The previous papers have set the stage -- farm numbers are declining and will continue to decline; average farm size is increasing and will continue to increase; capital per farm will continue to increase at a faster pace than average size of farm; and other dynamic changes will occur among individual farm firms. Our assignment is to focus on the implications that these changes portend for financial and capital markets serving agriculture.

In the first part of the paper we treat the relatively recent development of nontraditional institutions in agriculture, particularly as these innovations relate to capital markets. The second part discusses some of the implications of these nontraditional institutions for the traditional sources of farm credit. The changing structure of farms probably has a bigger impact on commercial banks than on the other major sources of farm credit. Hence, in the third part of the paper we discuss implications of the increasing capitalization of farms for commercial banks.

Innovation of Nontraditional Institutions

The distinction that we make between traditional and nontraditional institutions is somewhat artificial. In general, nontraditional institutions include developments since World War II: leasing of capital equipment, "permanent debt," vertical integration, horizontal combination, and the trend toward incorporation of family farms. Traditional institutional sources of farm credit include the cooperative farm credit agencies as well as commercial banks and insurance companies.

A major problem in agricultural finance is how to arrange for capable farm managers to have access to enough capital on a continuing basis to employ their managerial and labor resources efficiently. This problem has become more critical in the post-World War II period, and has been partly responsible for the appearance of several nontraditional institutions.

Incorporation of Farms

The trend toward fewer and larger farms, higher investments, and increased complexity of financial-legal management has given rise to a closer look at the corporate type of organization for the family farm. The most stout-hearted pro-
ponents of incorporation see this institution as a means of avoiding small and uneconomic units, inadequate capital, and the struggle to recapitalize every generation. If successful on these points, incorporation might serve as an aid to family farming. At the other extreme are those who fear that corporate farming signifies the end of the traditional family farm. The truth, undoubtedly, lies between.

Research in Alabama, involving case studies of corporate farms, indicates that corporate-type organization of farm business has much to offer certain individual family farms, but is not the solution to all maladjustments in agriculture.¹

Another study, involving a stratified, random sample of 80 out of more than 300 farm-ranch corporations in Oregon -- mostly closely held family corporations-- yielded similar conclusions. Referring specifically to the financing and capitalization aspects of these corporate farms, Hubbard concluded that:

The finance and credit picture of farms has changed little as a result of incorporation. Stock has not been sold to raise equity capital; stockholders have not used debt securities in their capital structure. Loans are still received from the same sources and operators are still personally liable for farm debts. Farm-ranch corporations do not extensively use dividends because most earnings are "plowed back" into the corporation. In addition, many stockholders have made loans to the corporation, indicating that an important part of farm financing is still internal financing. Incorporation did not seem to greatly limit or expand available external credit but did complicate procedures of borrowing. Incorporation has not significantly changed farm peoples' attitude toward the use of perpetual debt; most are still opposed to the idea.²

Stockholders are personally liable for farm debts in nearly all of these cases, because they were asked to sign personally for corporation loans, negating any limited liability for corporate debt. Traditional lenders seem to like the idea of incorporating farms because of the continuity of the business, but apparently they are reluctant to lend only on the corporate signatures.

The recent trend toward incorporation of farms is likely to continue -- not so much because of the potential advantages of financing and capitalization as for the advantages offered for tax and estate management. Perhaps some day

operator-managers of closely held family farm corporations will actively try to sell either common or preferred stock of their corporations to people outside the family as a means of increasing the size of their business, but a wholesale shift in this direction is not likely in the next decade or two. The goal of family ownership -- debt-free, if possible -- still will prevail. Patterns of finance and credit likely will change very slowly as a result of any step-up in the rate of incorporation of farms.

Even though incorporation likely will have an insignificant impact on capital and credit markets and on the financial management of farms, it may have an indirect effect that should be noted. Any technique that proves useful in tax and estate management will tend to strengthen the competitive position of the larger and more successful family farms. Incorporation also will tend to lengthen the life of farm businesses and will make it easier for new management to develop within the family business and eventually to assume control without necessarily acquiring financial control.

Leasing Capital

Leasing of capital equipment has become more popular in recent years. Such action is taken most commonly by farm operators facing external credit rationing who want to conserve their credit base for items with a higher turnover rate than is usual for most machinery and equipment. Capital leasing is not so popular among farmers with ample operating capital or with a good chance of obtaining all the credit they need at going rates of interest.

Leasing is not the answer for most farm operators, or normal ownership would not be as commonplace as it is. Farm management studies on the economics of farm machinery operation indicate rapidly decreasing costs as the volume of use increases. By the same token there may be some scale economies on the part of the lessors resulting from mass buying power. However, limited evidence fails to suggest that lessors enjoy any great cost advantages over farm operators generally. It follows that the farmers who will tend to benefit the most from leasing arrangements will be those who either (1) have limited annual use for a machine, (2) have an uncertain or variable annual use, or (3) are quite limited on capital so that the opportunity cost of funds invested in farm machines is high (in terms of other investment opportunities passed up).

As with most new markets, the capital leasing market has been rather unstable. Rates have fluctuated as more has been learned about costs. Several former lessors have discontinued leasing to farmers because of unfavorable events. Others seem fairly well entrenched and claim to be making profits.

As this market matures, capital leasing may become the answer among more of those farmers who want to conserve working capital or credit bases. In the kind of environment that is being projected for agriculture, it seems likely that the proportion of farmers with working capital restrictions may increase.
Permanent Debt

With average size of farms increasing, it is becoming less and less feasible for a farmer to pay off his debt during his productive lifetime, and maintain full ownership of all capital in the business. Several individuals have proposed that we may need to revise the generally accepted goal of achieving full debt-free ownership of a family-size farm through investing savings realized from the business during the productive lifetime of an individual. Proposals suggest that "permanent debt" may not be a bad idea—that a loan agreement could be written so that the debt would be amortized until the balance would be reduced to, say, 40 to 50 percent of the value of the farm. From then on, only interest payments would be made. 3

Experience with so-called permanent debt in agriculture is quite limited. A very few instances are known in which a conventional lending institution has made an agreement with a farm operator nearing retirement whereby the operator would make only interest payments on the remaining debt until he retires, at which time he would liquidate the business and pay off the debt. In these cases, the farmer's equity is usually substantial enough that the loan is "safe," but it would pose a hardship on the operator at that age, under certain circumstances, to require him also to reduce outstanding indebtedness.

Referring to this type of agreement as permanent debt is probably a misnomer. This raises the question, What is permanent debt? Presumably, except in the case of corporations, permanence coincides with the productive lifetime of the farmer. Even with assurance that permanency will be for not more than 30 or 40 years, few lenders are prepared to extend a substantial total amount of credit on this basis. Unless the creditor is "locked in," he would be tempted to refinance if the level of interest rates subsequently declined. On the other hand, the lender would not like to be committed to the going interest rate for such a long time, with the possibility that the level of rates might rise. Perhaps it would be possible to devise a way to renegotiate the interest rate periodically. Unless some such breakthrough occurs, any increase in the institution of permanent debt among noncorporate farms likely

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3Preliminary investigation suggests that the percentage withdrawal associated with the farm operator financing expansion from his net farm income may be increasing. In other words, if a farm operator wishes to increase the size of his business by (say) 10 percent, the percentage of his net farm income that must be reinvested at the present time is greater than it has generally been historically because capital inputs are becoming relatively more important. The consequence of this is that greater pressure will be placed on the capital markets unless incomes are increased sufficiently to result in smaller sacrifice on the part of the farm operator even though the percentage reinvestment requirement is higher. This hypothesis needs to be tested under a variety of conditions.
will be minimal.  

The potential, at least, appears greater for corporate farms -- not as permanent debt, per se, but in the form of preferred stock. If the management of a corporate farm wants to increase the capital of the business, but does not want to dilute the common stock, and does not want to make amortization payments on debt, preferred stock might be sold. Dividends paid on the preferred stock would be somewhat analogous to interest payments on permanent debt. The objectional long-term commitment on interest rates would not apply as it does to debt -- the value of the preferred stock would change as relative rates and yields changed. At a later date, the corporation might choose to buy back the preferred stock with retained earnings. This would be analogous to paying off permanent debt.

Up to now, apparently, preferred stocks have not been used much among corporate farms. While their use may increase some in the future, use is not likely to become widespread -- partly because the market for stocks of family farm corporations generally is limited to local people familiar with the operation, and partly because of the prevalent desire for full ownership among farm families.

Vertical Integration and Contracting

In general, the trend in American agriculture in recent decades has been toward vertical disintegration -- toward specializing in fewer stages of production. In pork production, for example, one farmer may specialize in producing feeder pigs while another specializes in fattening shoats. Numerous examples of disintergration are found in poultry and egg production, with such narrow specialities as: (1) producing layer-type hatching eggs; (2) hatching and sexing chicks; (3) growing layer pullets from purchased female chicks; and (4) producing eggs from purchased pullets. By specializing in fewer stages of production, the farmer can increase the size of his operation to obtain economies of scale. The capital and financing problems in these cases may be more acute than those of a more diversified and integrated operation, because the uncertainties of production and price are larger as the number of stages of production diminishes.

As specialization increases, firms tend to become less self-sufficient; a larger percentage of total inputs is purchased, a development which increases capital requirements.

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4The concern about "permanent" debt is perhaps a reflection of a more basic concern. This is the tendency in agriculture for the life cycle of the farm firm to coincide with the life of the farm operator. If devices can be developed to reduce such coincidence then the issue of "permanent debt" may lose relevance. The corporation may be one such device.

5Of course, there are legal differences between a mortgage instrument (debt) and preferred stock. The holder of preferred stock would not normally have recourse to foreclose. Hence, he probably would expect a higher yield than he would on a mortgage investment.

Contracts with farm suppliers or processors are one way of reducing uncertainties in some kinds of production -- particularly for specialty products with a limited market or for certain perishable products. By guaranteeing a market and reducing production uncertainties through improved technology and supervision, contractual arrangements often improve a farmer's prospects of obtaining credit from traditional credit institutions. In some cases, contractors may help their producers negotiate loans with a bank, production credit association, or other lender.

While a contract may give a producer better access to customary lenders, some contracts may reduce the farmer's need for borrowed funds. Many of the operating capital inputs may be advanced by the contractor on credit, or they may even be owned by the contractor. The contractor, in turn, may finance these inputs from the company's own funds or by borrowing.

In some instances, industrial corporations may integrate vertically into agriculture. The motivation for vertical integration varies, but may come about because of the reluctance or inability of farmers to produce enough or to meet the specific product requirements of the integrating company; financial requirements or risk may be too large for an individual. Potential monopoly control may be the motivation in some instances. In any case, the primary incentive for vertical integration comes from the firms that do business with agriculture.

As a rule, though, processors and suppliers avoid investing directly in agriculture if they can. Mighell and Jones, in a very comprehensive study of vertical coordination, state that:

Only in few instances does it seem advantageous for processors and other businesses to finance farm production entirely within their firms. Important here are specialized farm products for which the market structure involves a high degree of producer or buyer concentration with relatively high barriers to entry. Vertical integration then offers a way of gaining or maintaining a strong market position.7

They go on to say that, "...financing of farm production by nonfarm businessmen--either under contract or vertical integration -- is mainly necessary only when open production fails to achieve the market outlet or procurement objectives of these businesses."

Thus, the bulk of farm output likely will continue from "open production," from farms neither vertically integrated nor with contracts. However, processors of farm products and suppliers of farm inputs may be expected to grow in relative importance as sources of farm capital.

7Ibid., p. 63.
Horizontal Combination

In certain kinds of specialized agricultural (usually livestock production, advantages are sometimes obtained by combining farm units at the same stage of production -- combining them horizontally. Several broiler farms, for instance, may be owned and controlled as one firm. The incentive for combining units under the superstructure of one firm stems from the economies of marketing the product and buying supplies in larger lots, and from more efficient use of the management resource.

Only those kinds of agricultural production that lend themselves to routinization are likely candidates for combination. For nonroutine farm production, management either becomes spread too thin or administrative overhead becomes too burdensome to realize economies of scale when several units are combined. The combining of farms horizontally is not likely to take place on a large scale because most farm production is not routine. However, some additional combining may occur among such types of operations as egg and broiler production and cattle feeding.

Our ability to increase routinized production in agriculture will depend on the kinds of technological improvements that are made. Scientific progress makes it possible to specify advance instructions for producing agricultural commodities. A single firm may then control several production units and depend to a larger extent on hired workers to carry out routine tasks. Farm management remains an art, but the progress of the underlying sciences will determine to a very great extent the ultimate power of the management resource.

Implications of Nontraditional Institutions
for Traditional Sources of Farm Credit

Economic innovations frequently conflict with established customs and institutions and are often resisted. In discussing resistance to some recent economic innovations in agriculture, Mighell and Jones state:

Part of the expressed concern comes from representatives of farm organizations, market groups, and the banking system rather than farmers. These established institutions are concerned about the adjustments that may be necessary in their own activities as a result of new institutions.\(^8\)

One could argue that established institutions are frequently better off after having adjusted to the environment of a new institution that they were prior to the innovation, but that does not obviate the fact that adjustments

\(^8\)Ibid., p. 2.
had to be made -- and change is sometimes painful. Furthermore, not all conventional institutions are better off even after having adjusted to a new institution. Hence, the apprehension implied in the above quotation may be based on accurate analysis.

In general, the advent of nontraditional institutions has tended to divert loan business away from the smaller rural banks -- and, in some cases, from other traditional sources of farm credit -- to larger banks and financial institutions. The nonfarm business firms that lease capital to agriculture, or that have integrated vertically into agriculture, or that contract with agriculture, typically are large relative to farm firms and likely would obtain any necessary credit in larger nonfarm financial institutions or money centers. Farm operations that have combined horizontally probably have outgrown local credit facilities in some cases, and have gravitated to larger financial institutions. To the extent that integration, contracting, capital leasing, and horizontal combination have increased in importance, there has been pressure for a larger share of capital and credit in agriculture to come from larger financial institutions at the expense of smaller ones.

Particularly in the case of contracting, the above generalization is not always true. As mentioned earlier, a contract often reduces risk for the farmer and may improve his prospects of getting credit from traditional sources. Whether credit is obtained by the farmer locally or is extended by the contractor depends partly on whether the contract is with a supplier or a processing firm.

Patterns of financing apparently have not changed significantly because of the incorporation of farms, at least in the case of closely held family corporations. However, it would seem that if incorporation becomes more widespread, the credit requirements for transferring ownership of farms will be reduced. Ownership of incorporated family farms would tend to be passed on to all the brothers and sisters in a farm family (although only one might become the manager-operator). To the extent that the brothers and sisters retained their stocks, they would help to finance the farm business. If one brother took over the farm under sole ownership, he probably would have to use considerably more credit.

So the implications to traditional credit sources are somewhat different, depending on which of the new innovations is being considered. To summarize, it would seem to us that any further increase in the number of corporate farms would tend to reduce the demand for credit, particularly long-term credit, below what it would be under conditions of sole ownership. Any further increase in capital leasing, horizontal combination, and vertical integration would tend to divert the demand for credit away from smaller banks and other traditional sources of farm credit to larger banks and financial institutions. Deposits in the banking system would tend also to be shifted from smaller banks to the larger ones.
Implications of Increasing Capitalization of Farms for Commercial Banks

Capital and credit requirements of individual farm firms are increasing rapidly and are projected to continue increasing. The implications are more pungent to commercial banks than to most other sources of farm credit; commercial banks have been losing out, relative to other sources of credit. The share of total farm credit extended by banks has been decreasing during the past 12 to 15 years. The changing structure of individual farm firms is probably at least partly responsible, because capital and credit requirements per farm have increased at a faster rate than the ability of banks to finance them.

Loan Size

Country banks, in particular, are frequently unable to grant loans as large as a farmer desires, since state and national laws limit the size of loan that banks may make to any individual, depending upon the size of a bank's capital and surplus. The National Banking Act limits the size of loan that a national bank can make to 10 percent of the bank's net unimpaired capital and surplus, unless that loan is secured by livestock, in which case the limit is 25 percent. Most states have laws that limit the size of loan that state banks can make. The percentages vary among states.

Individual banks in the Tenth (Kansas City) Federal Reserve District were analyzed by applying the National Banking Act limits to the national banks and the appropriate state laws to the state banks. Results indicate that several banks may be unable to finance some of the larger farm operators, unless some supplemental method is used, such as sharing the loan with a correspondent bank.

For 10 percent of all country banks in the Tenth District at midyear 1964, the maximum size of loan that could be made to individual farmers was $10,000 or less, unless the loan was secured by livestock. Some of these could not have made a loan as large as $10,000 even if secured by livestock. For 39 percent of the country banks in the Tenth District, the maximum size of loan was $20,000, unless secured by livestock. A large proportion of these could not make a loan of $20,000, even if secured by livestock. More than half of the agricultural banks in the district could not make loans to an individual farmer for as much as $20,000, unless secured by livestock, and many of these had limits considerably less than $20,000. 9

Bankers are very much aware of this problem and many have taken steps to improve their ability to service the larger loan requests. For one thing, several have increased their capital and surplus accounts. Of the national banks in the district in 1964 that were classified as agricultural banks, 56 percent had loan limits of $20,000 or less; 74 percent had such limits in 1959. The 1964 figure represents considerable improvement.

9Agricultural banks are defined here as banks in which farm loans were at least 50 percent of total loans.
While bankers have adjusted to the increased demand for larger-sized farm loans, some evidence indicates that their ability to service farmers has not kept pace with the increased capital requirements of individual farm firms. Since 1940, the average value per farm of assets used in production and average production expenses per farm have both increased about 700 percent. The average capital and surplus of country banks in the Tenth Federal Reserve District was increased by only about 450 percent during this period.

Another indication that individual farm capital and credit requirements are increasing faster than the ability of rural banks to finance them comes from recent surveys by the American Bankers Association. They state that:

Midyear reports since 1962 reflect an upward trend in the proportion of agricultural banks receiving acceptable farm loan applications which exceed their individual lending limits. During the first six months of 1964, 34 percent of the banks received one or more such requests. This was up from 29 percent (the year before) and 24 percent for the comparable period in 1962. 10

The more aggressive bankers have used various means to honor the requests of farmers for loans larger than their bank could legally grant. A method that is becoming more common is for the smaller banks to have "correspondent bank" connections, usually with city banks that have larger capital and surplus accounts and can make larger loans. For example, a farmer may request a $25,000 loan from his local banker, but the bank legally can lend him, say, only $10,000. Assuming that the loan request is sound, the banker may invite his city correspondent to "take the overline," or extend the additional $15,000. One indication of the growing importance of this kind of sharing of loans is the number of city banks during the last three or four years that have added "bank agricultural specialists" to their staffs. For the most part, these men are hired to cultivate correspondent accounts with country banks rather than to make direct farm loans. Another example of the importance of this phenomenon in banking is a recent series of "Correspondent Agribanking Forums" sponsored by the American Bankers Association for the benefit of both country and city banks.

A relatively few country bankers have formed agricultural credit corporations as subsidiaries to their banks, by which means they can "discount" their agricultural paper with a federal intermediate credit bank in essentially the same manner as a production credit association. This can be a solution not only for some of the excess loan applications, but also can serve as a source of funds for banks that are "loaned up."

Supply of Funds

Deposit liabilities constitute the main source of loanable funds of banks. Many rural banks depend primarily upon agriculture for deposits as well as for loan business. While gross farm income -- the major source of deposits for many banks -- has been trending upward at a modest rate, credit demands of farmers have been increasing at a faster rate. Consequently, loan/deposit ratios have been increasing. Many banks that are heavily dependent on agriculture are loaned up.

A recent analysis by the Federal Reserve Bank of Kansas City indicates that, "...agricultural banks have had strong loan demands in relation to deposits and that loan/deposit ratios of these banks are higher than for comparable sized banks that are not so dominated by agriculture." ¹¹ On the other hand, this same analysis suggests that agricultural banks may not be competing as vigorously for deposits as the other banks. Of course, considerable variation exists among rural banks in the extent to which they have adjusted to increasing credit demands. Some rural bankers have innovated about as fast as their farm customers.

Some new money tools have been said to have caused a "quiet revolution" in banking.¹² Limited evidence indicates that use of these tools may be spreading in country banks, although state-chartered banks do not have enabling legislation in some states.

One of these new tools is the negotiable certificate of deposit -- introduced in 1961. It enables bankers to "buy" deposits in money markets, and has the effect of moving funds from surplus areas to areas in which credit demand is greater.

The issuing of capital debentures by commercial banks is a new tool for increasing a bank's capital account and, therefore, its lending limit, as well as increasing its supply of loanable funds. If used discreetly, these new technologies in banking offer a potential for helping to satisfy the growing demand for farm credit, although use to date in rural areas is quite limited.

One of the most consistently discussed possibilities for channeling funds into agriculture is the institution of branch banking. Proposals for the liberalization of restrictions on acquiring or establishing branches by banks are submitted periodically to legislatures in states that do not have branching. Needless to say, the idea is quite controversial among bankers.

Dialogue on the merits and evils of branch banking is not new. One of the nation's better-known economists published an article 31 years ago in the Journal of Farm Economics, titled, "Branch Banking and Its Bearing Upon Agricultural Credit." In this article, John Kenneth Galbraith discussed with clarity

the various viewpoints, advantages, and difficulties associated with the concept of branch banking. Galbraith was notably in favor of reducing restrictions to branch banking as one means of increasing the availability of loanable funds in the agricultural community. At the same time he recognized the power of the opposition in a statement that would stand as well today:

"...even the more sanguine proponents of branch banking must concede that it is a development which is capable of generating a powerful resistance."13

Branch banking, of course, is common in the western United States. In Oregon, for example, two banking firms compete in every sizable community and are the only banks in many communities. Where branch banking is permitted it has grown rapidly. This suggests that there are certain economies that result from branch banking. Data are not available on the service rendered by branch as compared to nonbranch banks. The main complaint heard about branch banks is the lack of autonomy at the local level. The referral of decisions to the central office may mean that decisions are made by individuals unfamiliar with local situations. In Oregon, independent banks have been able to compete successfully with the branches when they have had adequate capital accounts and when the management was capable and aggressive.

CONCLUSIONS

1. The individual impact of the nontraditional institutions -- incorporation, capital leasing, permanent debt, vertical integration and contracting, and horizontal combination -- has not been of major significance. Nevertheless, the total development has been significant, reflecting the influence of the changing capital structure of individual farms on the financial and capital markets. These developments suggest that the traditional credit institutions will have to adjust to changing conditions if they are to maintain their relative positions.

2. The development of nontraditional institutions has had considerable impact on the traditional sources of credit. The principal effect has been to divert loan business away from smaller rural banks to larger banks and financial institutions.

3. The changing structure of farms probably has had a bigger impact on commercial banks than on the other major sources of farm credit.

4. Banking has adjusted by the stepped-up use of existing techniques as well as by the development of new techniques. Some of these techniques are:

a) Correspondent agribanking
b) Agricultural credit corporations
c) Capital debentures
d) Certificates of deposit
5. While banking has adjusted, some may question whether its rate of adjustment has been comparable to that of the farm borrower. In any case, it would appear that increasing reliance on the specialized agricultural lender will be necessary to match the challenge of an agriculture that is becoming increasingly more sophisticated in its financial management.