example, on CHIPS, systemic risk could arise because the failure of a sender of funds to settle with a receiver of funds could cause the receiver to default on its obligations to other institutions. If so, a chain reaction of defaults could arise from a single default. The Federal Reserve in its role as lender of last resort could contain this problem, but a number of institutions could suffer large losses, and the efficiency of the large-dollar payments system could be damaged.<sup>2</sup>

## Reducing payments system risks

The Federal Reserve has examined two policy options to contain the risks caused by daylight overdrafts. One option is to reduce overdrafts by placing quantitative limits, or "caps," on the levels of daylight overdrafts. A second approach is to price overdrafts, that is, to charge interest on overdrafts. Both options could reduce overdrafts and their associated risks by causing behavioral and institutional changes in payments system practices.

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<sup>2</sup> For a discussion, see Humphrey 1986 and Evanoff 1988.

*Overdraft caps.* Caps on daylight overdrafts would place an upper limit on the amount of intraday credit available to individual institutions either on an individual wire-transfer system or across systems. Institutions exceeding their overdraft caps would be penalized by limiting their ability to conduct additional transactions on the wire systems.

If overdraft caps were binding, institutions would be expected to undertake changes in their payments system practices to reduce their overdrafts. One response to caps might be to adopt a system of "netting" transactions. Currently, if two institutions owe each other money they make two separate payments on Fedwire or CHIPS. If these institutions netted these transactions and transferred only the difference between the two obligations, overdrafts would be reduced.

A second response to caps might be to use more federal funds "rollovers" and continuing contracts. Under these arrangements, overnight federal funds loans between the same borrower and lender would be automatically renewed each morning, reducing the daily repayment of funds that currently causes large daylight overdrafts. Other institutional changes, such as improved computer software for monitoring and matching credit and debit transfers, as well as better communications facilities linking senders and receivers of funds, might also be induced by caps.

Caps offer two advantages. First, caps can be imposed differentially across institutions or across types of overdrafts. For instance, depository institutions that are regarded by the Federal Reserve as greater credit risks on the Fedwire system could, in principle, be subjected to more stringent quantity restrictions than other institutions. Likewise, if Fedwire

funds overdrafts were regarded either as a greater problem or as a more controllable problem than book-entry overdrafts, lower caps could be imposed on federal funds overdrafts. Second, a policy of overdraft caps places an upper limit on the exposure of the payments system to combined private, systemic, and Federal Reserve risks arising from daylight overdrafts.

Two criticisms have been leveled at the use of caps to control daylight overdrafts. The first stems from the practical problem of where to set the caps. If caps are set too high, they may not be binding and may not lead to a sufficient reduction in overdrafts. If caps are too low, institutions may be forced to make changes in payments system practices that are not cost effective.

Caps have also been criticized for their inflexibility. If caps are binding, institutions must reduce the quantity of their overdrafts regardless of whether the costs of overdraft reduction exceed the benefits of risk reduction. Rather than directly reducing overdrafts through caps, it may be more efficient to alter the incentive structure of the payments system that gives rise to overdrafts. By changing the incentives to create overdrafts, payments system participants might voluntarily restrict the magnitudes of their overdrafts along lines that are most cost effective for the individual institutions.

*Pricing daylight overdrafts.* An alternative to caps is the explicit pricing of daylight overdrafts. Under this strategy, the Federal Reserve would charge interest on Fedwire overdrafts. Depository institutions would choose either to pay this price for the same quantity of overdrafts or to reduce the amounts of overdrafts via changes in payments system practices so as

to avoid the interest charges on the overdrafts.<sup>3</sup>

Pricing goes to the heart of the overdraft problem. Currently, institutions have limited incentives to control overdrafts because overdrafts are free. Pricing overdrafts forces institutions to balance the cost of overdraft reduction against the cost of incurring overdrafts. Thus, some institutions would reduce or eliminate overdrafts because they would find it cheaper to cut overdrafts than to pay for them. Other institutions would continue to create overdrafts because the price of overdrafts would be lower than the cost of institutional changes to reduce them.

While pricing overdrafts would give institutions more flexibility in managing overdrafts than would the use of overdraft caps, a number of practical and conceptual problems remain. Like the setting of caps, the choice of a price for overdrafts would be complex. Too low a price for Fedwire overdrafts would provide too little incentive for institutions to reduce overdrafts. Too high a price for Fedwire overdrafts could cause payments to shift to CHIPS or other private payments systems. While this shift would reduce the Federal Reserve's overdraft risk exposure, private credit risk and systemic risk on CHIPS would tend to increase.<sup>4</sup>

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<sup>3</sup> More detailed analyses of the pricing of daylight overdrafts are contained in Evanoff 1988 and Mengle, Humphrey, and Summers 1987.

<sup>4</sup> Another potential complication of pricing is the creation of a market for intraday credit. The development of an intraday credit market might improve credit allocation by letting the market price payments system risk. However, the development of an intraday market could lead to increased volatility of short-term interest rates and could complicate monetary policy. For a discussion of these issues, see Angell 1989 and VanHoose 1988. The likelihood of a market for

## **Issues in implementing an overdraft policy**

In designing a policy to contain the risks of daylight overdrafts, there is a clear tradeoff between reducing payments system risk and promoting payments system liquidity.<sup>5</sup> The obvious advantage of unhindered overdrafts is the resulting increase in the speed at which payments can be sent or received. The use of caps or pricing would necessarily slow payments processing because institutions would be induced to match or synchronize electronic funds flows. Depository institutions and their customers would bear the costs stemming from the reduced speed of payments flows. Thus, the setting of caps or prices on overdrafts must balance the gains from reducing payments system risks against the costs of reduced payments system liquidity.

Overdraft policy must also recognize the interconnection of risks on the various wire-transfer systems. Dealing with the overdraft problem on one network alone may not reduce the overall risks to the payments system. For example, caps or pricing policies exclusive to Fedwire might reduce the Federal Reserve direct credit risk. However, if payments activities are shifted to CHIPS or other networks, private credit risk and systemic risk may increase. Thus, to be effective, a policy to reduce overdrafts must be comprehensive across payments systems.

A final issue in implementing an overdraft policy is to design a policy that targets those

institutions most responsible for the overdraft problem. As shown in the previous section, large institutions cause most overdrafts on Fedwire or CHIPS. An overdraft policy that places unnecessary costs, red tape, and reporting burdens on smaller institutions is more likely to impede than enhance the liquidity and efficiency of the payments system.

## **III. FEDERAL RESERVE POLICIES TO CONTROL PAYMENTS SYSTEM RISKS**

In recent years the Federal Reserve has developed methods to reduce its risk exposure on Fedwire and contain private and systemic credit risks on private payments systems like CHIPS. Given the difficult tradeoffs in balancing risk reduction against other payments system goals, the Federal Reserve has chosen to implement its payments system risk policies gradually. The current overdraft policy has been moderately successful in slowing the growth of some types of daylight overdrafts. The Federal Reserve's new policy proposal is more comprehensive and aims to significantly reduce daylight overdrafts.

### **Current overdraft policy**

The Federal Reserve's current overdraft policy has several significant features.<sup>6</sup> One characteristic is the method for controlling over-

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intraday credit developing is discussed in Simmons 1987 and Stevens 1989.

<sup>5</sup> Additional discussion of this and other policy issues is contained in Lindsey 1988.

<sup>6</sup> A more detailed description of current policy is contained in Belton and others 1987.

drafts. The current program relies on caps rather than pricing to limit daylight overdrafts. In addition, coverage under the existing program includes funds transactions on Fedwire and CHIPS but does not extend to Fedwire book-entry security overdrafts. Finally, the cap program covers all institutions using CHIPS and Fedwire and does not attempt to target those institutions most responsible for the majority of overdrafts.

*Types of caps.* Currently, institutions are subject to three types of caps on the amount of credit extended to them in the form of daylight overdrafts. One cap limits overdrafts with other individual participants on private networks like CHIPS. The second cap limits total overdrafts on private networks. The third type of cap controls an institution's combined overdrafts across payments networks including Fedwire and private networks.<sup>7</sup>

The *bilateral net credit limit* is a cap on daylight overdrafts that controls an institution's peak credit exposure to another participant on a private network like CHIPS. On CHIPS, each participant must assess the creditworthiness of any counterparty in a transaction that generates a daylight overdraft. Based on this evaluation, each institution sets an upper limit on the value of payments that it is willing to receive from another participant. Payments that exceed this bilateral net credit limit are automatically rejected by the CHIPS network. CHIPS par-

ticipants have significant leeway in setting these caps and, indeed, are able to change these limits during the day.

The second type of cap, the *network sender net debit cap*, limits the total amount of overdrafts that an institution can incur on a network. On CHIPS this cap is currently 5 percent of the sum of the net bilateral credit limits set for a given participant by all other CHIPS participants. If an institution attempts to make a payment that would cause its total CHIPS overdrafts to exceed the sender net debit cap, this payment is automatically rejected by the network. Unlike the bilateral limits, the sender net debit caps cannot be altered during the day but may be changed from one day to the next.

The third type of cap, the *cross-system sender net debit cap*, limits the total overdrafts an institution can incur across payments networks. This cap is set according to Federal Reserve guidelines and requires a self-assessment by each institution of its creditworthiness and operational controls. Based on this assessment, each institution is assigned a cap on its combined daily peak overdrafts on Fedwire and CHIPS and a second cap on its combined average daily overdrafts during a two-week reserve maintenance period. Each of these caps is expressed as a multiple of an institution's primary capital so that institutions with more capital have higher overdraft caps.<sup>8</sup> Under the cross-system cap program, overdrafts on one payments network reduce the ability of an institution to overdraft on another network. Currently, cross-system overdrafts are

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<sup>7</sup> CHIPS uses Fedwire for net settlement purposes. That is, after netting of debits and credits by CHIPS participants, a participant with a net debit position sends payment to another participant via Fedwire. The Federal Reserve requires any private payments network like CHIPS that uses Fedwire for net settlement to adhere to the Federal Reserve's overdraft cap policy.

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<sup>8</sup> Further discussion of these caps can be found in Belton and others 1987.

monitored only at the end of the day, and institutions that exceed the cross-system caps are counseled by the Federal Reserve.<sup>9</sup>

The current overdraft cap policy has been implemented in stages over the past five years. Bilateral credit limits on CHIPS were introduced in October 1984, and CHIPS sender net debit caps were implemented in October 1985. The cross-system caps became effective in March 1986. The cross-system caps were subsequently reduced 15 percent in January 1988 and another 10 percent in May 1988.

*Limitations of current overdraft policy.*

Two limitations of the current overdraft policy are related to its coverage. In one sense, the policy is too narrow because it does not attempt to control the sizable amount of daylight overdrafts on book-entry security transactions. In another sense, current policy is too broad because it applies to all payments system participants regardless of the different risks they may create.

Book-entry securities overdrafts are not included in current overdraft policy because of concerns about the liquidity and efficiency of the government securities market. Over the past several years, significant operational changes have occurred in the book-entry securities market, including the transfer of all government securities from definitive to book-entry form. To prevent possible disruptions to trading in the government securities market, the Federal Reserve decided to postpone control of book-

entry overdrafts until these institutional changes were completed.<sup>10</sup>

Even though most daylight overdrafts are caused by larger institutions, the Federal Reserve's current overdraft policy applies to all payments system participants. Broad coverage of the program is certainly helpful in communicating the Federal Reserve's concern about payments system risk to all participants. However, the administrative costs of the program may be very burdensome for smaller institutions that contribute little to the overdraft problem.

To partially address these concerns, beginning in 1987 the Federal Reserve permitted institutions with small and infrequent overdrafts to avoid some of the administrative costs. Under the *de minimus cap*, these institutions can incur Fedwire overdrafts up to the lesser of 20 percent of their capital or \$500,000 without completing the self-evaluation process.

*Evaluating the success of current overdraft policy.* The current overdraft policy has generally been viewed as moderately successful. As shown earlier, Fedwire and CHIPS overdrafts have continued to increase in the five years that the policy has been in effect. The growth of overdrafts on both systems has been slowed, however. Given the continued rapid rise in the value of Fedwire and CHIPS transactions over this period, the slower growth of overdrafts has led to a sizable reduction in the

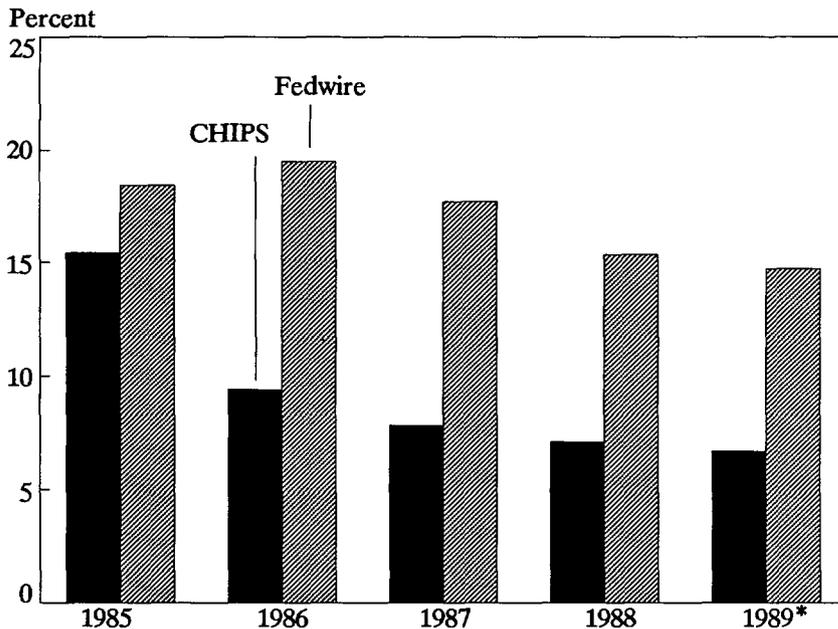
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<sup>9</sup> Troubled institutions are subject to greater restrictions on Fedwire under current overdraft policy. These institutions are monitored on a real time basis, may be required to post collateral for their overdrafts, and may have payments rejected if overdrafts exceed the value of their collateral.

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<sup>10</sup> While book-entry securities are not included under the caps program, beginning in January 1988 the Federal Reserve imposed a \$50 million limit on the size of a securities transfer on Fedwire. Thus, an institution can make as many transfers as it wishes but each transfer is subject to the \$50 million limit.

**CHART 6**  
**Overdrafts as a percent of payments**



\* 1989 data through June.

Source: Board of Governors of the Federal Reserve System.

amount of overdrafts as a percentage of payments system transactions.

The current policy appears to have had a relatively greater impact on CHIPS overdrafts than on Fedwire overdrafts. CHIPS overdrafts as a percentage of total CHIPS transactions have fallen substantially from 15.4 percent in 1985, when both CHIPS caps became effective, to 6.7 percent in the first half of 1989 (Chart 6). Fedwire funds overdrafts as a percentage of Fedwire funds transactions have declined by a smaller amount, from 19.5 percent in 1986, when Fedwire caps were introduced, to 14.7 percent in the first half of 1989. These reduc-

tions suggest that the Federal Reserve's current overdraft policy may have been successful in containing the risks of daylight overdrafts but has not been able to significantly reduce these risks.

### **New overdraft policy proposal**

In a further effort to control daylight overdrafts and their risks to the payments system, the Federal Reserve recently proposed significant extensions and modifications of its payments system risk policy. The new program has two features. First, the system of overdraft caps

will be revised. Second, daylight overdrafts on Fedwire will be priced. In addition, under both the caps and pricing programs, greater effort will be made to target the programs at those institutions most responsible for the overdraft problem.<sup>11</sup>

*Changes in overdraft caps.* A key change in the cap program is the proposed extension of caps to include overdrafts of book-entry securities. As shown earlier, book-entry overdrafts account for a large part of total Fedwire overdrafts and represent a significant part of the Federal Reserve's risk exposure. Under the new proposal, the Federal Reserve's cross-system net debit caps will apply to the sum of Fedwire funds and book-entry overdrafts.<sup>12</sup>

Inclusion of book-entry overdrafts under the cap program will have its primary impact on those large institutions most responsible for book-entry overdrafts. However, these institutions may not be able to reduce book-entry overdrafts without disrupting the smooth functioning of the government securities market. If they are unable to reduce book-entry overdrafts below cap limits, under the proposed program these institutions will have to provide collateral

to cover the Federal Reserve's risk exposure.<sup>13</sup>

Another major change in the overdraft program will occur when CHIPS introduces settlement finality. This development, scheduled for 1990-91, will make CHIPS participants financially responsible for the payments obligations of all other participants. Under this plan CHIPS participants will post collateral to be used in the event of default by system participants. With settlement finality on CHIPS, the problem of systemic risk on CHIPS should be substantially reduced. In this environment the Federal Reserve proposes the elimination of CHIPS overdrafts from the calculation of the cross-system net debit caps.

Differential treatment of large and small overdrafters will also be an important element of the revised overdraft caps program. Currently, the caps program applies to all institutions, irrespective of their contribution to the overdraft problem. In the new proposal, small overdrafters will be exempt from filing for cross-system net debit caps if their peak overdrafts rarely exceed the lesser of \$10 million or 20 percent of capital.<sup>14</sup> Although this element of the plan will make many small overdrafters exempt from filing for Fedwire caps, these institutions will still have to monitor their

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<sup>11</sup> This section focuses on the highlights of the new program. For more details, see the proposed changes to the Federal Reserve Board's Large Dollar Payment System Risk Policy and the accompanying policy statements (Board of Governors 1989a-e).

<sup>12</sup> Under the current program, cross-system caps are based on an institution's primary capital, defined as primary capital less intangible assets. Under the proposed policy, caps will be based on risk-adjusted capital as defined under the new international risk-based capital standard adopted in the United States and other countries.

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<sup>13</sup> If an institution's total Fedwire overdrafts, including both funds and book-entry, exceed cap levels by material amounts solely because of book-entry overdrafts, the institution will be required to collateralize its total Fedwire overdrafts.

<sup>14</sup> The de minimus cap will also be altered under the new program. The new de minimus cap will eliminate the overdraft frequency and dollar-limit tests but will continue to require the 20 percent of capital limit.

overdrafts so as not to exceed the allowable limits.<sup>15</sup>

*Pricing of daylight overdrafts.* Under the proposed program, the Federal Reserve will price Fedwire overdrafts. Institutions using Fedwire will be charged a fixed interest rate of 25 basis points on average daily federal funds and book-entry overdrafts in excess of a deductible. This charge is to be phased in over three years. In addition, to accommodate pricing of overdrafts, the Federal Reserve proposal changes the way in which overdrafts are measured. These changes are described in the accompanying box.

Whereas caps are based on peak overdrafts so as to control the maximum risk exposure of payments system participants, the pricing of overdrafts is designed to induce institutions to monitor and contain actual overdrafts. Thus, institutions will be subject to pricing even if they are below their cap limits.

The major virtue of a pricing policy is an expected reduction in overdrafts. The interest rate of 25 basis points is thought to be the minimum amount necessary to encourage institutions to undertake more widespread netting, rollover, and continuing contract arrangements that would reduce overdrafts.<sup>16</sup> However, since the price applies only to Fedwire overdrafts, some institutions will have an incentive to shift

transactions and overdrafts from Fedwire to CHIPS.<sup>17</sup>

Like the caps program, the pricing of daylight overdrafts attempts to target those institutions most responsible for overdrafts. Under the Federal Reserve's proposal, only average daily overdrafts in excess of 10 percent of an institution's capital will be subject to pricing. With this deductible, institutions that do not make a significant contribution to the overdraft problem will be able to incur small overdrafts without penalty. The deductible will also provide a margin of error for those institutions whose overdrafts may be involuntary and largely beyond their control.

### **Projected impact of the new policy**

The Federal Reserve's new payments system risk proposal is expected to reduce daylight overdrafts and payments system risks significantly. At the same time, the plan is intended to affect a smaller number of institutions than current policy.

The expected reduction in daylight overdrafts is likely to occur primarily through a decline in Fedwire funds overdrafts. Here, the implementation of pricing may give institutions considerable incentive to alter their payments system practices. For example, it is estimated that increased use of netting of federal funds transactions could reduce Fedwire funds overdrafts by as much as 85 percent.<sup>18</sup> While some reduction in book-entry overdrafts is anticipated as a result of the introduction of caps and pricing,

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<sup>15</sup> Treatment of U.S. agencies and branches of foreign banks will be changed under the new proposal. For details, see Board of Governors 1989c.

<sup>16</sup> This price is also considered to be low enough to prevent the volatility in short-term market interest rates that might result from the creation of a market for intraday credit.

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<sup>17</sup> For a discussion of how institutions might react to pricing, see Humphrey 1989.

<sup>18</sup> For a discussion, see Humphrey 1989, p. 33.

## Measuring daylight overdrafts

### Current policy

Currently, daylight overdrafts are measured in a way intended to minimize possible disruptive effects of the policy. For example, all nonwire transactions of an institution are netted at the end of the day. For automated clearing house (ACH) transactions, the net debit or credit position is added at the end of the day to the institution's opening reserve balance on that day. For checks, a net credit is added at the end of the day to the opening balance while a net debit is added to the end-of-day balance. These procedures permit an institution to have maximum latitude in reducing daylight overdrafts by using all of its nonwire net credits to offset any wire debits during the day while postponing the need to cover some nonwire debits until the end of the day. Overdraft caps are applied to the amount of overdrafts measured net of these adjustments.

One problem with the current policy is that a significant amount of intraday float is created as some institutions receive credit for nonwire transactions while other institutions are not simultaneously debited. This intraday float amounts to an extension of free credit by the

Federal Reserve. Maintaining this free credit extension is not consistent with a policy of pricing daylight overdrafts. A second problem with current policy is that effective intraday monitoring of overdrafts by individual institutions can be very difficult because balances are calculated after the fact.

### Proposed policy

Under the Federal Reserve's proposed overdraft policy, intraday float from nonwire transactions will be eliminated as net credits or debits of all commercial ACH transactions, checks, and other nonwire transactions will be posted to the institution's account at the end of the day after the close of Fedwire. This proposed change will prohibit institutions from using nonwire credits to offset wire transfer debits during the day. As a result, institutions may have to adjust their payments practices and some institutions may experience an increase in overdrafts. At the same time, however, these changes will make the monitoring of overdrafts easier to the extent that institutions will have more accurate knowledge of their reserve balances during the day.

ing, the gains may be limited by the high cost of institutional change in the government securities market.<sup>19</sup>

<sup>19</sup> In addition to these costs, there are currently few alternatives to using the Federal Reserve's book-entry system for certain types of transactions. Thus, pricing of Fedwire overdrafts is unlikely to lead to substantial shifting of securities transactions away from Fedwire.

CHIPS overdrafts are likely to increase under the Federal Reserve's new policy as institutions move payments from Fedwire to CHIPS. However, the introduction of settlement finality on CHIPS should limit any increase in CHIPS overdrafts as those participants financially responsible for settlement take actions to reduce their risk exposure.

The Federal Reserve's credit risk should be reduced under the new policy, while private credit risks may rise. The Federal Reserve's payments system risk will likely fall as a result of the anticipated decline in Fedwire funds overdrafts and the collateralization of most large book-entry overdrafts. Private credit risk may rise, however, to the extent that overdrafts move from Fedwire to CHIPS and to the extent that collateral for book-entry overdrafts is not available to creditors of payments system participants. At the same time, systemic risk on CHIPS should be lowered with the introduction of settlement finality.

The direct impact of the proposed daylight overdraft program is likely to be felt by a smaller number of institutions. For example, during a test period in February 1988, the Federal Reserve estimated that as a result of the new exemptions under the caps program only about 440 of 5,040 depository institutions would be subject to overdraft caps. The excluded 4,600 institutions created only 1.5 percent of total overdrafts. Thus, if these estimates are accurate, the administrative burdens of the program could be sharply reduced with little increase in risk to the Federal Reserve.

Pricing of daylight overdrafts may affect an even smaller number of institutions. For example, during a test period in 1988, the Federal Reserve estimated that only 219 of 5,040 overdrafting institutions would be subject to pricing. The remaining 4,821 institutions would be exempt from pricing because their overdrafts fell below the 10-percent-deductible level.<sup>20</sup>

#### IV. SUMMARY

With the rapid growth of electronic funds transfers, daylight overdrafts have become an important policy issue. The Federal Reserve System has undertaken a major effort to investigate ways of controlling daylight overdrafts and reducing their risk to the payments system.

Current Federal Reserve policy has successfully used quantitative limits, or caps, to limit the growth of overdrafts. At the same time, the current policy has not attempted to control book-entry securities overdrafts and has not targeted the large institutions responsible for most of the overdrafts.

The Federal Reserve's new policy proposal uses both overdrafts caps and pricing of overdrafts to reduce overdrafts and payments system risk. The proposed policy goes beyond current procedures by including book-entry overdrafts as well as funds overdrafts. In addition, the proposal attempts to target those institutions most responsible for the overdraft problem.

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<sup>20</sup> It should be emphasized that these estimates are preliminary. Currently the Federal Reserve System is in the process of providing more detailed estimates of the potential impact of the program on each institution using Fedwire. For many institutions, the proposed redefinition of overdrafts and the associated changes in posting rules described earlier will be a significant factor in determining the impact of the program.

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# Financing Rural Businesses: What Role for Public Policy?

By Charles Morris and Mark Drabenstott

**M**any rural states and communities are proposing rural development programs to bolster their lagging economies in the 1990s. One strategy currently advocated by many rural policymakers is to adopt public programs that would make more credit available to rural businesses. Increased public lending, they argue, would offset a general lack of credit in rural areas in the 1980s. State and local government officials often allege that lack of financing is the culprit for anemic rural business activity.

But what role should public policy play in rural credit delivery? To answer this question, it is first necessary to determine why the growth of credit in rural areas has slowed in the 1980s. If rural credit growth has slowed because rural

lenders are less willing to lend, costly government programs to supplement the supply of funds to rural capital markets might be justified. On the other hand, if the slowdown is simply due to weak business conditions, government lending programs would be more difficult to justify. In that case, rural policymakers should concentrate on other programs if they want to improve rural capital formation.

This article finds that the decline in bank loan growth in most rural areas is primarily due to a slowdown in rural business conditions rather than to a reduction in the willingness of rural bankers to lend. The article concludes that, in general, expensive government credit programs should be avoided and public assistance should be channeled to a handful of low-cost programs that overcome a few problems in rural capital markets.

The first section of the article reviews the rural loan programs that have been proposed partly in response to the sharp slowdown of rural lending in the 1980s. The second section

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shows empirically that this slowdown can be blamed largely on weak business conditions in rural areas, rather than on excessive caution by lenders. The third section identifies promising rural policy alternatives aimed at banks, businesses, and venture capital markets.

## **I. RURAL GOVERNMENT CREDIT PROGRAMS: A POPULAR APPROACH TO RURAL DEVELOPMENT**

Public programs designed to provide loans or loan guarantees to rural businesses are being discussed at the federal and state levels. Government credit programs are being advocated on grounds that rural financial markets do not supply the capital that rural businesses need, an argument long made in defense of farm loan programs. Past farm loan programs, however, have proven expensive to taxpayers. Nonetheless, many advocates of rural loan programs justify the expense of new programs by pointing to recent declines in rural lending.

### **Recent trends in rural lending**

Before undertaking an analysis of rural lending, it is useful to put in perspective recent trends in rural financial markets. Reviewing lending patterns at commercial banks provides a summary picture of rural financial flows in recent years.<sup>1</sup> Data on rural banks verify that

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<sup>1</sup> A full picture would include data for all major financial institutions. Unfortunately, rural data for some key institutions—thrifts and venture capital firms, in particular—are extremely limited. Thus, this section chronicles recent loan activity at rural commercial banks, for which data are quite complete. An additional justification for emphasizing bank

rural financial markets have changed dramatically in the 1980s. The most significant change is that rural bank loans have grown much more slowly than in the 1970s, and much more slowly than loans at metropolitan banks.

Data on real income and commercial bank loans, assets, and loan-asset ratios for rural counties from 1972 to 1987 are presented in Table 1. The bank data were aggregated for all commercial banks in a county. Counties were then grouped as metropolitan or nonmetropolitan. The nonmetropolitan counties were further grouped according to the economic sector most important to each: manufacturing, mining, farm, retirement, government, mixed, trade, and other.<sup>2</sup>

As indicated in Table 1, rural bank loans grew slowly in the 1980s. Total loans at rural banks grew an average of 5.3 percent a year in the decade, less than half the average growth in the 1970s. Loans at metropolitan banks, on the other hand, maintained steady growth of nearly 10.0 percent throughout the 1970s and 1980s.

Rural bank lending became much more diverse in the 1980s. Uneven performance in the rural economy translated into wide variation in rural lending. The rural economy in the 1980s was a mix of strength and weakness, in contrast with the more general prosperity of the 1970s (Henry, Drabenstott, and Gibson 1988).

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data is that banks have been the primary source of financing for rural businesses in the past.

<sup>2</sup> The bank data for this and the next section were assembled from commercial bank call reports from 1970 to 1987. The rural county types are the same ones used by Henry, Drabenstott, and Gibson (1988). The county-type framework was first developed by Lloyd Bender and others (1985). The definition of metropolitan counties was updated annually to be consistent with Department of Commerce designations.

**TABLE 1**  
**Selected data on commercial banks in rural counties (percent)**

County type	Number of counties*	Growth of real personal income		Growth of total loans		Growth of total assets		Loan-asset ratio	
		1972-79	1980-87	1972-79	1980-87	1972-79	1980-87	1972-79	1980-87
Metropolitan	729	3.1	2.6	9.9	9.9	9.7	7.0	52.3	55.5
Nonmetropolitan	2,238	4.3	1.4	12.7	5.3	10.5	6.7	53.9	51.7
Manufacturing	562	3.7	1.3	11.2	6.3	9.2	7.0	55.3	52.9
Mining	161	5.8	-0.5	15.0	4.9	12.7	6.7	50.8	49.3
Farming	555	3.8	0.6	13.8	2.7	11.2	5.9	51.7	48.5
Retirement	203	6.1	3.5	14.4	8.8	12.2	8.9	53.8	54.5
Government	214	4.1	2.4	12.0	6.7	9.8	7.1	54.2	53.3
Mixed	104	4.1	1.4	13.2	5.3	10.9	6.9	53.9	50.9
Trade	362	4.2	1.0	12.9	3.8	10.7	5.8	53.9	51.4
Other	77	5.3	1.0	15.5	4.2	12.9	6.4	54.8	52.2

\*The total number of counties differs from that in Henry, Drabensstott, and Gibson 1988 primarily because there are no banks in some counties.

Note: Growth of real personal income is calculated using annual averages. The growth of total loans, the growth of total assets, and the loan-asset ratio are calculated using end-of-year data from the bank call and income reports.

Sources: Board of Governors of the Federal Reserve System (bank data); U.S. Department of Commerce, Bureau of Economic Analysis (income data); U.S. Department of Agriculture, Economic Research Service (county types).

Real incomes in rural areas grew an average of 1.4 percent a year in the 1980s, while the rate of growth has ranged from -0.5 percent in mining counties to 3.5 percent in retirement counties. Correspondingly, rural loan growth varied widely in the 1980s, depending on county type. Loan growth in rural counties ranged from 2.7 percent in farm counties to 8.8 percent in retirement counties, a sharp contrast with the 1970s when bank loans in every type of rural county grew faster than at urban banks.

Rural bank assets increased faster than rural bank loans in the 1980s. Assets increased at an average annual rate of 6.7 percent in the 1980s, just less than the 7.0 percent rate for urban banks and a rate well above rural loan growth. Given the persistently weak rural

economy throughout the 1980s, it is surprising that rural banks maintained such a solid rate of growth in assets. A more competitive environment for rural deposits, the result of deregulation, may explain the asset growth. Obviously, as rural bank assets outpaced rural loans, loan-asset ratios fell at rural banks in the 1980s. Loan-asset ratios at metropolitan banks, meanwhile, increased in the 1980s.

Overall, rural financial activity in the 1980s reflected the slowdown in the rural economy. The lending activity of the 1970s proved as unsustainable as the lofty rural incomes of the 1970s. Rural lending in the 1980s became quite variable, with the steady growth of lending in retirement counties far ahead of that in farm and other more traditional rural counties.

## Proposed government credit programs

Government credit programs are at the heart of a bill being debated in the U.S. Senate (S1036), the first major attempt by Congress in several years to address rural development issues. The proposed Rural Partnerships Act of 1989 has two key loan provisions. First, \$300 million would be given over the next four years to rural development agencies that lend to rural businesses.<sup>3</sup> Second, the bill would create a Rural Capital Access Program in the Department of Agriculture. That program would spend \$165 million over the next four years to provide guarantees on certain rural business loans. Both provisions are aimed at making more loans available to rural businesses, though neither would involve direct loans from the federal government to rural businesses.

Government credit programs to spur rural development are also popular in many state legislatures. Policymakers in rural states believe that federal programs may have limited scope due to federal budget constraints; thus states are considering further loan programs of their own. Already, 26 states have direct loan programs for small businesses, and 14 states have

loan guarantee programs (National Association of State Development Agencies 1986). In most cases, these programs are open to rural and urban businesses alike. Many rural states, therefore, are considering new programs or changes to existing programs to channel more funds to rural businesses.

The reasons for implementing new government credit programs are vague. Senate bill S1036, for example, gives the following as motivation for one of its loan provisions: "Access to capital is critical to rural areas to enable such areas to develop a diversified economic base, create jobs, and re-enter the economic mainstream of the nation." Though not stated explicitly, the general argument appears to be that rural credit is scarce and that more rural economic activity is desired; therefore the government should make more rural credit available.

Two reasons for government credit programs might be put forth. First, some might argue that imperfections in rural financial markets impede credit flows to rural borrowers. But financial market developments in the 1980s appear to have corrected many imperfections of the past (Eisenbeis 1987). Advancing technology, financial innovation, and deregulation have broken down many rural financial market imperfections. Rural savers, for example, now have access to a wide array of financial instruments, while rural borrowers have access to a greater number of credit sources. As a result of the greater competition for deposits and loans, rural interest rates now more closely match trends in national interest rates. Farm loan interest rates, for example, respond more quickly to changes in national money market rates and generally track those rates more closely than they once did.

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<sup>3</sup> The federal dollars would be under the control of a newly created Rural Partnerships Investment Board. That board would capitalize local rural development agencies that provide loans or loan guarantees to rural businesses. The agencies could be a state economic development agency, private nonprofit development organization, or a local economic development governing body. Under the proposed legislation, federal funds would match funds invested by participating banks or other financial institutions. In short, federal funds would serve as the seed capital for agencies that operate revolving loan funds.

Second, some proponents of government credit programs may also suggest that a downturn in the rural economy in the 1980s has left many rural lenders overly cautious, thus reducing the supply of credit to rural businesses. Indeed, recent data verify that rural bank lending did slow in the 1980s. But the critical question to be addressed in the next section is whether the slowdown was the result of reduced supply or weaker demand.

Current proposals for greater public involvement in rural lending are in keeping with a long history of government intervention in rural credit markets. For decades, farmers have argued that rural credit is too scarce. In response, the federal government and some state governments created public institutions to make more credit available to farmers. The Farmers Home Administration (FmHA) and the Farm Credit System are notable examples.

One basic lesson from these government farm loan programs is that they can become

very expensive. Loan delinquencies in the FmHA farm loan program, for example, currently top \$10 billion, about 40 percent of the loans outstanding. While some special factors have led to the FmHA problem, the fact remains that public loan programs can lead to considerable direct cost to taxpayers.

For these reasons, new government credit programs need to be evaluated carefully. The size of the proposed federal program is small relative to current farm loan programs. Nevertheless, rural loan programs, like farm loan programs before them, could become much larger once enacted.

## II. AN ANALYSIS OF THE SLOWDOWN IN RURAL BANK LENDING

Rural policymakers may point to the slowdown in rural bank lending in the 1980s as grounds for adopting new programs to make

### A reduced-form model of loan growth

$$\text{LOAN}_{i,t} = \alpha_i + \sum_{s=0}^2 \beta_{1,s} \text{POP}_{i,t-s} + \sum_{s=0}^2 \beta_{2,s} \text{RPI}_{i,t-s} + \sum_{s=0}^2 \beta_{3,s} \text{INF}_{t-s} + \sum_{s=0}^2 \beta_{4,s} \text{TBILL}_{t-s} + \epsilon_{i,t}$$

**Definitions:**

- $\text{LOAN}_{i,t}$  = the growth rate of total loans in county  $i$  at time  $t$
- $\alpha_i$  = the constant term for county  $i$
- $\text{POP}_{i,t}$  = the growth rate of population in county  $i$  at time  $t$
- $\text{RPI}_{i,t}$  = the growth rate of real personal income in county  $i$  at time  $t$
- $\text{INF}_t$  = the inflation rate measured by the personal consumption expenditures implicit price deflator at time  $t$
- $\text{TBILL}_t$  = the change in the 3-month Treasury bill rate at time  $t$
- $\epsilon_{i,t}$  = the residual that represents the growth of loans purged of the economic factors

more financing available to rural businesses. But before new government credit programs can be justified, a fundamental question must be answered. Has rural bank lending slowed because rural lenders have become overly cautious and are less willing to lend, or has lending slowed because weak business conditions and demographic trends have reduced the demand for loans in rural areas?

## Reasons for the lending slowdown

Are rural lenders less willing to lend? One way to answer this question is to estimate the extent to which factors that affect the willingness to lend have caused rural loan growth to decline in the 1980s. But measuring some of these factors, such as the riskiness of loans, is difficult. Therefore, the effect of such factors on loan growth must be measured indirectly.

The willingness of lenders to lend can be measured indirectly by purging the growth in loans of business cycle and demographic factors that affect the demand for loans.<sup>4</sup> If loan growth net of these factors—net loan growth—is constant over time, the evidence would not support the hypothesis that rural lenders are less

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<sup>4</sup> Net loan growth rates for the different types of counties are calculated using the following procedure. First, a single regression equation is used to estimate the contribution of factors that affect loan demand in each of the eight county types. Second, subtracting the contribution of these factors from total loan growth purges each county's loan growth of the effect of demand factors. That is, the growth of loans net of these factors is simply the residual from the estimated regression. Third, net loan growth for each county type in a given year is calculated by taking a weighted average of the purged loan growth rates across all counties of that type for that year. Finally, the weighted-average rates for net loan growth are examined for systematic patterns over time.

willing to lend. Rather, the evidence would support the hypothesis that the decline in rural loan growth is due to slower growth in the demand for loans caused by adverse business conditions and demographic factors. On the other hand, if net loan growth declines over time, the evidence would support the hypothesis that slower loan growth is due to other factors, such as reduced willingness to lend, that have not been purged from loan growth.

If rural lenders are less willing to lend, of course, this methodology cannot be used to determine why they are supplying fewer loans. Lenders may be overly cautious, for example. On the other hand, lenders may be less willing to lend for valid economic reasons. For example, if the economic environment is riskier in the 1980s than it was in the 1970s, less lending would be a rational response on the part of rural banks.

Statistical methods can be used to estimate the effects of business conditions and demographic factors on the demand for loans. The accompanying box shows the equation used to estimate loan demand. (Of course, the equation is a reduced form, not a structural demand equation. Nevertheless, for expositional convenience, the equation will be referred to as a demand equation.) The variables on the right side of the equation are economic factors that affect loan growth. These factors are population growth, real income growth, inflation, and the change in interest rates.<sup>5</sup>

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<sup>5</sup> Of course, interest rates are not solely demand factors. Changes in interest rates cause the quantity of loans demanded to change along the demand curve and the quantity of loans supplied to change along the supply curve. For expositional convenience, however, the term "demand factors" will be used to refer to interest rates and the factors that affect

Increases in population growth or income growth should lead to an increase in the growth of loan demand. An increase in population causes the demand for goods and services to rise. As a result, when population growth rises, businesses expand to meet current and expected increases in demand. To do this, businesses increase their borrowing. For similar reasons, increases in real income growth should also lead to an increase in the growth of loan demand. To capture the effects of growth in population and income, current and past population growth and income growth are included in the regression.

Since loan growth is expressed in nominal terms, the growth in loan demand should rise with inflation.<sup>6</sup> The equation includes past

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demand.

The reduced-form equation in the box includes the contemporaneous value and two lags of each of the demand factors. The lag lengths were not derived from the explicit model of loan demand. However, because the purpose of the model is to predict loan growth and not to make inferences about the parameters of a structural demand equation, including extra lags should not affect the qualitative results of this article.

The growth in loans was calculated using end-of-year values from December bank call reports. The growth in population, the growth in real income, inflation, and the change in interest rates were calculated using annual averages.

<sup>6</sup> Nominal loan growth is used as the dependent variable instead of real loan growth because real loan growth is difficult to measure. The reason is that the appropriate price deflator for constructing real loan growth depends on the type of loan. For example, using the overall price level to deflate a portfolio consisting primarily of real estate loans could overstate the growth of real loans. Because the overall price level is used to calculate inflation in the regression, there is no reason to expect the coefficients on inflation to sum to one. Using the overall price level to calculate real loans, in contrast, would impose the constraint that the coefficients on inflation sum to one.

inflation to account for any delayed response of loan growth to inflation.

Increases in interest rates, on the other hand, should lead to a decrease in the quantity of loans demanded. Because the level of loans depends on the level of interest rates, the growth of loans depends on the change in interest rates.<sup>7</sup> Past changes in interest rates are included in the equation to account for any delayed response of loan growth to changes in interest rates.

The model shown in the box fits the data fairly well.<sup>8</sup> The explanatory power is typical of regression equations using data that vary both across economic units, such as counties, and over time. The percentage of variation in loan demand explained by the model, as measured by the R<sup>2</sup>s, ranges from 0.148 in manufacturing counties to 0.241 in farming counties. Overall, the relatively good fit suggests that the

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<sup>7</sup> At the national level, interest rates are endogenous and determined by the demand for and supply of loans. At the county level, however, borrowers and lenders are price-takers who must accept the interest rate determined in the national marketplace. Thus, interest rates can be treated as exogenous with respect to loan demand in the estimated equation, and regressing loan growth on the change in interest rates should not bias the results.

<sup>8</sup> Time-series cross-section methods can be used to estimate the model because a time series is available for each county. A regression was run for each county type to allow the slope coefficients to differ across county types. To account for county-specific factors, the intercept was also allowed to differ across each individual county. Because there is no reason to expect county-specific effects to be independent and identically distributed random variables, a fixed effects model was estimated instead of a variance components model (Mundlak 1978). Thus, county-specific effects were accounted for by including a dummy variable for every county. The estimated coefficients are in the appendix. All of the sums of coefficients have the signs that would be expected from a simple model of loan growth in small rural credit markets.

model is reasonable for estimating net loan growth.<sup>9</sup>

Charts 1 through 4 show actual loan growth and the growth of loans net of demand factors for manufacturing, retirement, mining, and farming counties. Loan growth net of demand factors is simply actual loan growth less loan growth due to demand factors—that is, loan growth predicted from the regression equations. In other words, net loan growth is the residual loan growth—actual less predicted—not explained by the regression. For each county type, net loan growth in each year is a weighted average of net loan growth across all counties of that type, where the weights are the county's lagged share of total loans.<sup>10</sup>

The four county types shown in the charts were chosen because of their special place among rural counties. Manufacturing counties account for the largest share of rural income, retirement counties have been the strongest performers since the early 1970s, mining counties are relatively important to the Tenth District economy, and farming counties are the traditional rural county.

In three of the four principal county types, the decline in actual loan growth is mostly the result of declining loan demand rather than a reduced willingness to lend on the part of commercial banks. There is no downward trend in net loan growth in manufacturing, retire-

ment, or mining counties. In manufacturing counties, actual loan growth fell 4.9 percentage points from 1972-79 to 1980-87, while net loan growth fell only 0.9 percentage points. In retirement counties, actual loan growth fell 5.6 percentage points, while net loan growth fell only 1.7 percentage points. In mining counties, actual loan growth fell 10.1 percentage points, while net loan growth fell just 2.3 percentage points.<sup>11</sup>

In farming counties, however, the downward trend in net loan growth is slightly larger. For example, net loan growth is positive in seven of the eight years in the 1970s, while net loan growth is negative in six of the eight years in the 1980s. As a result, from 1972-79 to 1980-87, net loan growth in farming counties fell 5.2 percentage points.<sup>12</sup> Actual loan growth, however, fell 11.1 percentage points

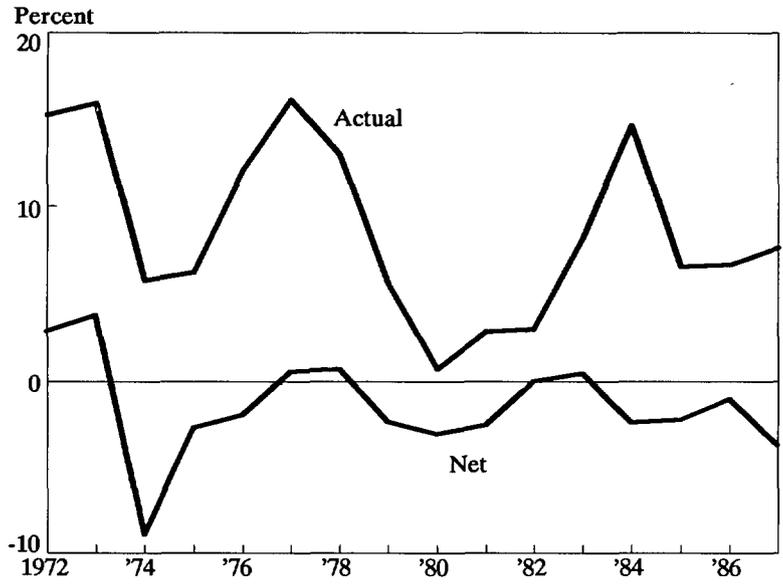
<sup>9</sup> Further evidence that the model fits fairly well appears in Chart 1, where the residuals from the regression equations are shown to be small relative to the dependent variables.

<sup>10</sup> The residual growth rates in each chart do not sum to zero because they are weighted averages of the residuals. The simple average residuals do sum to zero, as they would in any other ordinary least squares regression.

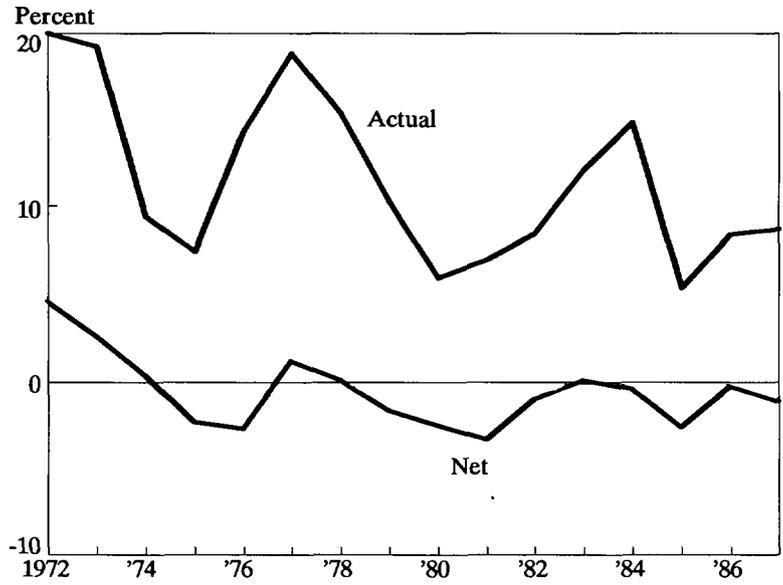
<sup>11</sup> A dummy variable equal to 0 from 1972 to 1979 and 1 from 1980 to 1987 was added to the regression equation to determine the significance of the slowdown in net loan growth from 1972-79 to 1980-87. The dummy variable represents the effect of other factors, such as the willingness to lend, on loan growth. The coefficient on the dummy was negative and statistically significant at the 0.01 percent level for all three county types. The high significance level is not surprising, however, because each equation has a large number of observations. More importantly, the dummy variable adds little to the explanatory power of the regression. The dummy variable causes the  $R^2$  to increase 0.008 (5.4 percent) in the manufacturing equation, 0.007 (3.1 percent) in the retirement equation, and 0.012 (5.3 percent) in the mining equation. Thus, demand factors explain a significantly larger share of loan growth than do other factors, such as the willingness to supply loans.

<sup>12</sup> The coefficient on the dummy variable (see footnote 11) is statistically significant at the 0.01 percent level as expected. Of the eight county types, the relative importance of factors other than demand factors is largest in farming counties. The dummy increases the farming county equation  $R^2$  by 0.054 (22.4 percent).

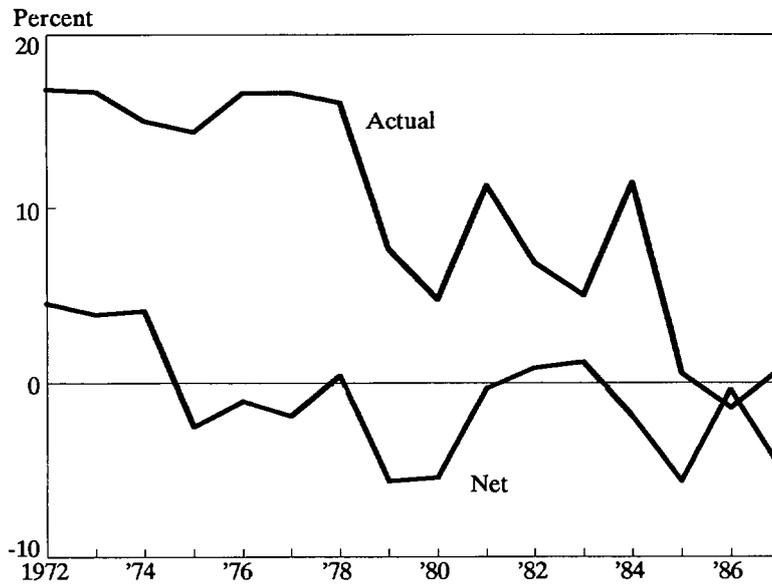
**CHART 1**  
**Loan growth in manufacturing counties**



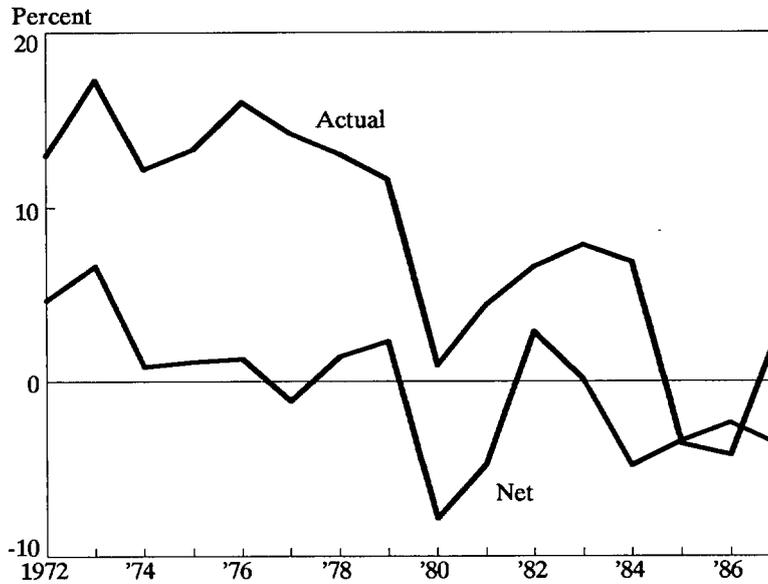
**CHART 2**  
**Loan growth in retirement counties**



**CHART 3**  
**Loan growth in mining counties**



**CHART 4**  
**Loan growth in farming counties**



over that period. Thus, factors other than demand factors appear to be a more important source of slowing loan growth in farming counties than in manufacturing, retirement, or mining counties.<sup>13</sup> Nevertheless, more than half of the decline in farming county loan growth is explained by demand factors.

Overall, the evidence suggests that weak business conditions and changing demographics explain most of the decline in rural lending in recent years. Table 2 shows the percentage of the decline in average loan growth from 1972-79 to 1980-87 that is explained by demand factors. For six of the eight county types, demand factors explain more than half of the decline in loan growth. Other factors are the primary cause of slowing loan growth in only one county type—government counties.<sup>14</sup> Thus, empirical evidence suggests that rural lending has declined largely because rural economies have slowed sharply in the 1980s, not because rural bankers have turned their backs on their local communities.

### Implications for proposed government credit programs

Empirical evidence on rural lending in the 1980s offers little support for new government credit programs to supplement the supply of credit to rural markets. Overall, the analysis reveals no general pattern of banks withdraw-

<sup>13</sup> Other factors include economic and noneconomic effects. Thus, part of the decline in net loan growth in farm counties may be the result of a rational response on the part of lenders to economic factors, such as a riskier farm economy.

<sup>14</sup> As in farm counties, when other factors appear to explain a large part of the decline in loan growth, the effects of economic factors, such as risk, cannot be separated from the noneconomic factors.

TABLE 2  
Decomposition of growth in loans

Nonmetropolitan county type	Percentage of the decline in loan growth explained by*	
	Demand factors	Other factors
Manufacturing	82	18
Mining	77	23
Farming	53	47
Retirement	70	30
Government	17	83
Mixed	43	52
Trade	60	40
Other	65	35

\*The decline in each component of loan growth is the decline in the average growth rate from 1972-79 to 1980-87.

ing from rural lending. The variation in rural lending across rural counties is largely the result of variation in the demand for credit. Loan growth is fairly rapid in rural counties with strong economies, such as retirement counties, while loan growth is much slower in lagging counties, notably farm counties. Such evidence confirms that rural financial markets work: capital flows to areas of strongest demand.

These results point to the conclusion that rural development may depend on the overall rural business climate more than on the availability of rural credit. The rural business slowdown of the 1980s appears to have been caused by basic economic forces.

In three principal rural county types—manufacturing, retirement, and mining—new rural credit programs do not appear justified. In farm counties, the evidence is mixed. But even there, the lending slowdown of the 1980s

could be a rational response to a more risky farm economy. Thus, further evidence is needed to justify new government credit programs for these counties.

### **III. RURAL FINANCIAL MARKET POLICY ALTERNATIVES**

In light of the finding that lending patterns in most rural areas are largely consistent with demand factors and that there is little justification for broad-based government credit programs, what role remains for public policy in rural financial markets? Rural capital market programs are promising alternatives to government credit programs. These programs aim to improve rural financial flows by overcoming some unique rural capital market imperfections that still exist. Moreover, the programs are less costly than credit programs and would close some remaining financial market gaps while generally allowing overall economic trends to continue. Under this policy approach, three areas appear to be most promising: secondary markets, technical assistance, and venture capital markets.<sup>15</sup>

#### **Secondary markets**

Secondary markets for rural business loans may be an attractive way of increasing rural capital formation while allowing market forces

to operate. Secondary markets for rural business loans would allow commercial banks and other rural financial institutions to reduce the credit risk from expanding their lending into new business lines. The bank could initiate and service loans, while the credit risk would be borne by investors who purchased the packaged securities.

How such rural loan secondary markets could be formed is unclear. Farmer Mac, created by the Agricultural Credit Act of 1987, will provide a good experiment on the overall success of secondary markets in rural America. It seems unlikely that rural business loans could be securitized if Farmer Mac fails to attract sufficient business. Governors in rural states might take the lead in promoting a new secondary market for rural loans. Such markets would do more to help rural lending than many state-sponsored direct loan programs, and at a fraction of the cost. To be successful, a secondary market for rural business loans would need wide geographic diversification and common underwriting standards.

#### **Technical assistance programs**

Technical assistance programs serve a simple purpose: to supply the missing technical or management skills new businesses need to succeed. As rural communities try to diversify into new industries, two potential problems arise. The local bank may have little experience with the new business, or the owner of the firm may have a sound business plan but lack complete technical expertise. Because the community bank plays a leadership role in financing new businesses, technical assistance programs that work through bankers may defuse both problems.

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<sup>15</sup> The policy alternatives discussed in this section do not exhaust the options currently receiving attention by policy-makers. They were selected because they appear to hold significant promise of success while being relatively inexpensive to implement. For a more complete discussion of policy choices, see Markley 1988.

Several technical assistance programs are emerging. The federal government provides small business assistance through Small Business Development Centers, administered by the Small Business Association in each state. State bankers' associations are beginning to view technical assistance as an important and possibly necessary tool to encourage local development.<sup>16</sup> The Cooperative Extension Service is reevaluating its role in assisting rural businesses and likely will initiate more business development programs, possibly emphasizing leadership development.

With so many possible providers of technical assistance, state governments can play a useful role in coordinating the programs. Public-private partnership could be especially effective in coordinating assistance. Minnesota, for example, has chartered the Greater Minnesota Corporation to encourage applied research and technology transfer for rural areas and to coordinate start-up and operating financing for new rural businesses.<sup>17</sup>

Even though technical assistance programs address a common need of rural businesses, they have generally not received much funding from rural policymakers. The Senate rural development bill, for example, would spend \$15 million for technical assistance, compared with a combined \$465 million on two key loan

programs. Researchers have not verified it, but technical assistance programs probably pay big dividends. The cost of the programs is relatively low, yet in many cases they may be the difference between the success or failure of rural businesses.

## Venture capital programs

Many observers consider venture capital programs a key element in the future of rural development policy. While debt markets are generally efficient in rural America, equity markets, and especially venture capital markets, are much less developed. Recent studies suggest that rural businesses generally find sufficient debt financing, but equity funds are sometimes lacking (Popovich and Buss 1987 and Combs, Pulver, and Shaffer 1983). Unfortunately, data on rural venture capital are extremely limited.

The private sector may provide more venture capital to rural America in the future, but public initiatives, possibly in partnership with the private sector, may be critical to the initial development of a well-functioning rural venture capital market. As with government lending programs, much of the impetus for that development will probably rest with state governments.

Several states already have venture capital programs of one type or another. Only one is aimed specifically at rural businesses.<sup>18</sup> The one

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<sup>16</sup> The Minnesota Bankers Association, for example, has established the Enterprise Network, a clearinghouse for economic development information. Banking associations in other states are exploring similar programs.

<sup>17</sup> The Greater Minnesota Corporation was publicly chartered in 1987 with \$106 million of state funds. Over time, the founders hope that more of the operating funds will derive from fees and profits derived from new business ventures in the state.

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<sup>18</sup> At least ten states have venture capital programs that were started with state appropriations or were made possible through special tax concessions. The ten states are: Connecticut, Indiana, Kansas, Maine, Massachusetts, Michigan, Minnesota, Montana, New York, and Wisconsin (National Association of State Development Agencies 1986).

exception is the previously mentioned Greater Minnesota Corporation, which has a strong rural orientation. The Kansas program, Kansas Venture Capital Inc., represents a partnership between the public and private sectors. The corporation was chartered with matching \$10 million funds from the state and Kansas bankers, including many rural banks. Permanent operating funds are expected to be generated by the corporation's ongoing profits.

The success of these state programs is currently difficult to assess. Most of the programs were started only recently, and results are limited. The relatively long-running program in Massachusetts (Massachusetts Community Development Finance Corporation) has been quite successful in spurring business activity in depressed parts of the state. Overall, state efforts to increase venture capital have had some success, but little of the improvement has occurred in rural areas.

States have two choices if they want to increase rural venture capital. They can devise new state-funded programs aimed specifically at rural businesses. Teaming with private investors or banks, as in Kansas, would reduce the initial capitalization and the ongoing risk. Or, they can offer tax concessions to encourage private funds for rural venture capital. Indiana has followed this approach with its general venture capital corporation. In either case, the programs should be available to businesses in all industries, since rural development experts agree that diversification will be an important ingredient in spurring rural business activity.

## Summary

Rural capital market programs are promising alternatives to costly government credit pro-

grams. New secondary markets for rural business loans, better technical assistance for rural businesses, and more fully developed rural venture capital markets all would improve the flow of financial services to rural areas. The government would be a catalyst for innovation, but the initiative would be in partnership with the private sector. Thus, the cost to taxpayers would be limited.

Another advantage of the rural capital market programs is that they work with, not against, current rural economic forces. The underlying premise of government credit programs is that rural economic decline should be reversed, and more government loans will achieve that goal. The problem is that the United States currently has no rural economic policy that identifies the public's objective for economic activity in rural areas (Drabenstott, Henry, Gibson 1987). In the absence of such policy, programs that run counter to fundamental economic trends, like government credit programs, are especially difficult to justify. Rural capital market programs, which improve rural financial services but allow economic forces to operate, can be justified on their own merit.

## IV. CONCLUSIONS

Rural financial markets have changed significantly in the 1980s. Lending by commercial banks in rural areas has slowed dramatically. Partly in response to the lending slowdown, federal and state policymakers are considering a number of new government credit programs to make more loans available to rural businesses.

Government's role in rural credit programs in the 1990s appears limited, however. While rural bank lending has slowed in the 1980s,

empirical analysis suggests the slowdown has resulted mainly from weak business conditions and changing demographics rather than from less willingness to lend on the part of rural banks. Thus, the critical determinant of rural financial activity in the 1990s will probably be the demand for funds.

Although justification for government credit programs may be limited, three other policy options may spur rural economic activity, and at much less cost. These options would

overcome a few problems in rural capital markets. Improving secondary markets for business loans would allow rural financial institutions to manage the credit risk of lending to new types of rural businesses. Technical assistance programs would supply the missing technical and financial expertise necessary for new businesses to succeed. And more fully developed rural venture capital markets would allow rural businesses to better manage their financial needs.

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**Appendix**  
**Estimates of reduced-form model of loan growth**

Nonmetropolitan county type	Sum of coefficients on:				R <sup>2</sup>
	Growth in population	Growth in real personal income	Inflation	Change in 3-month Treasury bill rate	
Manufacturing	0.983 (4.10)	0.916 (9.16)	2.322 (10.53)	-4.945 (11.91)	0.148
Mining	0.262 (1.44)	0.827 (9.01)	3.735 (10.20)	-6.582 (9.68)	0.226
Farming	0.903 (7.24)	0.458 (15.67)	5.289 (30.40)	-7.367 (22.90)	0.241
Retirement	0.300 (1.18)	1.408 (9.80)	2.348 (7.00)	-3.287 (5.18)	0.228
Government	0.337 (1.68)	0.664 (6.62)	2.000 (6.37)	-4.107 (6.88)	0.190
Mixed	1.040 (4.80)	0.392 (5.96)	3.351 (8.28)	-5.680 (7.44)	0.171
Trade	0.893 (5.00)	0.672 (11.80)	3.966 (19.17)	-6.005 (15.45)	0.179
Other	1.153 (3.06)	1.024 (5.48)	3.325 (5.81)	-4.849 (4.52)	0.228

Note: Absolute value of t-statistic is in parentheses. Except for the coefficient on the growth in population in mining, retirement, and government counties, the marginal significance level of all coefficients is less than 1 percent. The coefficient on the growth in population has a marginal significance level of 15 percent in mining counties, 24 percent in retirement counties, and 9 percent in government counties.









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