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AGRICULTURAL CREDIT IN TAIWAN

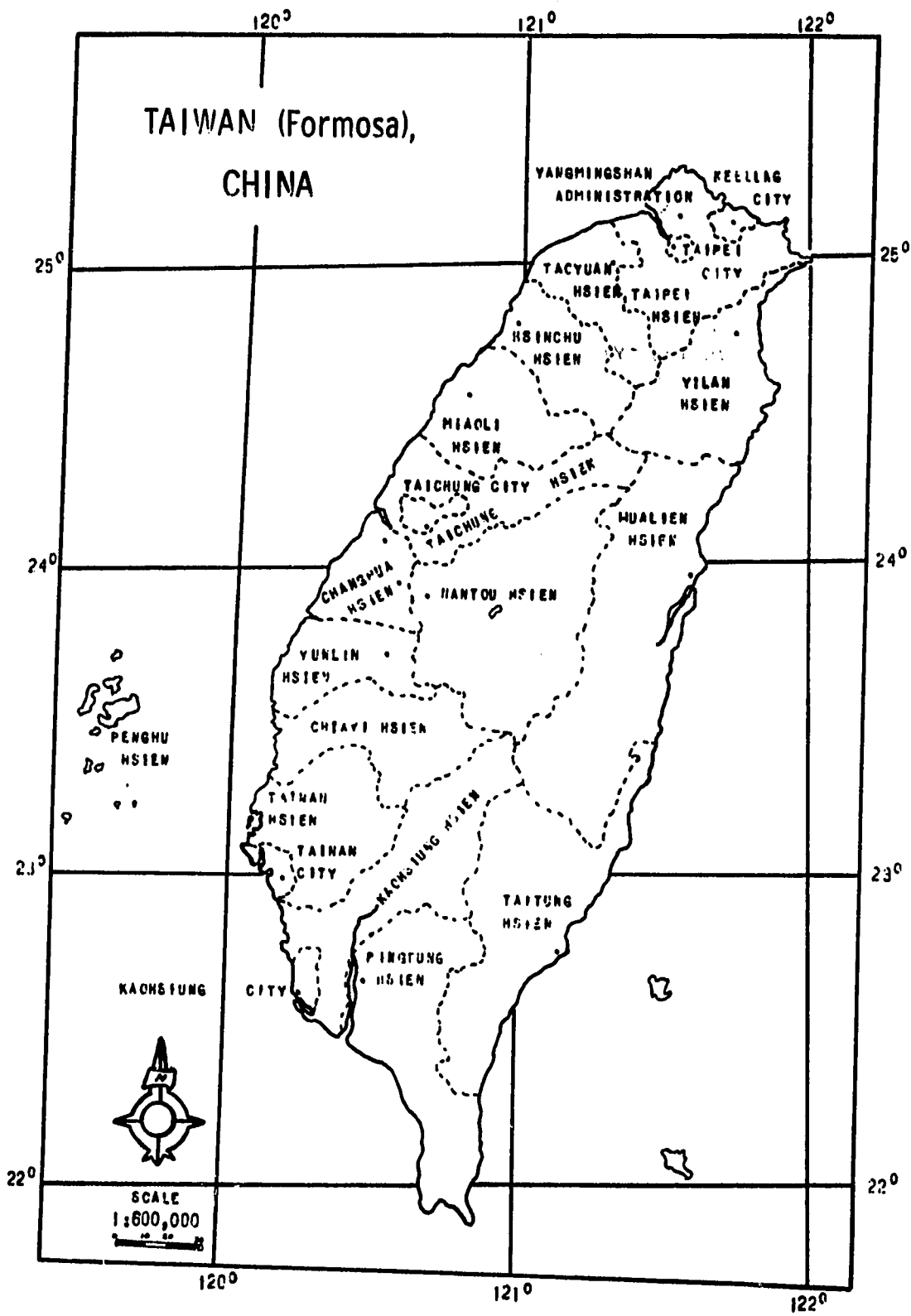
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AGRICULTURAL FINANCE CENTER
Department of Agricultural Economics and Rural Sociology
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FRONTISPIECE



FOREWORD

The Agricultural Finance Center of the Ohio State University, through a contract with the United States Agency for International Development is conducting a world-wide research project on "An Analysis of Programs for the Development and Improvement of Agricultural Credit Institutions and Services." This project is designed to develop principles and guidelines useful to AID and developing countries in the establishment and operation of permanent and effective institutions and systems for providing agricultural credit in developing countries.

Over the course of the project, quantities of diverse information on and related to agricultural credit in various countries have been assembled and reviewed. This report is one of a series of compilations of selected information on agricultural credit systems and operations of individual countries. It is presented as a by-product of the primary research effort.

While this report on Taiwan's agricultural credit is chiefly descriptive, it also includes some analysis and judgments of the authors. Here it draws heavily upon Mr. Chen's ten years' experience in the Taiwan Provincial Farmers Association and the Sino-American Joint Commission on Rural Reconstruction in Taipei, Taiwan.

Mr. Chen is presently a research assistant on the project and the Agricultural Finance Center staff at the Ohio State University. Mr. Bailey serves as the project associate director. While they received valuable counsel from many other members of the staff, they are solely responsible for the content and accuracy of the report.

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AGRICULTURAL CREDIT IN TAIWAN

INTRODUCTION -- AGRICULTURAL BACKGROUND

Geographic Environment

Taiwan, better known as Formosa by Western people, is a small island lying about 100 miles east of the China Mainland. It is situated between 119°18'E and 122°6'E longitude and 21°45'N and 25°33'N latitude. Stretching about 380 km. from the north to the south and about 140 km. from the east to the west, the tobacco leaf shaped island covers an area of about 36,000 square km. or 14,000 square miles.

With the Tropic of Cancer running across the middle of the island, the climate is subtropical: annual average temperature ranges between 21.7°C and 24.4°C throughout the island. The highest average monthly temperature (July) is 27.2°C to 28.9°C, while the lowest monthly (February) average is between 14-20°C. Situated in the so-called monsoon area, precipitation is abundant, bringing 1800 to 2800 mm. average annual rainfall to the important regions of the island, although it is quite unevenly distributed over the year. High temperatures and sufficient moisture are important natural factors which enable highly intensive use of land by the farmers, even three or four crops a year including two rice crops.

The Farmers

This small island is presently inhabited by about 12 million people of Chinese origin, the majority of whom are the descendants of immigrants from the southern coastal provinces of Mainland China who settled on this island about 300 to 500 years ago. Of the total population of 12 million, about half is agricultural (Table 1). The agricultural population increased from 4.5 million in 1954 to 5.6 million in 1963, but the ratio of agricultural to total population decreased from 51 percent to 47 percent over the same period.

The family size of Taiwan farmers is quite large, averaging 6.8 per family in 1963. It was 6.26 in 1954, and has been increasing since then, although the rate of increase has declined in recent years. However, not all of the farm family members are engaged or specialized in farming operations. Some of them have full time off-farm employment and many have part-time work off the farm. Increasing numbers of farm family members, especially younger ones, are taking part-time off-farm jobs. This changing situation is especially important in areas where the manufacturing industry is growing rapidly.

TABLE 1
Agricultural Population of Taiwan

Year	Total Population (1,000's)	Agricultural Population		
		Number (1,000's)	Percent of Total	Average Size of Family
1954	8,794	4,489	51.05	6.26
1955	9,078	4,603	50.71	6.29
1956	9,390	4,699	50.02	6.30
1957	9,690	4,790	49.43	6.31
1958	10,039	4,881	48.62	6.34
1959	10,431	4,975	47.69	6.38
1960	10,792	5,373	49.79	6.84
1961	11,149	5,467	49.04	6.83
1962	11,512	5,531	48.05	6.83
1963	12,000	5,611	47.00	6.80

Source: "Household Registration Statistics of Taiwan, 1959-1961," Department of Civil Affairs, Taiwan Provincial Government, July, 1962.

"Taiwan Agricultural Yearbook, 1964 Edition," Department of Agriculture and Forestry, Taiwan Provincial Government, July, 1964.

The educational background of Taiwan people is shown in Table 2. It is noteworthy that over 70 percent of the total (farm and non-farm) population aged 12 years or over are literate and that nearly one-fifth of the same age group have secondary or higher educations. Educational data for the farm sector alone are not available, but it is known that fewer farmers receive secondary or higher educations. With this exception, the educational status of the farmers probably does not deviate too far from the overall picture. The government has implemented programs to provide out of school education to illiterate adults. Since most illiterates are old-aged people, the illiteracy ratio may be expected to decrease in the near future.

Based on year-end 1963 data, 66 percent of the farmers are owner operators of all the land they cultivate, 21 percent are part-owner operators who have title to part of the land and rent additional land. Only 13 percent are pure tenants. The low ratio of tenants is mainly due to successful implementation of land reform programs in the post-war period.

TABLE 2
Educational Status of Taiwan's Population, 1961

	<u>1,000 Persons</u>	<u>Per Cent</u>
1. Total Population	11,149	
2. Population 12 years old and over	6,775	100.00
a. Higher education	172	2.54
b. Secondary education	1,147	16.93
c. Primary education	3,093	45.65
d. Without formal education but literate	373	5.51
e. Illiterate	1,990	29.37
3. Population 6-12 years old	2,053	
a. Attending school	1,759	
b. Not attending school	249	
4. Population under 6 years old	2,321	

Source: "Household Registration Statistics of Taiwan, 1959-1961,"
Department of Civil Affairs, Taiwan Provincial Government,
July, 1962.

The Farm Land

Though small, the island is extremely mountainous with the Central Mountain Chains, which has a highest peak of 3,900 meters or 12,000 feet, stretching from the north to the south. Because of the steepness of the mountains, most parts of the island are unsuitable for farming and only about 25 percent of the total land area, or 883,465 hectares, are currently classified as arable land.

According to the 1960 Census of Agriculture, the actual land cultivated is about 800,000 hectares, of which about 60 percent (484,000 hectares) is irrigated paddy field and about 40 percent (310,000 hectares) unirrigated upland. Most of the cultivated lands are in the alluvial plains lying west of the Central Mountain Chains.

The average farm size is only 1.02 hectares--a little less than three acres. About 36 percent of the farms are smaller than 0.5 hectares, and only about 11 percent are more than two hectares. The fragmentation of farm holdings has continued in recent years. In 1954, for instance, the average farm size was about 1.2 hectares per farm.

TABLE 3

Farm Land of Taiwan, 1960

1. Total Farm Land		1,029,503 hectares
2. Cultivated Land		791,531 hectares
a. Paddy land	484,454	
(1) Double cropping	303,068	
(2) Single cropping	181,385	
b. Upland	307,077	
3. Non-cultivated Land		237,973 hectares
4. Number of Farm Families		776,002
5. Average cultivated land area per farm family		1.02 hectares

Source: "General Report on the 1961 Census of Agriculture, Taiwan, Republic of China," Committee on Census of Agriculture, Taiwan Provincial Government, May 1963.

Because of the scarcity of arable land, intensive utilization of farm land became one of the significant features of Taiwan agriculture. From most of the cultivated land, two or more crops are grown yearly. According to "Report of Farm Record-Keeping Families in Taiwan,"^{1/} the average cropping index of the 277 participating farmers is 223, indicating that the farmland is, on the average, utilized 2.23 times a year. This intensive land use is made possible by many factors, including market outlet, capital supply, and technical developments such as relay-planting methods, associated with favorable weather conditions.

Farm Capital

The asset and capital structure of Taiwan farmers is illustrated with data on the aforementioned group of 277 record-keeping farmers in Table 4. The total assets of the group as of the end of 1962, was NT\$224,855, roughly equal to US\$5,622 per farm. Assets per farm

^{1/} "Report of Farm Record-Keeping Families in Taiwan, 1963," Provincial Government of Taiwan, October, 1964, p. 51.

appeared low. However, due to the small farm size, the average asset value per land unit was quite impressive. The 277 sample farmers, on the average, cultivated 1.38 hectares of farm land, nearly 50 percent higher than the average Taiwan farmer. This gave a per hectare asset value of NT\$16,294, or US\$4,024.^{2/}

TABLE 4
Balance Sheet of 277 Farm Record-Keeping Farmers in Taiwan
(December 31, 1963)

Item	NT\$ (1)	Per Cent
I. Total Assets	224,855	100.00
A. Current Assets	30,742	13.67
1. Cash	2,170	0.96
2. Deposits, receivables, prepaid, etc.	4,253	1.89
3. Farm product in storage	8,819	3.92
4. Growing crops	5,891	2.62
5. Livestock and poultry	7,277	3.24
6. By-products and processing products	732	0.33
7. Farming materials and equipment	1,600	0.71
B. Fixed Assets	194,113	86.33
1. Land	154,627	68.77
2. Building	26,199	11.65
3. Furniture & household equipment	5,657	2.51
4. Orchards and trees	2,240	0.74
5. Farm machinery	5,390	2.80
II. Total Liabilities	224,855	100.00
A. Current Liabilities	10,269	4.57
1. Short-term borrowings	7,345	3.27
2. Accounts payable and prepaid	2,924	1.30
B. Fixed Liabilities	132	0.06
C. Surplus	9,673	4.30
D. Capital	204,781	91.07

(1) NT\$40 = US\$1.00

Source: "Report of Farm Record-Keeping Families in Taiwan, 1963," Department of Agriculture and Forestry, Taiwan Provincial Government, October, 1964.

^{2/} In United States, the physical farm assets were valued at \$107,419 million on 1,159 million acres of farm lands: about \$100 per acre or \$200 per hectare. See Alvin S. Tostlebe "Capital in Agriculture-- Its Formation and Finance Since 1820," Princeton University Press, 1952.

Of the farm assets, about 14 percent are current and 86 percent are fixed in nature. The most important items of current assets are farm products in storage, 3.92 percent; livestock and poultry, 3.24 percent; growing crops, 2.62 percent; and cash and cash equivalent (cash and deposits, receivables, etc.) 2.85 percent. Of the fixed assets, land is the most important single item, accounting for 69 percent of the total assets, with building (11.65 percent) and machinery following. From this brief sketch, it is clear that the fixed factors are dominant in the asset structure of Taiwan farmers, leaving only a small proportion that can be mobilized for working capital.

The breakdown of the total liabilities gives a general picture of how assets are financed. The liabilities, both current and fixed, account for only 4.6 percent of the total financing, while the balance of 95 percent is self financed. Since investment demand is distinctly seasonal, the point in time at which the balance sheet figures are taken influences the results obtained. For instance, December 31 is in a slack season at which time most crops are being harvested and marketed, and most short term debts have already been repaid with the sales proceeds of that year. However, the fundamental feature, that by far the most important part of the total financing comes from the farmers' own capital, does not seem to be altered by the above qualifications.

The Agricultural Industry

Rice claims the lion's share in Taiwan's agricultural production. In 1963, Taiwan farmers produced 2.1 million metric tons of brown rice (husked, but not polished) which accounted for 42 percent of the total value of agricultural production. Other important crops are sweet potatoes, 6.42 percent; sugar cane, 6.61 percent; fruits which include bananas, pineapples, and citrus, 4.52 percent; and vegetables, 4.52 percent. Livestock production accounts for about 22 percent of the total value of agricultural production. Hog production is by far the most important livestock enterprise, contributing about 90 percent of the livestock production. Generally speaking, the livestock industry means hog raising to the majority of Taiwan farmers.

TABLE 5

Amount and Value of Agricultural Products of Taiwan, 1963

Commodities	Amount (1,000 m/t)	Value (NT\$,1,000,000)	Per Cent
Rice	2,100	10,362	42.28
Sweet Potatoes	2,148	1,573	6.42
Sugar Cane	6,506	1,620	6.61
Fruits		1,110	4.53
Vegetables		1,109	4.52
Hogs (1,000 Head)	2,545	4,627	18.88
(Livestock Total)		5,455	22.66

Source: "Taiwan Agricultural Yearbook, 1964 Edition," Department of Agriculture and Forestry, Taiwan Provincial Government July, 1964.

While employing 47 percent of the total population, agriculture contributes only about 30 percent of the total net domestic production of this island. This ratio has followed a continuously decreasing trend. In 1956, for instance, it was 33 percent; but in 1963, it decreased to 29 percent, even with non-farm income taken into account. Farmers' income on a per capita basis is about 70 percent of the level of non-farmers.

TABLE 6

Net Domestic Product of Taiwan

Year	(NT\$1,000,000 at Current Price)		
	Total Domestic Product	Agricultural Domestic Product	Per Cent of Agriculture to Total
1956	26,046	8,557	32.0
1957	30,045	9,625	32.0
1958	32,850	10,403	31.7
1959	38,535	11,769	30.5
1960	48,013	16,360	34.1
1961	53,606	16,993	31.7
1962	58,489	17,262	29.5
1963	66,634	19,064	28.6

Note: Agriculture includes forestry, fisheries and livestock.

Source: "Annual Report on Taiwan's Economy, 1963," Council for International Economic Cooperation and Development.

Taiwan's agricultural production has increased steadily during the last decade. Taking 1956 as the base period, the general agricultural production index was 133 in 1963, an increase of about 5 percent per annum on a fixed base. During this period, fisheries made a remarkable stride, recording an 81 percent increase in seven years, or about 11 percent per annum. Forestry experienced a 64 percent production increase, and crops a 28 percent increase, while livestock declined about 4 percent.

The average farm family earnings (earnings of family labor, owned land and owned capital) was NT\$28,000 or US\$720 per farm family.^{3/}

^{3/} "General Agricultural Statistics of Taiwan," Joint Commission on Rural Reconstruction, 1962.

TABLE 7

Index Numbers of Agricultural Production (1956=100)

Year	General	Crops	Forestry	Fisheries	Livestock
1957	109.5	109.9	112.5	107.7	108.9
1958	116.2	115.1	139.5	118.8	111.2
1959	118.6	117.1	153.9	126.8	105.2
1960	118.8	116.3	154.7	133.3	104.4
1961	130.1	125.8	168.6	160.7	107.2
1962	130.1	126.2	170.3	166.9	98.2
1963	132.6	127.8	164.3	181.1	96.4

Source: "Annual Report on Taiwan's Economy, 1963," Council for International Economic Cooperation and Development.

Data obtained from records kept by farmers are shown in Table 8. For these farmers, 1963 farm earnings were NT\$35,900 or US\$900, per family; NT\$4,071, or US\$100, per capita; and NT\$27,070, or US\$677, per hectare of cultivated land. Farm earnings per family, per capita, and per land unit have been increasing.

TABLE 8

Farm Family Earnings of Taiwan (NT\$) (1)

Year	Per Family	Per Capita	Per Hectare of Cultivated Land
1960 (95 samples)	29,372	3,044	21,765
1961 (207 samples)	33,011	3,648	23,449
1962 (223 samples)	32,607	3,664	23,486
1963 (277 samples)	35,990	4,071	27,070

(1) Farm earnings are defined as: agricultural income minus out of pocket farming expenses. It therefore represents earnings on family labor, self-owned land and owned capital.

Source: "Report of Farm Record-Keeping Families in Taiwan," 1960, 1961, 1962, and 1963. Provincial Government of Taiwan, published in the respective years.

While part of the agricultural production in Taiwan is primarily for home consumption, an important part of it is highly commercialized. The degree of commercialization varies widely from crop to crop. For instance, about 40 percent of the rice, the most important food crop,

is commercialized, while the balance of about 60 percent is retained for family consumption. The lowest ratios of commercialization are found in sweet potatoes and papayas, 15 percent and 20 percent respectively, which are used for both human consumption and feeding animals. About 50 to 70 percent of the vegetables, and more than 80 percent of the fruits are marketed off-farm. Some important cash crops such as sugar cane, jute, tobacco, mushrooms, etc. are absolutely or nearly 100 percent commercialized.

TABLE 9
Percentage of Farm Production Marketed Off Farm in Taiwan (1)

Product	Per Cent
Rice	38.75
Sweet Potato	15.10
Peanut	56.03
Barley	70.28
Wheat	82.77
Corn	79.62
Soybean	73.69
Other Beans	62.67
Banana	76.98
Pineapple	95.32
Citrus	94.52
Pomelo	80.60
Peach	77.72
Papaya	25.24
Onion	57.90
Cabbage	50.74
Chinese Cabbage	69.60
Cucumber	74.09
Watermelon	88.23
Tomato	85.74
Radish	38.20

(1) Based on unpublished data of 1956
Agricultural Sampling Census of Taiwan,
covering the year 1955.

Note: Items such as sugar cane, jute,
tobacco, mushrooms, tea, and citronella
oil, of which absolutely or nearly 100%
is marketed off-farm, were excluded from
the survey.

Source: W. F. Chuang and H. Y. Chen, "Agricultural
Price Policies and Marketing Programs in
Taiwan, Republic of China," Joint
Commission on Rural Reconstruction,
February, 1963.

AGRICULTURAL CREDIT INSTITUTIONS

Many institutions and agencies are involved in financing Taiwan's agriculture. While some of them deal directly with the farmers, some deal only indirectly, and still others are related to farmers both directly and indirectly. While some of them are specialized agricultural credit institutions in the sense that their primary purpose is agricultural banking, some are non-specialized agricultural credit agencies and provide farm credit only as a means to facilitate the carrying out of other programs related to farming. While some of them deal with all farmers, some cover only special groups. Some of them are cooperative organizations, some are government or semi-government agencies, and others are commercial organizations. A brief description of these agricultural credit institutions follows.

Agricultural Credit Agencies

The specialized agricultural credit agencies, for which farm credit business is the end or primary activity, include Farmers' Associations, the Land Bank of Taiwan, and the Cooperative Bank of Taiwan.

Farmers' Associations

Taiwan's farmers' associations (FAs) are general purpose or multi-service farmers' cooperatives. Presently, they are organized at three administrative levels: township FA's, which are currently 331 in number, are the unit organizations; hsien or prefectural FA's, 22 in number, are the federations of the township FA's at the prefectural level; and one provincial FA, which is organized as the federation of the hsien FA's at the provincial level.

The organizational or business area of the farmers associations coincides with the administrative boundary at the respective levels. This gives the unique one-township-one-FA, or one-prefecture-one-FA organizational pattern. For its fundamental administrative unit, Taiwan has 361 townships. Because some of them are in municipalities where there are few or no farmers, and because some of them are situated in mountain areas where farming is not yet well developed, the number of the township FAs is a little short of the number of the townships. Those farmers living in the townships where there are no FA organizations can, if they need and wish, participate in the FA of the adjacent township. For want of a national federation, the provincial FA is presently the highest level organization.^{4/}

^{4/} The figures cited in the section are based on "Business Statistics Yearbook of Taiwan Farmers' Associations," Department of Agriculture and Forestry, Taiwan Provincial Government, June 1964.

The membership of the township farmers' associations is classified into two categories: regular members for which only those who obtain half or more of their income directly from farming are eligible, and associate members for which part-time farmers and non-farming rural residents can apply. Regular members have the right to vote for and to be voted into, any office of the FA, while the associate members can only be elected as supervisors, the number of which must not exceed one-third of the legal number. Based on 1963 year-end data, there are, in total, 809,706 members of FA's, of which about two-thirds (544,000) are regular members and one-third (266,000) are associate members. Since the membership is on a one-family one-member basis, it is believed that about 95 percent of the 825,000 farm families participate in the FA. The average size of membership is 2,500 per FA.

Members of a township farmers' association elect member-representatives to form a member-representative assembly of the respective FA. This assembly is the highest authority or policy making organ of the FA and elects a board of directors and a board of supervisors. The board of directors acts in behalf of, and is responsible to, the member-representative assembly while the board of supervisors is the autonomous auditing authority. One general manager is employed by the board of directors and empowered to execute all activities of the FA.

Services rendered by the farmers' association are related to every phase of the farmers' farming and living activities. These services can be broadly classified into three categories.

The first category is "marketing and purchasing," which includes marketing of farm products and purchasing of farming and living materials such as collecting, storing and processing of rice, cooperative marketing of hogs and other farm produce. It also includes distribution of fertilizers, supply of seeds, feeds, pesticides and other living necessities.

The second category is "credit," under which rural banking facilities are available for farmers' use. Farmers deposit their surplus funds with the credit department of FA and borrow from it, at official interest rates, working capital for farming operations. At present, 294 of the 331 township FA's have credit departments in operation. For most townships, the FA credit department is the only banking institution accessible to rural people. Only township FA's are engaged in the credit business; neither hsien nor provincial federation has credit facilities.

The last category is "agricultural extension," under which educational programs for better farming and better living are implemented. This includes farm extension programs for adults, education of farm youth in preparation for future farming, and home economics extension for rural women.

In 1963, the farmers' associations as a whole had 8,000 full-time employees of which 2,700 persons (31 percent) are in the marketing and

purchasing department, 2,200 persons (25 percent) are in the credit department, 1,400 persons (16 percent) are in the agricultural extension department, and the rest are administrative personnel including general and assistant managers. On the average, one FA employs 22 full-time staff members, with the largest FA employing about 140 persons regularly.^{5/}

Land Bank of Taiwan

The Land Bank of Taiwan was established on September 1, 1946, as a banking institution specializing in land and agricultural finance. The establishment of this bank was in fact the reorganization of the former Taiwan Branch of the Hypothec Bank of Japan with the taking over of the assets, liabilities, and business of the latter by the former. It is purely a government bank with total capital of NT\$40,000,000, entirely appropriated by the national treasury. As a government-owned and operated bank, the by-laws of the Bank specify its functions as "to accommodate land financial needs, promote agricultural and forestry developments, and assist the government in carrying out its land and agricultural policies."

This Bank maintains its head office in Taipei City with 24 branch offices located in the major cities and townships of the Province. Though vested with the major responsibilities of providing long and intermediate term financing to agricultural enterprises, the Bank also engages in general banking business. It extends, besides farm loans of many kinds, real estate mortgage loans to industry as well as to urban residents.

As a government bank, the Land Bank occupies a unique position in agricultural financing. During the period of 1953-1962 when Taiwan's land reform program was in progress, this Bank acted for the government in collecting from the farmer and paying to the original landlords the land price of the transferred land. The Bank also issued "land bonds" to finance implementation of the land reform program. These bonds were unique in that their face value was expressed in physical units of rice and sweet potatoes rather than in monetary terms. Thus the Land Bank played an important role in this program.^{6/}

^{5/} Min-Hioh Kwoh, "Farmers' Associations and Their Contributions Toward Agricultural and Rural Development in Taiwan," Food and Agriculture Organization of the United Nations, Regional Office for Asia and the Far East, October 1964.

W. F. Chuang and H. Y. Chen, "Agricultural Price Policies and Marketing Programs in Taiwan, Republic of China," Joint Commission on Rural Reconstruction, February, 1963.

"Business Statistics Yearbook of Taiwan Farmers' Associations," Department of Agriculture and Forestry, Taiwan Provincial Government.

^{6/} "Working Papers on Agricultural Credit in Free China," The Delegation of the Republic of China to the Second Far East Agricultural Credit Workshop, Tokyo, Japan, October, 1958.

The Cooperative Bank of Taiwan

The Cooperative Bank of Taiwan was also established in 1946 by reorganization of the former Taiwan Cooperative Treasury, which had been organized in 1923 as the Taiwan Cooperative Association by the then existing 290 cooperatives. These were mostly credit cooperatives, having 130,000 members scattered over the urban as well as rural areas. The book value of the Cooperative Bank's capital stock is NT\$3,000,000. If re-evaluated at present prices, the estimated value of the capital stock is now NT\$30,000,000. Of the total stock, 60 percent is held by the Provincial Government and 40 percent by cooperative associations. The cooperative stockholders comprise 668 cooperative organizations including 333 farmers' associations, 58 fishermen's associations, two irrigation associations, 46 cooperative farms and 229 credit and other cooperatives. Through these associations, the Cooperative Bank provides banking facilities to agriculture, forestry, fishing and small urban industries.

The basic policy framework of the Cooperative Bank is provided by law. Within these legal limits, policy is jointly established by the cooperative association stockholders and the Provincial Government. At annual meetings, the association stockholders elect six members of the Bank's 15-member board of directors. The Government retains majority control of the board--hence of Bank policy--through appointment of the other nine members.

With the head office established in Taipei, this Bank has 23 branches operating in major cities and townships. In addition, the Bank designates from among farmers' associations and credit cooperatives 76 general agencies and 148 remittance agencies serving in smaller towns.^{7/}

Banking Agencies

Though not significant in the amounts of loans made, general banking institutions also provide credit to farmers and agricultural businesses. These banking institutions are commercial banks, non-farm credit cooperatives and savings companies.

Commercial Banks

The commercial banks in Taiwan are centralized organizations which have branches all over the island. There are presently three commercial banks all of which were reorganized to the present form in 1946 from

^{7/} "The Cooperative Bank of Taiwan, on the Road to Development," The Cooperative Bank of Taiwan, August 1959.

"Working Papers on Agricultural Credit in Free China," Delegation of the Republic of China to the Second Far East Agricultural Credit Workshop held at Tokyo, Japan, October 1958.

the existing commercial banks operating under Japanese occupation. Capitalized with stock shares of NT\$2.56 million, 3 million and 2.4 million (book value) respectively, the three commercial banks have, in total, 169 branches in addition to the headquarters (two in Taipei City and one in Taichung City). Unlike the farmers' associations which have mutually exclusive service areas, the three commercial banks have competing branches in many localities. A number of smaller townships, on the other hand, are not serviced by any of the three commercial banks.

The loans extended to farmers by commercial banks are primarily secured with either real estate or chattel mortgages. Owing to their locational and business characteristics, commercial banks are not easily accessible to small farmers and their services are to a great extent limited to large farmers and related agricultural businesses. They only provide short-term farm credit, not exceeding six months in term.

Credit Cooperatives

There are at present 82 credit cooperatives in Taiwan. Though most of them are organized and operate in municipalities and cities, some are established in the big townships of urbanized rural areas. Since the membership is also open to farmers, many farmers have interest in these credit cooperatives, presumably more or less urban-rural ones. Farmers' participation in these non-agricultural credit cooperatives, however, is largely limited to those with better financial positions living in semi-urban areas.

Credit is available to the farmer members of these credit cooperatives, although it is not necessarily identified as agricultural. The loans made to farmer members are generally unsecured short-term loans not exceeding six months in term.

Savings Companies

These credit agencies accept deposits from and extend loans to individuals. They are somewhat similar to the savings and loan associations of the United States, being share stock companies rather than cooperative organizations. There are eight saving companies operating presently. One of them is government owned, serving the entire province with 41 branches. The other seven are privately owned and cover mutually exclusive business areas within which business is conducted through a total of 35 branches.

Agricultural financing is a part, probably a very minor part, of the credit business of these savings companies. The loans made by these savings companies are secured loans of short-term not exceeding six months.^{8/}

^{8/} Nien-Chin Luh, "Agricultural Finance in Taiwan," (Chinese), Land Bank of Taiwan, July 1963.

Government and Semi-Government Agencies

Besides those specialized banking agencies described in the preceding sections, there are certain government and semi-government agencies providing farm credit to the farmers. Though some of these agencies only grant loans to special groups of farmers, some cover all farmers and the amounts of loans extended by them are quite significant. These agencies are briefly discussed in the following sections.

Provincial Food Bureau

The Provincial Food Bureau (PFB) is an enterprise of the Provincial Government with a rank equivalent to the departments which come directly under the provincial jurisdiction. Being a branch of the provincial government, PFB is charged with the responsibilities of collecting, storing and distributing foods. Its objectives are primarily procuring food for distribution to armed forces, civil servants of governments at all levels, school teachers, the dependents of these personnel, and other special groups such as mine workers and extremely poor families. With the foods it controls, PFB also conducts market operations to stabilize market prices of foods. It withholds or injects food stocks into the market at lower than market prices to counteract violent market price fluctuations.

The PFB procures foods, mostly grain, in several ways. The most important means is through fertilizer barter and loans. Chemical fertilizers are imported from foreign countries and obtained from domestic manufacturers (such as the governmentally-owned Taiwan Fertilizer Company). These are distributed to farmers on a 40 percent spot barter and 60 percent loan basis. For the bartered portion, farmers are required to turn in stated amounts of paddy (unhusked) rice on the spot. The remainder is scheduled to be repaid in kind after harvest. This is essentially a loan in kind (production material) to also be repaid in kind.

In addition to fertilizers, the PFB also provides needy farmers with production loans and production materials such as power tillers, water pumps and engines, pesticides and sprayers. In most cases, these loans are scheduled to be repaid in grain, because the PFB is primarily interested in controlling sources of food supply.

The PFB maintains seven district offices in the province, but its loan operations are entrusted to the township farmers' associations on a fee basis and it has no direct contact with farmers.

Taiwan Sugar Corporation

The Taiwan Sugar Corporation (TSC) is also a government enterprise. But instead of provincial government, it is an agency of the central government. The TSC monopolizes the sugar refining industry of Taiwan. Except for a handful of small scale sugar refineries which manufacture

only brown sugars, it controls all of the centrifugal sugar refining business and currently operates 22 large scale sugar mills with modern equipment. This Corporation produces annually approximately one million metric tons of refined white sugar of which about 85 percent is exported to earn a very important part of Taiwan's foreign exchange.

Two major sources supply raw sugar cane to the Taiwan Sugar Corporation for processing. One is the sugar cane plantations belonging to and directly operated by, the TSC. The other is the so-called contract farmers who contract with TSC to supply raw sugar cane at a pre-announced sugar support price. Because 15 to 18 months are required to grow sugar cane in Taiwan, it is necessary for the TSC to finance the gap between planting and harvesting. Based on acreage, the contract sugar cane farmers are supplied by the TSC with seedlings, chemical fertilizers, and operating expenses, as well as some living expenses to tide over the financial gap. These loans are made either in cash or in kind, to be repaid after harvest and processing of the cane. The loans are made by the sugar mills directly and are not related to the local farmers' associations. They constitute an important source of financing to the farmers in the southern part of the island where the sugar cane is grown.

Tobacco and Wine Monopoly Bureau

The Tobacco and Wine Monopoly Bureau is an agency of the Taiwan Provincial Government which monopolizes the production and distribution of tobacco and wine in the Province. Its monopoly profit alone generates a net income constituting about half of the provincial revenue.

For the implementation of the tobacco monopoly, the production of tobacco leaves and their post harvest treatment are placed under strict control of the Monopoly Bureau. For the growing of Tobacco, a farmer is licensed by the Bureau, which has the sole right to allocate and authorize tobacco acreages to the applying farmers. The seeds, the seedlings and the curing of tobacco leaves after harvest, are under close supervision of the Monopoly Bureau. This Bureau supplies production loans to the farmers to meet their cash needs during the production period. Loans are extended to the farmers by the local farmers' associations, to be repaid after harvesting of the crop. The Bureau, however, provides no production materials. Chemical fertilizers for tobacco are supplied by the Provincial Food Bureau.

Provincial Supply Bureau

The Provincial Supply Bureau (PSB) is also a provincial enterprise which is vested with the responsibility of regulating commodity (other than food) flows to stabilize the domestic market. It has the privilege of importing certain materials to meet the requirements of the population.

Two of its activities are directly related to farmers. One is collecting jute for delivery to the gunny bag factories, and the other is procuring hogs for export, mostly for shipment to Hong Kong.

To guarantee the necessary raw material supply to domestic gunny bag manufacturers and to assure reasonable jute prices for farmers, the PSB contracts with both the gunny bag factory and the farmers for delivery of jute at stipulated prices. To those contract farmers, the PSB provides production loans to be repaid in the delivery of jute. Similar production loans are extended to hog farmers who agree to surrender hogs of slaughtering weight for shipment to Hong Kong and Japan. The carrying out of the actual business, the extending of loans and the collecting of jute and hogs, are all entrusted to the local farmers' associations.

The Joint Commission on Rural Reconstruction

The Sino-American Joint Commission on Rural Reconstruction (JCRR) is a special organization in Taiwan. Though not a pure government agency, it is a joint establishment of the Republic of China and the United States of America, based on the China Aid Act of 1948. The highest authority is a three-man (formerly five) commission, the members of which are appointed by the Presidents of the Republic of China and the United States.

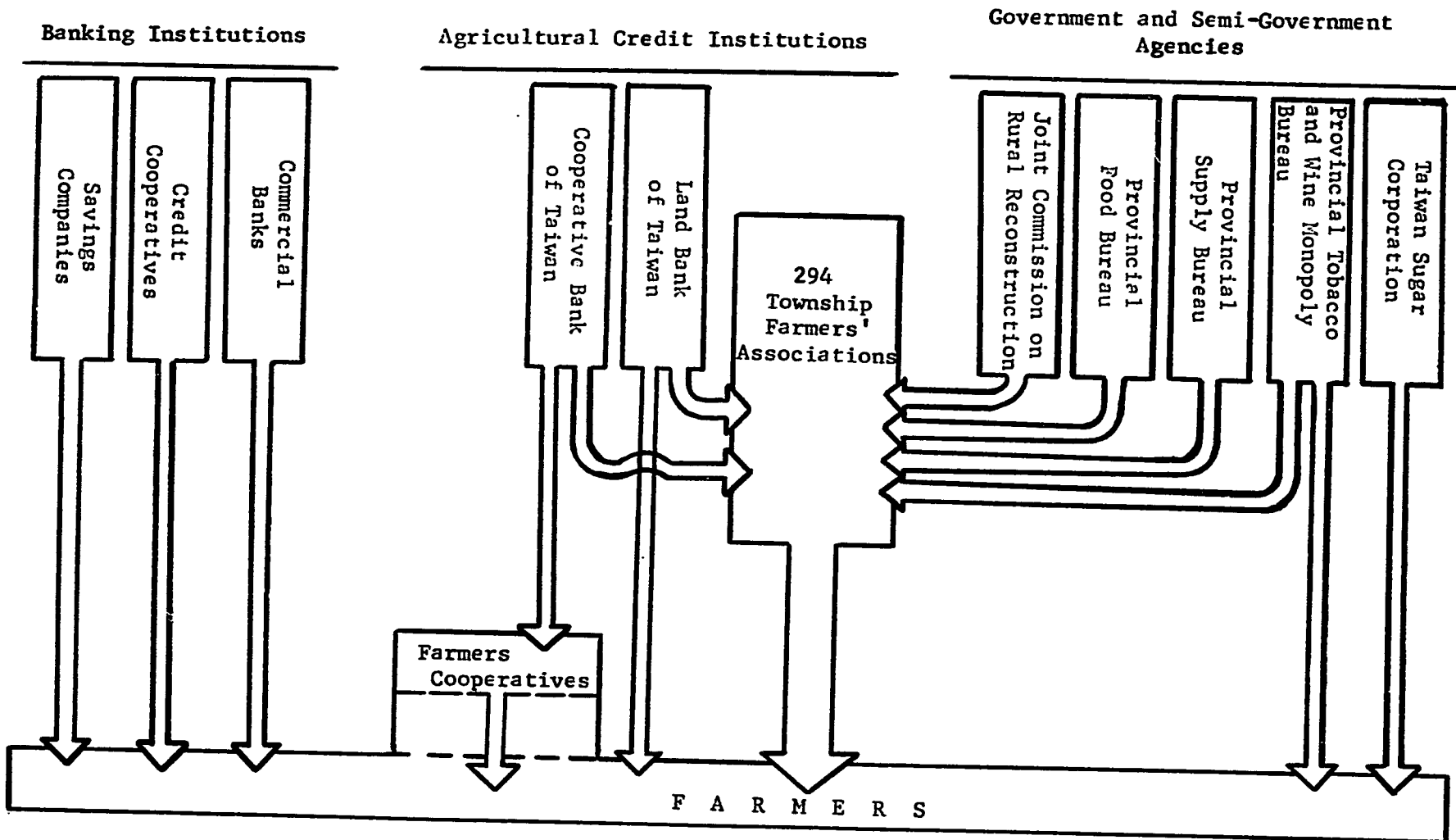
The function of the JCRR has been to administer American aid of all kinds--loans, grants and technical assistance--to agricultural, rural health, and related projects. By providing both financial means and technical advice to projects submitted to it for its support directly from the government and organizations at all levels, the JCRR has made speculative contributions to assist the agricultural development of Taiwan in the post-war years.^{9/}

As a means of financing agricultural development in Taiwan, the JCRR makes two major categories of loans. One is loans to agricultural organizations such as farmers' associations, irrigation associations, fishermen's associations, and fruit marketing cooperatives for the conduct of their business. In most cases, these are long and intermediate term loans for physical facilities. The other is loans to the credit departments of the township farmers' associations for relending to the farmers for production purposes. Loans in the second category now constitute a very important source of financing directly available to farmers.

^{9/} "Rural Improvement and Political Development: The JCRR Model - Report of a Study of the Chinese-American Joint Commission on Rural Reconstruction, Taipei, Taiwan," Department of State, Agency for International Development, June 15, 1964.

Figure 1

Farm Credit Channels in Taiwan



Farm Credit Channels

As described in the preceding sections, many credit and other agencies are providing credit facilities to Taiwan farmers. The relationships among these institutions in the farm credit business are shown in Figure 1. Of these agencies, the Taiwan Sugar Corporation, the commercial banks, the credit cooperatives and the savings companies deal directly with farmers. The Land Bank of Taiwan and the Cooperative Bank of Taiwan serve the farmers both directly and indirectly. The Provincial Food Bureau, the Provincial Supply Bureau, the Tobacco and Wine Monopoly Bureau and the Joint Commission on Rural Reconstruction only have indirect credit ties with the farmers. All those which have indirect contact with the farmers use the credit facilities of the township farmers' associations as their intermediaries. The farmers' associations, therefore, can provide credit to farmers either from their own resources or with external funds available to them.

RECENT DEVELOPMENTS IN AGRICULTURAL CREDIT

Amount of Loans

Institutional agricultural credit provided to Taiwan farmers has been increasing very rapidly in recent years. As shown in Table 10, the total amount of loans advanced by credit and other institutions was five billion dollars of local currency (NT\$40=US\$1) in 1956. It increased to 15 billion dollars in 1963; three times the amount advanced seven years earlier.

The amount reported by each institution may not be absolutely precise. For instance, it is a common practice for borrowers to pay interest but to renew rather than repay the loan when it is due, and as long as the borrower does not fail to pay interest, the credit agencies usually agree to the renewal several times. While some institutions treat this sort of loan renewal as a new loan, some treat it as an extension of the loan. The total loan figure, therefore, does not reflect the true picture, at least in some cases.

With the above qualifications in mind, the share of the institutional farm credit market held by different types of lenders can be observed in Table 10. In 1956, agricultural credit agencies provided 67 percent of the total institutional credit to farmers, while ordinary banking agencies provided 15 percent, and government and semi-government agencies 18 percent. By far the most important source of farm credit is the specialized agricultural credit institutions, namely Farmers' Associations, Land Bank of Taiwan, and Cooperative Bank of Taiwan. This importance of the agricultural credit institutions has increased sharply in recent years. In 1963, for instance, of the total amount of farm credit extended, almost 90 percent was advanced by the agricultural credit institutions, leaving only a little more than one-tenth of the market to be shared by commercial banking agencies and government and semi-government agencies.

TABLE 10

Total Amount of Agricultural Loans Advanced

Year	Total	Lendor		
		Agricultural Credit Agencies	Banking Agencies	Government and Semi-government Agencies
<u>NT\$1,000,000</u>				
1956	5,497	3,704	830	963
1957	4,701	2,421	1,244	1,036
1958	6,361	4,518	638	1,205
1959	8,613	6,605	775	1,233
1960	9,315	6,451	1,222	1,642
1961	7,300	4,356	2,049	895
1962(1)	25,994	23,985	556	1,452
1963	15,556	13,913	765	879
<u>Percent</u>				
1956	100.00	67.39	15.09	17.52
1957	100.00	51.50	26.45	22.05
1958	100.00	71.03	10.03	18.94
1959	100.00	76.69	9.00	14.31
1960	100.00	69.25	13.12	17.63
1961	100.00	59.67	28.07	12.26
1962	100.00	92.27	2.14	5.59
1963	100.00	89.44	4.91	5.65

(1) The loan figures of this year seem incorrect. The error might be either in reporting or in processing the original data.

Source: Department of Finance, Taiwan Provincial Government "Agricultural Loan Statistics" of the respective years.

Table 11 shows the year-end outstanding balance of agricultural loans for recent years. Over the seven-year period from 1956 to 1963, the outstanding balance increased about four times. Compared to the nearly three-time increase in total annual advances in the same period, the outstanding balance increased at a higher rate, indicating an increase in the average length of loans extended by these institutions.

So far as the year-end outstanding balance of loans is concerned, agricultural credit institutions have gained both absolutely and relatively. Their share increased from 52 percent of the total in 1956 to 62 percent in 1963. Though all three categories of institutions have been increasing their outstanding loans, the specialized agricultural credit agencies have progressed much faster than the other two.

TABLE 11
 Outstanding Balance of Agricultural Loans
 (At the end of the year)

Year	Total	Lendor		
		Agricultural Credit Agencies	Banking Agencies	Government and Semi-government Agencies
<u>(NT\$1,000,000)</u>				
1956	1,274	663	109	502
1957	1,195	651	149	395
1958	1,946	1,112	217	617
1959	2,548	1,548	237	763
1960	3,069	1,573	408	1,088
1961	3,307	1,844	413	1,050
1962	5,821	4,007	356	1,458
1963	4,571	2,855	226	1,490
<u>Percent</u>				
1956	100.00	52.02	8.56	39.42
1957	100.00	54.48	12.47	33.05
1958	100.00	57.16	11.14	31.70
1959	100.00	50.77	9.30	27.93
1960	100.00	51.24	13.30	35.46
1961	100.00	55.75	12.50	31.75
1962	100.00	68.84	6.11	25.05
1963	100.00	62.46	4.94	32.60

Source: Department of Finance, Taiwan Provincial Government
 "Agricultural Loan Statistics" of the respective years.

Loans Made By Individual Agencies

Table 12 shows the amount of agricultural loans made in recent years by individual agencies; Table 13 shows year-end outstanding balances. From these data, it is clear that the largest agricultural lender is the Cooperative Bank of Taiwan. In 1956, it extended a little over one-third of the total agricultural loans. By 1963, its relative share had increased to almost two-thirds of the total. The farmers' associations, which made 23 percent of the total loans in 1956 and 16 percent in 1963, ranked second. The Land Bank of Taiwan occupies third position with seven and nine percent of the total in 1956 and 1963, respectively.

As an overall trend, the commercial banking agencies did not increase their agricultural loans during the period, and agricultural loans under this category are relatively unstable. Neither has there

TABLE 12

Total Agricultural Loans by Agencies
(NT\$1,000,000)

Agency	1956	1957	1958	1959	1960	1961	1962	1963
Total: All Agencies	5,497	4,701	6,361	8,613	9,315	7,300	25,994	15,556
I. Agricultural Credit Agencies	3,704	2,421	4,518	6,605	6,451	4,356	23,985	13,913
a. Farmers' Associations	1,262	1,442	1,296	1,661	2,592	1,586	11,266	2,484
b. Land Bank	380	353	525	768	812	756	1,054	1,399
c. Cooperative Bank	2,063	626	2,698	4,176	3,047	2,014	11,666	10,029
II. Banking Agencies	830	1,244	638	775	1,222	2,049	556	765
a. Commercial Bank	511	751	319	359	393	437	450	765
b. Credit Cooperative	247	361	316	388	802	1,312	-	-
c. Savings Companies	72	132	3	28	27	301	106	-
III. Government and Semi-government Agencies	963	1,037	1,205	1,233	1,642	895	1,452	879
a. Provincial Food Bureau	651	696	667	706	867	287	814	235
b. Taiwan Sugar Corporation	209	294	408	355	324	405	377	400
c. Tobacco & Wine Monopoly Bureau	54	24	54	42	267	53	9	25
d. Provincial Supply Bureau	8	9	21	33	32	20	11	14
e. Joint Commission on Rural Reconstruction	41	14	55	97	152	130	241	205

Source: Department of Finance, Taiwan Provincial Government "Agricultural Loan Statistics" of the respective years

TABLE 13
Year-End Outstanding Balance of Agricultural Loans By Agencies
(NT\$1,000,000)

Agency	1956	1957	1958	1959	1960	1961	1962	1963
Total: All Agencies	1,274	1,195	1,946	2,548	3,069	3,307	5,821	4,571
I. Agricultural Credit Agencies	663	651	1,112	1,548	1,573	1,844	4,007	2,855
a. Farmers' Associations	254	288	432	664	648	722	995	584
b. Land Bank	270	249	315	468	535	627	833	1,131
c. Cooperative Bank	139	114	365	416	390	494	2,180	1,140
II. Banking Agencies	109	149	217	237	408	413	356	226
a. Commercial Banks	45	51	64	77	98	110	124	226
b. Credit Cooperatives	50	72	105	155	200	241	-	-
c. Savings Companies	14	26	48	5	110	62	231	-
III. Government and Semi-government Agencies	502	395	617	763	1,088	1,050	1,458	1,490
a. Provincial Food Bureau	183	138	137	182	352	147	328	237
b. Taiwan Sugar Corporation	209	210	332	274	401	496	537	530
c. Tobacco and Wine Monopoly Bureau	26	24	20	11	23	10	7	15
d. Provincial Supply Bureau	-	-	-	1	1	1	-	-
e. Joint Commission on Rural Reconstruction	84	23	127	195	311	396	586	708

Source: Department of Finance, Taiwan Provincial Government "Agricultural Loan Statistics" of the respective years.

been any substantial increase in the loans made by government and semi-government agencies. The Provincial Food Bureau and the Taiwan Sugar Corporation are the two government agencies with the largest annual loan volume. Their 1963 year-end outstandings were lower, however, than the Joint Commission on Rural Reconstruction, which in recent years has become more active in lower-term financing of agricultural development.

Further consideration of year-end balances of outstanding loans sheds additional light on the lending activities of the various agencies. In 1956, the Land Bank ranked first in this regard with 21 percent of the total, closely followed by the Farmers' Associations with 20 percent. The Taiwan Sugar Corporation, reflecting its longer-term loans to contract producers, was third in outstandings with 16 percent of the total. By 1963, relative positions of the agencies had changed. Increased activity in longer term loans had moved the Cooperative Bank's outstanding balance slightly ahead of the Land Bank; each with about one-fourth of the total. The Joint Commission on Rural Reconstruction, also reflecting the accumulation of longer-term loans, had moved into third place with a larger volume outstanding than either the Farmers' Associations or the Taiwan Sugar Corporation.

Both the Land Bank and the Cooperative Bank of Taiwan are engaged in financing agricultural businesses such as processing and manufacturing firms, farmers' organizations such as irrigation associations, farmers' associations, and cooperatives. Their direct loans to individual small farmers are not significant and are principally made through local farmers associations or marketing cooperatives. In this role as an intermediary, the farmers' associations play a more important part in agricultural financing than indicated by the comparatively low volume of loans made from their own capital resources.

Classification of Loans

Farm loans are extended under many categories and many kinds of classifications are employed by different agencies. The most common classification used in Taiwan, however, is security: secured and unsecured loans. Loans are secured with either real or chattel estates. Unsecured loans are always guaranteed by co-signatures of at least two guarantors acceptable to the lending agency. Because title registration is both time consuming and costly, and because the loans are usually short term, the practice of extending unsecured loans guaranteed by qualified persons is widely employed. The purposes for which farm loans are made under these two categories are listed in Table 14. No quantitative information on number or volume of loans for the various purposes is available.

Loans may also be classified by length or term. Term, here, carries little or no implication of purpose but refers solely to time: five years or more, long-term; one to five years, intermediate; less than one year, short term. Data in Table 15 demonstrate that the great majority of loans are short-term.

TABLE 14

Purpose of Agricultural Loans,
By Agency and Class of Security

Agency	Purpose	
	Secured Loans	Unsecured Loans
Farmers Associations	All Purposes	All Purposes
Land Bank of Taiwan	Housing Farm Ownership Land Improvement Marketing & Processing Fisheries	Farm Production Farm Irrigation
Cooperative Bank of Taiwan	Marketing Processing Fisheries	Farm Production Operating Capital for Cooperatives
Commercial Banks	General	
Credit Cooperatives	General	
Savings Companies	General	
Joint Commission on Rural Reconstruction		Farm Production
Provincial Food Bureau	Power Tiller	Fertilizer Food Production Irrigation Farm Implements Rice Production Seed Production Hog Production
Taiwan Sugar Corporation		Sugar Production and Family Living
Tobacco & Wine Monopoly Bureau		Fertilizer and Implements
Provincial Supply Bureau		Jute Production Hog Production

Source: Nien-chin Luh, "Agricultural Finance in Taiwan," p. 36.

TABLE 15

Farm Loans by Length of Term
(NT\$1,000,000 year-end outstanding balance)

Year	Total	Long-Term (5 years or more)	Intermediate-Term (1-5 years)	Short-Term (less than one year)
1956	1,274	-	227	1,047
1957	1,195	-	181	1,014
1958	1,946	19	370	1,557
1959	2,548	24	631	1,892
1960	3,069	92	661	2,316
1961	3,307	118	371	2,818
1962	5,821	162	535	5,125
Percent of 1962 total	100.00	2.78	9.18	88.04

Source: Nien-chin Luh, "Agricultural Finance in Taiwan," p. 33.

Though efforts have been made to extend more long and intermediate-term loans in recent years, much remains to be done. At the end of 1962, nearly 90 percent of the outstanding loans were short-term, maturing within one year. Two major factors help explain this tendency. One is the source of loan funds. Most agencies have recourse to deposits as their main, if not their sole, source of loan funds. Such funds are not appropriate for long or even intermediate-term lending. The other factor is the stabilized land-tenure system established by the land reform program implemented during the past-war years. Transfer of farm title seldom occurs except in inheritance. Hence, little long-term credit is demanded for financing purchase of real estate.

TABLE 16

Estimated Average Length of Agricultural Loans by Lendor (1)
(Months)

Year	All Agencies	Lendor		
		Agricultural Credit Agencies	Banking Agencies	Government & Semi- government Agencies
1956	2.78	2.15	1.58	6.26
1957	3.05	3.23	1.44	4.58
1958	3.67	2.95	4.08	6.14
1959	3.55	2.81	3.67	7.43
1960	3.95	2.93	4.01	7.95
1961	5.44	5.08	2.42	14.08
1962	2.69	2.01	7.68	12.05
1963	3.53	2.46	3.54	20.34

(1) Average length of loans is calculated as follows:

$$\frac{\text{Outstanding balance of loans at end of year}}{\text{Total amount of loans made during the year}} \times 12$$

Source: Department of Finance, Taiwan Provincial Government
"Agricultural Loan Statistics" of the respective years.

TABLE 17

Distribution of Total Loans as Asset and Non-Asset Creating
in Purpose, by Agencies, Year-End, 1963
(Outstanding balance in NT\$1,000,000)

Agency and Type of Loan	Total	Asset Creating	Non-Asset Creating
<u>Land Bank of Taiwan</u>	<u>1,210 (2)</u>	<u>819</u>	<u>391</u>
<u> Type or Purpose</u>			
Housing		124	
Farm-purchase		14	
Irrigation		167	
Farm Production (1a)		171	171
Land Improvement		62	
Marketing and Processing			141
Fisheries		137	
Farmers' Association-financing			79
Land Consolidation and Other		144	
<u>Cooperative Bank of Taiwan</u>	<u>1,148</u>	<u>239</u>	<u>909</u>
<u> Type or Purpose</u>			
Agricultural Production (1a)		184	183
Fisheries		55	56
Marketing			162
Processing			506
Operation of Coops			2
<u>Joint Commission on Rural Reconstruction</u>	<u>459 (2)</u>	<u>459</u>	<u>-</u>
<u>Other Government and Semi- Government Agencies (1b)</u>	<u>782</u>	<u>78</u>	<u>704</u>
<u>Farmers Associations (1c)</u>	<u>584</u>	<u>117</u>	<u>467</u>
<u>Commercial Banks</u>	<u>201</u>	<u>-</u>	<u>201</u>
Total -- All Agencies:			
Amount	4,384 (2)	1,712	2,672
Percent	100	39	61

(1) Percentages of asset and non-asset creating loans estimated as:

- a. 50 asset; 50 non-asset
- b. 10 asset; 90 non-asset
- c. 20 asset; 80 non-asset

(2) Amount is different than that reported by other sources. Department of Finance (Table 10) reports total for all agencies as NT\$4,571 million; total for JCRR, NT\$708 million.

Source: Farmers' Bank of China

Accurate information on the length of loans made by different classes of lenders is not available. Estimates of average length of loans, calculated as described in the footnote to the table, are shown in Table 16 (page 26). While subject to inaccuracies, the estimates point up the extremely short average term of farm loans (less than four months) in Taiwan. They also reflect, in the longer average term of loans by government agencies, the limited longer-term financing activities of the Taiwan Sugar Corporation and the Joint Commission on Rural Reconstruction. It is perhaps significant and descriptive of their operations that the specialized agricultural credit agencies provide the shortest term credit of the three lender groups.

Based on the final use by the borrower, loans can be classified as asset and non-asset creating, but no data on this distribution are readily available. To provide an approximation of the ratio, loans of different lending agencies are arrayed in Table 17. The distribution of loans between asset and non-asset creating purposes has been estimated and included in the table.

The crude picture presented is of a 40:60 distribution: four-tenths, asset creating; six-tenths, non-asset creating. To the extent that this picture is accurate, the comparatively large allocation of credit to asset-creating purposes is encouraging as one looks to the prospects for future agricultural sector development in Taiwan.

Interest Rates on Agricultural Loans

In general, interest rates in Taiwan are very high. This may be attributed to three important factors: (1) the general inflationary trend of prices which has prevailed since the war period, (2) steady and speedy economic development with resulting scarcity of capital, and (3) prevailing economic uncertainty, especially during the immediate post-war period.

The interest rates on farm loans extended by different agencies are listed in Table 18. From the table, it can be observed that the interest rates charged on farm loans differ widely between lending agencies, loan programs, and length of loans. The lowest interest available presently is 0.9 percent per month or 10.8 percent per annum. Though in general the interest rate is falling, it is still high. However, compared to prevailing interest rates of 2.5 to 3.0 percent per month in the non-institutional market, rates on loans from these agencies are quite low.

Seasonal Variation of Loans

With agricultural production being seasonal, farm investment demand is also seasonal. Table 19 shows this demand pattern. Although the cycles for cash loans and material loans demands do not exactly coincide, the general tendency is the same. Loan demand is especially urgent in the spring months of February to April. During this period, the lunar calendar new year is followed by the rice planting season. The picture is somewhat obscured by geographic differences in season which tend to even out the apparent variations.

TABLE 18

Interest Rates on Agricultural Loans
(Percent Per Month)

Agency	1956	1957	1958	1959	1960	1961	1962
<u>Intermediate-Term Loans</u>							
Land Bank of Taiwan	1.5-1.7	1.5	1.5	1.2-1.5	1.2-1.5	0.9-1.35	0.9-1.32
Cooperative Bank of Taiwan	1.5	1.5	1.5	1.5	1.5	1.2-1.5	1.2-1.24
Provincial Food Bureau	1.0-1.2	1.0-1.2	1.0-1.2	1.0-1.2	1.0-1.2	1.0-1.2	1.0-1.2
Taiwan Sugar Corporation	0.9-1.5	0.9-1.5	0.9-1.5	0.9-1.5	0.9-1.5	0.9-1.5	0.9-1.5
Joint Commission on Rural Reconstruction	1.5	1.5	1.5	1.5	1.5	1.0	1.0
<u>Short-Term Loans</u>							
Farmers Associations	1.86	1.86	1.86	1.24	1.24	1.68	1.56
Land Bank of Taiwan	1.8	1.65	1.65	1.5	1.5	1.5	1.5
Cooperative Bank of Taiwan	1.8	1.65	1.65	1.5	1.5	1.5	1.5
Commercial Banks	1.8	1.65	1.65	1.5	1.5	1.35	1.32
Savings Companies	1.8	1.65	1.65	1.5	1.5	1.35	1.32
Credit Cooperatives	1.86	1.86	1.86	1.74	1.74	1.68	1.56
Provincial Food Bureau	0.5-1.2	0.5-1.2	0.5-1.2	0.5-1.2	0.5-1.2	0.5-1.2	0.5-1.2
Taiwan Sugar Corporation	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Tobacco & Wine Monopoly Bureau	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Provincial Supply Bureau	0.99	0.99	0.99	0.99	0.99	0.99	0.99

Source: Nien-chin Luh, "Agricultural Finance in Taiwan," p. 32.

TABLE 19

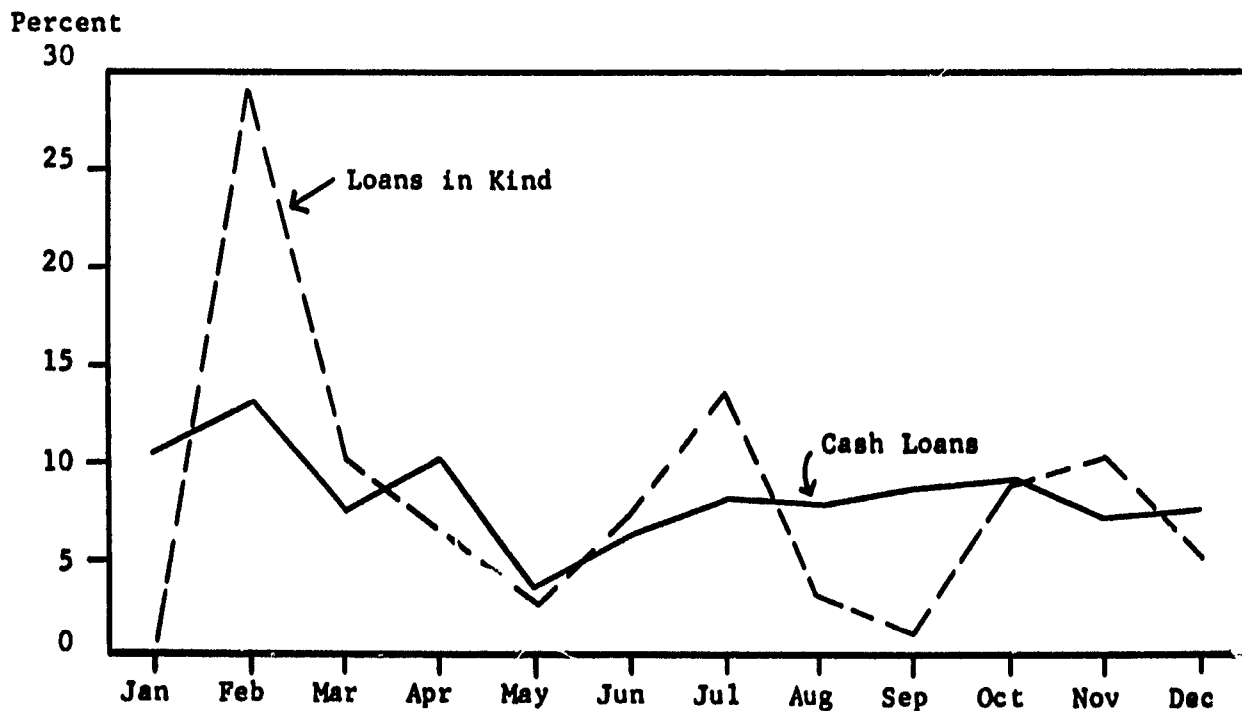
Seasonal Variation in Amount of Loans Received by Farmers
(Percent of 1960 total, by months)

Month	Cash Loans	Loans in Kind
<u>Total</u>	100.00	100.00
January	10.55	1.00
February	13.10	29.34
March	7.58	10.34
April	10.13	6.68
May	3.66	2.68
June	6.33	7.46
July	8.13	13.70
August	7.82	3.22
September	8.71	1.29
October	9.31	8.98
November	7.16	10.11
December	7.52	5.20

Source: "A Study of the Demand for and Supply of Capital for Taiwan Farmers," (Chinese) Department of Agriculture and Forestry, Taiwan Provincial Government, December 1961, pp. 32-33.

Figure 2

Seasonal Variation in Amount of Loans Received by Farmers
(Percent of 1960 total, by months)



Source: Table 19

Credit and Agricultural Production

Taiwan's agriculture has developed considerably during the last decade, as previously mentioned and as indicated by the increasing trend in annual domestic agricultural production shown in Table 6, page 6.

Agricultural credit from institutional sources--as measured both by annual volume and by year-end outstandings--has also increased during this period. (See Table 10 and 11, pages 20 and 21.)

It is not surprising that closer inspection of these trends shows a correlation between agricultural output and volume of credit input. Using least squares to fit regression lines to the data shown in Figures 3 and 4, the following relationships were found:

1. (Figure 3) A ratio of nearly one to one (0.95) between increases in annual volume of agricultural credit and increases in net domestic agricultural product. (1)
2. (Figure 4) A ratio of 3.2 between increases in credit as measured by year-end balances of outstanding loans and increases in net domestic agricultural product. (2)

It is not intended here to suggest a causal relationship: that increased credit causes increased production. Increased production could, in fact, cause an increase in credit volume. This is a gross, not net, analysis which includes many systematically correlated factors not explicitly introduced into the analysis. Only one thing is certain: both agricultural production and agricultural credit volume have increased hand in hand in Taiwan.

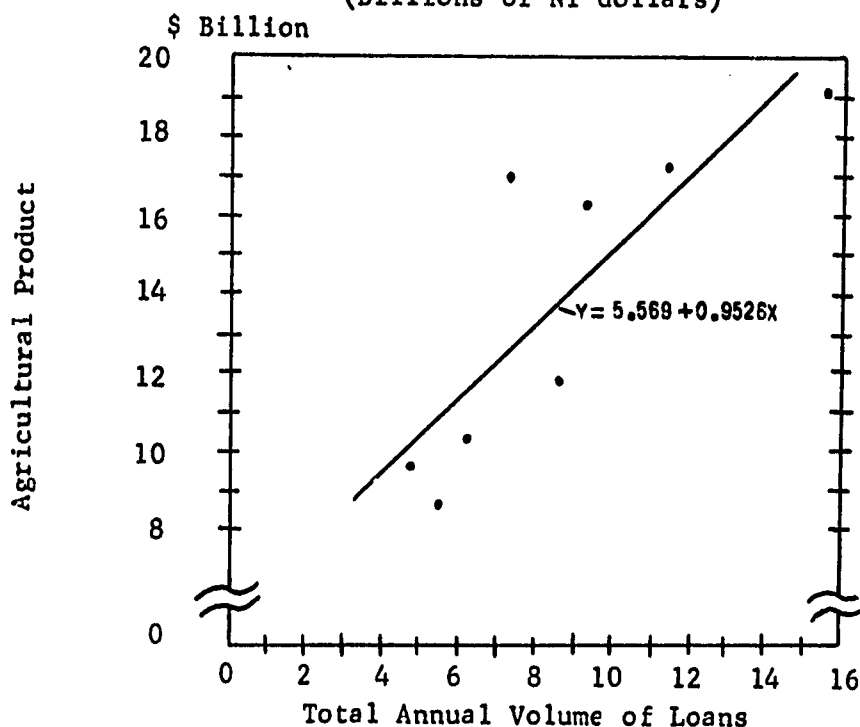
-
- (1) Where Y is net domestic agricultural product and X is total annual volume of agricultural loans, both expressed in billions of units of local currency, for the years 1956-1963, with 1962 credit volume interpolated:

$$\begin{aligned} Y_c &= 5.569 + 0.9526X \\ R &= 0.9526 \\ R^2 &= 77 \text{ percent} \end{aligned}$$

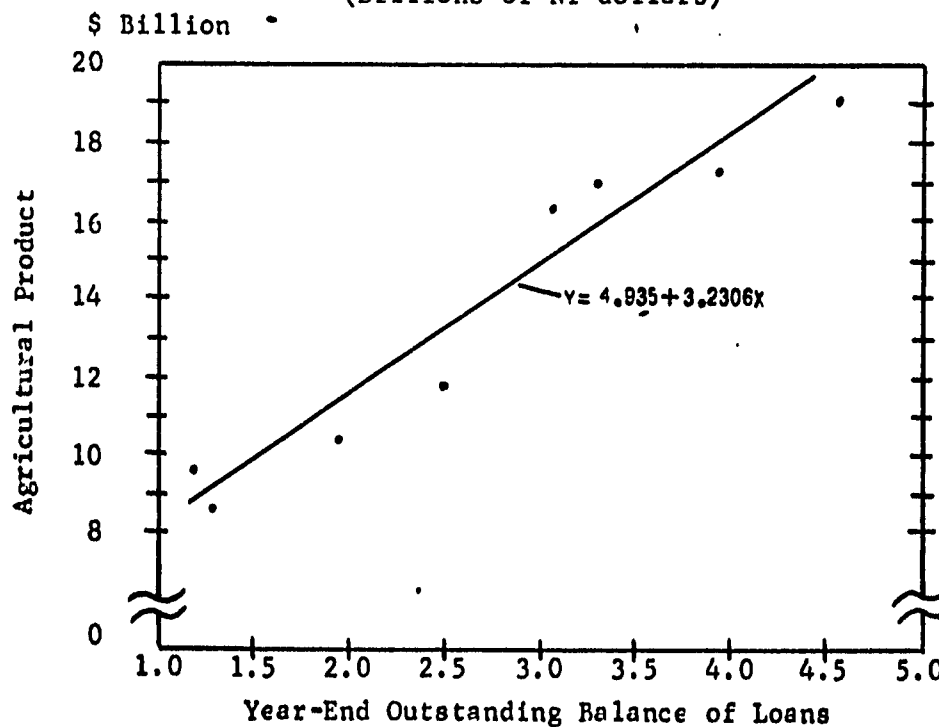
- (2) Where Y is net domestic agricultural product and X is the year-end outstanding balance of agricultural loans, both expressed in billions of units of local currency for the years 1956-1963, with 1962 credit outstanding interpolated:

$$\begin{aligned} Y_c &= 4.935 + 3.2306X \\ R &= 3.2306 \\ R^2 &= 93 \text{ percent} \end{aligned}$$

Net Domestic Agricultural Product and
Total Annual Volume of Agricultural Loans, 1956-1963
(Billions of NT dollars)



Net Domestic Agricultural Product and
Year-End Outstanding Balance of Agricultural Loans, 1956-1963
(Billions of NT dollars)



ROLE OF FARMERS' ASSOCIATIONS IN AGRICULTURAL CREDIT

In the preceding sections, it was made clear that the farmers' associations in Taiwan constitute one of the many institutions which provide credit to farmers. However, because of their organizational elements, their geographic distribution, and services rendered, the farmers' associations are by far the most important institution in financing Taiwan's agriculture.

First, the farmers' association is an autonomous cooperative organization dedicated to the welfare of the member farmers. As a cooperative organization, it emphasizes mutual benefits. The loan funds of the FA's come largely from members' deposits and investments. Through the FA credit department as the intermediary, one member's surplus funds, if any, are used to bridge the financial gaps of other members. Any profit made from its credit operations is kept in agriculture and is redistributed to the members, although not necessarily in tangible forms. Being aware of this fact, the tie between the farmers and their FA's is very strong. It is not surprising to find some townships where all three commercial banks maintain branches, but where their combined credit volume is less than one-half that of the local Farmers' Association.

Second, the mutually exclusive one-township one-FA organizational pattern results in a fairly even geographic distribution of the FA's. While the branch offices of commercial banks and even those of the Land Bank and Cooperative Bank are concentrated in the cities and townships, the FA's are scattered all over the rural area. The FA offices are in most cases, the only credit establishment accessible to the farmers by means of bicycles, motorcycles, and public buses. The FA's are the only places where the farmers can commute during their lunch breaks and other convenient times without disturbing their everyday farm work schedule.

Third, as a multi-purpose farmers' cooperative, the farmers' association provides not only credit services but also supplies production and living necessities, markets farm products, and conducts extension education programs for the farmers. The farmers can secure quality production materials at the FA, and the FA provides credit support if needed. The farmers can market their produce through the FA and deposit the sales proceeds in their accounts at the FA. They receive technical advice from the FA extension workers and their improved farming and living plan is backed up by the credit, supply, and marketing activities of the FA. Thus, the major part, if not all, of the farmers' needs can be met conveniently at one place.

Finally, as mentioned earlier, the FA credit departments also act--in effect--as local arms of other credit agencies in making and servicing farm loans. Thus the role of the farmers' associations, through their credit departments, is even greater than indicated by their direct lending activities.

The Credit Department of Farmers Associations

Economic (supply, warehousing, processing, and marketing), credit, and extension are the three operational or business departments of a farmers' association. The business operations of these three departments are facilitated by the functioning of two other administrative departments, general affairs and accounting. These five departments are supervised and directed by general and assistant managers.

Of the five FA departments, only the credit and economic departments generate any net revenue to support the other departments. The extension department has some revenue also, such as special service fees collected from direct beneficiaries. But, in general, service charges of the extension program are collected at cost, and sometimes even below cost. The general educational programs are financed by the net profits of the credit and economic departments. In the past, the credit department contributed an important part of the financial support of the extension programs. Profit transfer to the extension department is considered to be distribution of profit in the form of educational programs.

The net profit of all credit departments of the farmers' associations in recent years has averaged about 20 million New Taiwan dollars a year, constituting 80 to 90 percent of the total net profit of all FA's.^{10/} Employing only 25 percent of the FA paid personnel, the credit department provides the bulk of the financing of total FA operations.

Historical Development of Credit Activities

Conventional Rural Credit

Most of the local farmers' associations in Taiwan were originally organized as rural credit cooperatives. During the Second World War period all farmers' organizations were combined into one single organization which evolved into the present farmers' associations. The traditional operations of the original rural credit cooperative continued as the standard practice of the FA in its credit operations. Being the only banking facility in the township, the FA credit department performed the functions of a rural bank. It received deposits, extended loans, handled remittances, made collections and kept custody and accounts for the township treasury. The FA credit department then played, more often than not, only passive roles in financing agriculture. During the early post-war period, the defects of the agricultural credit system were identified as: (1) ramifications of lending agencies which had overlapping loan programs, resulting in a multitude of lending channels through which the same fund reached the same ultimate users; (2) inadequacy of deposits as the chief source of loan funds, necessitating the offering of only very short-term loans; and (3) inadequacy of loan terms to meet

^{10/} "Business Statistics Yearbook of Taiwan Farmers' Associations," Department of Agriculture and Forestry, Taiwan Provincial Government, June 1964, pp. 57-58.

agriculture's requirements: inadequacies in size of loans, in timing of loan advances and repayments, and in services associated with the loans.

Supervised Agricultural Credit

In view of the importance of farm credit in the agricultural development in Taiwan, experiments and demonstrations have been made by agricultural credit institutions to improve lending procedures and to increase loan funds with the help of the Joint Commission on Rural Reconstruction. In 1955, the Land Bank of Taiwan initiated a program to experiment with the extension of farm operation and improvement loans at a reduced rate of interest and for terms that were more consistent with the needs of farm production. The maximum loan term was two years with interest paid semi-annually. In view of the initial success of this program, to which the Land Bank and JCRR each contributed \$5 million local currency as loan funds, 30 township farmers' associations joined a farm credit demonstration program in 1956. The participation of the farmers' associations in the program made the program more accessible to the farmers.

In 1958, a new program called "Supervised Agricultural Credit Program" was introduced. Its objectives were (1) to make loans to farmers with relatively small farms who were in need of capital for farm operations to increase both production and income, and (2) to strengthen the credit activities of township farmers' associations and improve their competency in farm lending operations. Eighty township farmers' associations took part in this program, and contributed their own funds to approximately 20 percent of the loans which were made to them by JCRR in the amount of NT\$36.88 million. Under this program, the participating farmers' association was obliged to set aside all net earnings realized from utilization of agricultural credit funds, and accumulate them as additional lending funds. The maximum loan to a borrower was NT\$5,000, and the maximum term two years. Repayment was adjusted to the harvest and marketing of crops or livestock, and repayment by installment was encouraged. The loan was limited to production purposes.

New measures were introduced in the servicing of loans under this program, aimed at helping the borrower in the use of a loan by coordinating it with better farming techniques. To this end, the applicant's farm plan, the financial conditions and other relevant data were studied, and recommendations for improvements were made. After making the loan, the credit man revisited the borrower to see that the loan was used for the proposed purpose, and that the farming plan was being carried out efficiently. Assistance from the FA extension personnel contributed to the effective execution of this program.

By the end of 1962, a total of 88 farmers' associations extended supervised credit in the cumulative total of NT\$129 million to 37,000 farmers. The program was discontinued in 1962, and replaced with the Unified Agricultural Credit Program described below.

Unified Agricultural Credit

Based on the experiences of the pilot projects just described, an agricultural credit plan for Taiwan has been worked out with the aim of giving Taiwan a permanent and dependable source of funds for agriculture at reasonable interest rates and on terms that conform to the farmers' requirements. The ultimate objectives of the plan are to eliminate the uncertainty of capital supply and to enable the agricultural credit institutions to achieve a self-sustaining status, operating with a minimum of duplication.

According to this plan, a coordinated and effective agricultural credit system for Taiwan will be built within the general pattern of the agencies already established for the purpose, with a Planning and Policy Board at the top, and the network of the farmers' association credit departments at the bottom serving individual farmers directly with credit. The credit departments are to have access to additional lending funds from the Cooperative Bank and Land Bank at rates that will provide a reasonable operating margin.

To carry out the new plan, an Agricultural Credit Planning Board has been established, and an appropriation of NT\$300 million from the U.S. AID counterpart fund has been approved for a period of five years starting in 1961. The project is entitled "Unified Agricultural Credit Program." The participation by farmers' associations in the project is voluntary, but they are required to improve their financial conditions by retaining earnings as capital reserves and the borrower is required to make a capital investment in the respective FA credit department in an amount equal to 5 percent of the loan received. Other features of the lending operations under this program, such as emphasis on the farming plan instead of asset value, supervision of use of funds after lending, and combination of education and loan services resemble those described in the preceding section, "Supervised Agricultural Credit."^{11/}

Under this plan, it is expected that the number of government agencies extending cash loans directly to farmers will be reduced by channeling these loans to farmers through the regular credit institutions after the credit departments of the farmers' associations have improved and strengthened their financial conditions and demonstrated their capabilities to assume the additional responsibilities.

Out of the 294 township farmers' associations that maintain credit departments, 167 were participating in this program as of the end of 1963. The number of the participating FA's is increasing and it is expected that the great majority of the FA's will be included in the program in the near future. The operation of the FA credit business under this program is, in general, considered very successful. Loans are increasing and net earnings are being accumulated. They are approaching self-sustaining status and are being recognized as an important institution facilitating agricultural development by credit means.^{12/}

^{11/} "Unified Agricultural Credit-Purpose and Practice," Agricultural Credit Division, Joint Commission on Rural Reconstruction, 1963.

^{12/} K. H. King, "Agricultural Finance and Credit in Taiwan, China."

Loan Procedures

Each farmers' association which maintains a credit department establishes a credit committee within the FA, consisting of the chairman of the board of directors, executive supervisor, general manager, credit manager, and three representatives selected from among the members. This committee appraises every member's credit standing and the result of the appraisal is used as the basis for screening of loan applications by the credit department. The elected officials and the responsible employees of the FA, as a rule, understand the financial and personal background of all members. The committee appraisal and rating are thus very valuable in loan operations.

The farmers' association usually keeps fairly good records of the financial status of each member. Such records are compiled from township government's records on property (real estate), farm visits by the credit personnel, records of previous transactions, and other sources. The rating by the committee is partly based on these data.

The maximum amount of unsecured loan to each member is established each year by the member-representative assembly at its annual meeting. It varies from association to association, but it is generally between NT\$10,000 and NT\$20,000. Any member borrowing more than the limit is required to submit collateral to insure repayment. In setting the maximum limit, the member's financing needs and the availability of FA loan funds are taken into consideration.

A prospective borrower speaks to the general manager, the credit manager, or the loan personnel of the FA about his needs and desire for a loan from the association. It is customary for a loan application to be made orally to them; typically, written forms are filed and submitted only after informal screening has been made and approval expressed. Some general managers delegate to their credit chiefs authority to give such approval for a loan within a specified amount or to a specified type of applicants, who, for instance, have had excellent records of transactions.

A loan may be extended to the borrower on the same day he requests it, or there may be a delay of several days, depending upon the availability of the top personnel to give final approval, the amount of loan, the time to get and check the signature of the guarantors, and other factors. If the loan is in a large amount against which land and/or buildings are mortgaged, a week to ten days may be needed to complete title registration. Fewer complaints have been heard from borrowers of the farmers' associations about delays and "red tape" involved than from those who borrow from commercial banks whose organization and decision-making is centralized at the head office far removed from the local branches.^{13/}

^{13/} K. H. King; "Agricultural Credit and Finance in Taiwan, China."

Financing

The business operations of the credit department of a farmers' association are financed by funds from many sources. As internal sources of financing, there are the net worth of the institution and deposits from members. As an external source of financing, it borrows from banks, mainly from the Land Bank and Cooperative Bank of Taiwan. The major sources of financing in recent years are shown in Table 20.

TABLE 20

Financing of Farmers' Associations
(NT\$1,000,000)

Year	Net Worth					Borrowing	Member's Deposits
	Total	Share Capital	Reserves	Business and Special Funds			
1954	71	28	20	24		55	168
1955	79	29	31	20		133	240
1956	99	29	42	28		101	297
1957	113	30	54	29		125	375
1958	129	31	68	30		86	624
1959	147	32	82	34		211	788
1960	169	33	94	41		278	726
1961	195	34	120	41		224	1,049
1962	265	56	134	74		327	1,377

Source: "Business Statistics Yearbook of Taiwan Farmers' Associations," Department of Agriculture and Forestry, Taiwan Provincial Government, June 1964, pp. 38, 56, 57.

In 1962, the share capital subscribed by members amounted to NT\$56 million or about 21 percent of the net worth, while reserves accumulated from undistributed net profits was 134 million, or about 50 percent of the net worth. Business and special funds accounted for the balance. A noteworthy feature of FA financing is that more of the net worth is from accumulated net profit than from members' direct contribution. As organizations which have been operating for more than 50 years, these FA's had many opportunities to accumulate and did not rely too heavily on contributions directly out of members' pockets.

Borrowing from outside sources was about 20 percent higher than net worth in 1962. However, compared to total internal financing of 1442 million (net worth plus members' deposits), the external source is not very significant, accounting for only 17 percent of total financing.

The flow of the funds of the FA credit departments is shown in Figure 4. This chart shows the sources and amounts of FA credit funds and the ways in which they are spent. From this flow two important tendencies are worth noting. First, members' deposits approximately equal loans to members; second, borrowings from banks are almost equal to deposits in the banks, suggesting that at the aggregate level, the agricultural and commercial banks contribute very little to the financing of FA credit departments.

Operational Analysis

The major, but by no means the whole, business of the FA credit department is the accepting of deposits from, and extending of loans to, its members. The amounts of deposits accepted and loans made in recent years are listed in Table 21. Both deposits and loans have been increased over the last ten years. The increase in the amount of loans made is much more significant than the increase in the amount of deposits: the former increased almost 20 times from 1954 to 1963 while the latter increased 12 times in the same period.

TABLE 21
Deposits and Loans of Farmers' Association
Credit Departments (NT\$1,000,000)

Year	Deposits	Loans	Percent of Deposits Made by Regular Members(1)	Percent of Loans Made to Regular Members	Number of Full-time Employees
1954	168	115	41	61	1,156
1955	240	170	41	61	1,141
1956	297	224	41	62	1,128
1957	375	291	39	59	1,162
1958	624	433	38	58	1,202
1959	788	657	41	59	1,363
1960	726	711	40	61	1,578
1961	1,049	742	39	54	1,756
1962	1,377	1,338	35	63	1,908
1963	1,855	1,761	36	64	2,169

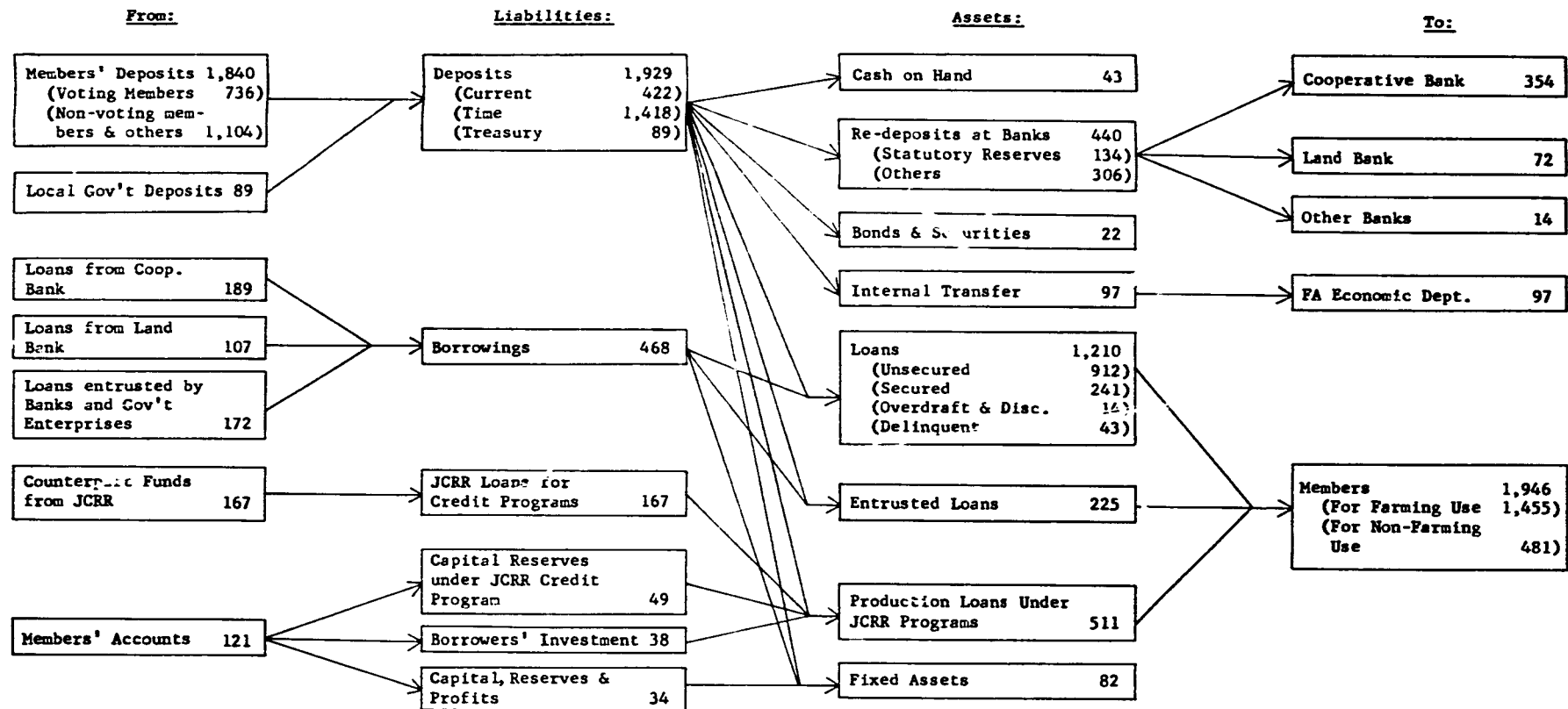
(1) Regular member means full-time farmer raising more than half of his total income directly from farming.

Source: "Business Statistics Yearbook of Taiwan Farmers' Associations," Department of Agriculture and Forestry, Taiwan Provincial Government, June 1964, pp. 6, 38, 40.

Figure 5

Flow of Funds of Farmers' Association Credit Departments, December 31, 1963

(In NT\$1 million)



Note: (1) This chart prepared by JCRR Agricultural Credit Division from balance sheets of 294 FAs furnished by the Cooperative Bank and from estimates made by the Division.

(2) A difference of some NT\$55 million between the totals of liabilities and assets is due mainly to elimination of interest receivable (NT\$52 million), temporary accounts, suspense accounts and other accounts from the flow chart.

In 1963 the average deposit per member not per borrower, was NT\$2,293. The average loan per member was NT\$2,177. The ratio of loans to deposits was 90 percent in 1963 and almost 100 percent in 1962. Since the FA's had to make statutory reserves at the Cooperative Bank or Land Bank, the discrepancy of the loan funds was made up by funds from other financial sources.

The number of the full-time employee of all credit departments is also shown in Table 21. In 1963, 2,169 persons were employed. For that year, the deposit volume per employee was 0.855 million and the loan volume per employee was 0.812 million. The total business volume, that is, amounts of deposits plus loans, was then 1.7 million dollars in local currency. The business volume per employee has been increasing much faster than the number of employees. In 1954, for instance, the average business volume was only 0.25 million.

A fact to note here is that full-time farmers deposit less but borrow more than part-time and non-farmers. The result is that rural residents of the latter category as a whole are helping to finance the credit needs of the full-time farmers through their FA credit department.

The FA credit departments also handle loans to farmers on behalf of other agencies. These loans are called "entrusted loans." Some types of entrusted loans are handled by the majority of the FA's, but others are handled by only a limited number of the FA's because the loan programs cover a special group of farmers. The enthusiasm of the FA to develop entrusted loan business depends largely on their own financial resources. Detailed information is given in Table 22.

The cost of deposits and of loans of the credit departments of the 167 farmers' associations under unified credit programs are analyzed in Table 23. The cost data are classified according to the average amount of outstanding deposits in 1963. Cost of deposits includes interest paid to depositors and the overhead cost or administrative expenses of the credit department; the latter mainly composed of salaries paid to the employees and office management expenses. On the average, interest cost is 0.79 percent and overhead cost 0.20 percent per month, making the total deposits cost 0.99 percent per month. The average lending overhead is 0.16 percent which added to the deposit cost makes the total lending cost 1.15 percent per month. This figure suggests that the cost of money coming from the members in the form of deposits is 0.99 percent per month. For a loan made from this source an interest return of 1.15 percent per month will just let the FA break even. It is not possible for the FA to lower interest rates below this limit unless lower cost funds are obtained from other sources or overhead costs are reduced.

The percentage overhead costs for both depositing and lending decrease as the volume of deposits increases. However, the interest cost on deposits is higher in those FA's which have larger volumes of deposits. The reason is that for the FA's which absorbed larger deposits, larger portions of the deposits are high-interest-bearing savings and time deposits. Non-interest bearing checking account demand deposits and low-interest bearing pass-book account demand deposits are relatively smaller in amount.

TABLE 22

Entrusted Loans of the Farmers' Associations, Agencies Entrusted By,
Number of Associations Handling and Amounts

Year	Provincial Food Bureau		Provincial Supply Bureau		Other Banking Agencies		Total Handling Charges Income (NT\$1,000)
	Number of FA's	Amount (NT\$1,000)	Number of FA's	Amount (NT\$1,000,000)	Number of FA's	Amount (NT\$1,000,000)	
1954	n.a. (1)	194			n.a.	6	474
1955	n.a.	262			n.a.	17	360
1956	n.a.	268			n.a.	19	400
1957	240	236			32	20	427
1958	220	50			57	22	599
1959	204	96			57	30	766
1960	219	170			65	35	1,077
1961	183	109			78	77	1,385
1962	162	78	9	73	70	63	2,591
1963	144	149	9	4	97	114	3,489

(1) Data not available (n.a.)

Source: "Business Statistics Yearbook of Taiwan Farmers' Associations," Department of Agriculture and Forestry, Taiwan Provincial Government, June 1964, pp. 45-46.

TABLE 23

Cost of Deposits and Loans of Farmers' Associations
Credit Departments (covering 167 FA's under Unified
Agricultural Credit Program, 1963)

Average Balance of Deposits (NT\$1,000,000)	Number of Farmers Associations	Percent per Month				
		Cost of Deposits			Lending Overhead	Total Cost
		Interest	Overhead	Total		
0 - 1	8	0.74	0.35	1.09	0.16	1.25
1 - 3	52	0.69	0.25	0.94	0.16	1.10
3 - 6	52	0.77	0.22	0.99	0.17	1.16
6 -10	29	0.82	0.19	1.01	0.15	1.16
10 -	26	0.81	0.19	1.00	0.15	1.15
Total	167					
Average		0.79	0.20	0.99	0.16	1.15

Source: Joint Commission on Rural Reconstruction, Agricultural Credit Division.

The business income, expenditures and net profits of all farmers' association credit departments are shown in Table 24. For lack of data, only 1962 and 1963 figures are listed. The average net profit per FA was NT\$70,000 in 1963.

TABLE 24

Net Profits of All Farmers' Association Credit Departments
(NT\$ Million)

Year	Total Income	Total Expenditures	Net Profit
1962	269	251	18
1963	343	323	20

Source: "Business Statistics Yearbook of Taiwan Farmers' Associations," Department of Agriculture and Forestry, Taiwan Provincial Government, June 1964, pp. 57, 58.

AGRICULTURAL CREDIT AT THE FARM LEVEL

In the preceding sections, agricultural credit was discussed at the aggregate and institutional levels. In order to accomplish a more complete survey of the agricultural credit situations, this section will treat the same subject at the farm level.

Credit Demand of Farmers

The term "credit demand" is subject to various interpretations. One interpretation is as the economic potential for utilization of external capital in the (farm) firm. Quantification of demand in this sense may be either on a capital stock or capital flow basis. On a stock basis credit demand is equivalent to the difference between the presently available and the optimum level of capital for the firm. Risk and uncertainty may or may not be included as a discount of returns in computing the optimum capital level.

In other interpretations the term credit demand is used to describe the result of farmers' personal and subjective reaction to the prospect of borrowing. In this use it is closely related to the term "felt need" for credit. It is essentially the farmer's answer to the question, "How much will (or alternatively, would) you borrow?" As such, it reflects the farmer's knowledge, awareness and judgment, of total or additional investment opportunities. It reflects his knowledge of and variously derived attitudes toward assumption of risk; toward the practice of borrowing; toward, in short, all factors--recognized or not--bearing upon his felt need for credit.

No accurate data are available on Taiwan's demand (in the economic potential sense of the term) for agricultural credit. An attempt was made, however, to shed some light on farmers demand for credit in the felt need sense in a sample survey conducted by the Joint Commission on Rural Reconstruction in 1953. The results of this survey, in which farmers were asked whether they needed to borrow, and if so, whether they did borrow, are shown in Table 25.

According to this survey, 11 percent of the farmers stated that they did not need credit; indicated that they needed outside financing. Of those who responded with positive credit needs, 62 percent actually borrowed, and 27 percent, for various reasons did not borrow. No attempt was made to ascertain whether the borrowers' needs were sufficiently met.

The general trend is that the larger the farm size, the less the felt need for credit. For instance, the percentages of the samples indicating no need to borrow are: total 11 percent, below 1.0 hectare, 8 percent; 1.00-1.99 hectares, 14 percent; 2.00-2.99 hectares, 10 percent; and 3.00-5.00 hectares, 28 percent, etc. This trend may imply that the larger the farm size, the higher the rate of capitalization and the less the need for external financing.

TABLE 25

Credit Demand of Farmers: Number and Percent of Farmers' Answers to Questions (1)

Answer	Total		Farm Size							
			Below 1.0		1.0 - 1.00		2.0 - 2.00		3.0 - 5.0	
	Number of Farms	Percent	Number of Farms	Percent	Number of Farms	Percent	Number of Farms	Percent	Number of Farms	Percent
Total Sample	439	100	262	100	106	100	42	100	29	100
No, I did not need credit	49	11	22	8	15	14	4	10	8	28
Yes, I did need credit	390	89	240	92	91	86	38	90	21	72
Yes, I borrowed this year	271	62	173	66	60	57	24	57	14	48
No, I did not borrow this year	119	27	67	26	31	29	14	33	7	24

(1) Responses to questions, "Did you need credit this year?" and, for those who answered positively, "Did you borrow this year?"

Source: Nien-chin Luh: "Agricultural Finance of Taiwan," Land Bank of Taiwan, July 1963, p. 16. The original data came from "Report on the Survey of Farmers' Loan Needs in Taiwan," Joint Commission on Rural Reconstruction, 1952.

Institutional and Non-Institutional Credit

A farmer can obtain loans from many sources, such as institutional sources which include loans from government and semi-government agencies, agricultural credit agencies and general banking agencies, and non-institutional sources which include rural merchants and store-keepers, traders, and commission agents, landlords, relatives and friends. The percentage distribution of farm loans provided from institutional and non-institutional sources is listed in Table 26.

TABLE 26
Source of Agricultural Loans
(Percent)

Source	1949	1960
1. Institutional	17.3	56.7
a. Government	1.7	32.6
b. Banks	9.9	24.1
c. Cooperative Associations	5.7	
2. Non-Institutional	82.7	43.3
a. Traders and Commission Agents	15.0	43.3
b. Relatives	14.5	---
c. Landlords	53.2	
TOTAL	100.0	100.0

Source: "Agricultural Credit and Cooperatives in Taiwan, China," Country Report presented by the Delegation of the Republic of China to the Fifth Far East Workshop for Agricultural Credit and Cooperatives, held at Seoul, Korea, 1965, p. 47.

In 1949, only 17 percent of the total farm loans were provided by institutional sources and 82 percent came from non-institutional sources, with landlords providing over half of the total. In 1960, the picture significantly changed: loans from institutional sources more than tripled to 57 percent and those from non-institutional sources almost halved to 43 percent. Because of the land reform program, the declining landlord class had no more interest in financing their tenants; their capital largely outflowed to non-agricultural sectors and no farmers secured loans from landlords in 1960. The gap created by the outflow of landlord's capital was partly filled by other private sources, but the larger part was made up by institutional credit. The institutional credit seemed to gain more continuously.

Although non-institutional credit still maintained 43 percent of the farm loan market in 1960, the importance of private or non-institutional sources needs to be qualified. More often than not, farm loans from these sources are very small in amount, very short in length, and contingent in nature. Credit to farmers is often to finance the purchase of small items of farming and living necessities from stores in the neighborhood. It is seldom in the form of a cash loan. When emergency needs arise, farmers borrow cash from friends or relatives for a very short period, and the interest charged is usually not too unreasonable. For larger amounts to meet longer-term needs they are usually able to obtain loans from institutional sources.

Sources, Form, and Size of Loans

In 1961, the Department of Agriculture and Forestry of the Taiwan Provincial Government conducted a survey on the demand for funds by and supply of funds to, farmers. The institutional and non-institutional percentages of farm loans for 1960, given in Table 26, are based on the results of this survey. In 1960, 43 percent of the sample farmers borrowed cash from private sources, 33 percent from government and semi-government and banking institutions, and 24 percent from farmers' associations.

Cash borrowing as related to farm size (shown in Table 27) shows a general tendency: that is, the larger the farm size, the higher the percentages of the borrowers who borrowed from private sources. This tendency may suggest that security is of more concern to the private lender than to the institutional lender. The data may also suggest that the larger the farm size, the greater the need for short-term, miscellaneous, and contingency type of financing.

TABLE 27
Sources of Farmers' Cash Loan
(Percent)

Source	Total	Size of Farm (Hectares)				
		Below 0.5	0.5- 1.0	1.0- 1.5	1.5- 2.0	Over 2.0
Total	100	100	100	100	100	100
Farmers' Associations	24	20	23	23	33	23
Merchants, Neighbors, and Others	43	41	19	50	62	60
Other Institutions (1)	33	39	58	27	5	17

(1) Includes banking agencies, government enterprises, etc.

Source: "A Study on the Demand and Supply of Capital of Taiwan Farmers," Department of Agriculture and Forestry, Taiwan Provincial Government, December 1961, p. 72.

Table 28 shows the sources of loans in kind. While merchants and local storekeepers supplied important numbers of farmers with living and farming materials of many kinds, important numbers of the sample also received loans in the form of materials from government and semi-government institutions. Since neighborhood stores only supply small items such as daily necessities, government agencies usually supply higher-valued items such as chemical fertilizers. For this reason, the ratios do not accurately portray the relative importance of the lenders.

TABLE 28
Sources of Farmers' Loan in Kind
(Percent)

Source	Total	Size of Farm (Hectares)				
		Below 0.5	0.5- 1.0	1.0- 1.5	1.5- 2.0	Over 2.0
Total	100	100	100	100	100	100
Farmers Associations	6	--	13	1	4	--
Merchants, Neighbors, and Others	40	72	19	24	96	100
Other Institutions	54	28	68	75	--	--

Source: "A Study on the Demand and Supply of Capital of Taiwan Farmers," Department of Agriculture and Forestry, Taiwan Provincial Government, December 1961, page 73.

Table 29 lists the average size of loans per farm household. The average size of all loans is NT\$4,924 (about US\$125) per borrower, of which 92 percent are cash loans and only 8 percent are loans in kind. The cash-value of the loan in kind is not significant compared to cash loans. Practically all loans are unsecured. As would be expected, the average size increases as the farm size increases. Together with the information in Table 25, it suggests that fewer large size farmers borrow but when they do borrow, the loans are for larger amounts.

Regarding cash loans, the farmers cultivating farms of less than 0.5 hectares borrow an average of NT\$2,300. Loan size doubles as farm size increases to 0.5-1.00 hectares, and doubles again for farms of more than 1.00 hectare. In the case of loans in kind, there is little difference between small-size and larger-size farms.

TABLE 29

Average Size of Loan per Farm Household
(NT\$)

Type of Loan	Total	Size of Farm (Hectares)				
		Below 0.5	0.5- 1.0	1.0- 1.5	1.5- 2.0	Over 2.0
All Types	4,924	2,479	4,749	8,118	8,317	7,194
Cash Loan	4,550	2,308	4,185	7,641	8,094	6,801
Unsecured	4,490	2,308	4,168	5,829	8,094	6,636
Secured	60		17	181		165
Loan in Kind (Value)	374	171	564	477	223	393

Source: "A Study on the Demand and Supply of Capital of Taiwan Farmers,"
Department of Agriculture and Forestry, Taiwan Provincial
Government, December, 1961, p. 63.

Use and Term of Loans

Except those loans extended under supervised or unified loan programs, in which the actual use of the loan funds is supervised through post-loan inspection, most loans are not very strictly bound to the use for which the application was made. The farmer borrowers under these circumstances usually have freedom as far as the actual disposition of the funds is concerned. This is especially true of loans from private sources. Even in the case of loans from institutional sources, there is no guarantee that the loan is used exactly as specified.

As shown in Table 30, only 30 percent of the farmer borrowers used their borrowed funds for operating expenses, such as for the purchase of chemical fertilizers, feeds, weanling pigs and payment of wages; 15 percent used the funds for purchase of assets, mostly for building of houses, cattle barns and hog sheds, compost houses, land, and land improvements. The greatest number of farmers, 55 percent of the total, used their loan funds for living expenses. The fact that only 43 percent (Table 26) of the farmers borrowed from non-institutional sources, while 55 percent used borrowed funds for living expenses is suggestive: even farmers borrowing from institutional sources for stated production purposes divert portions of those production funds to family living purposes.

The general tendency illustrated in Table 30 is that the larger the farm size, the higher the proportion of the borrowers who actually invest their loan funds as operating expenses. Conversely, the smaller the farm size, the higher the proportion of the borrowers who actually consume their loan funds as family living expenses. No noticeable differences appear in use of funds for purchase of assets.

TABLE 30
Use of Loans by Farmers
(Percent)

Use	Total	Size of Farm (Hectares)				
		Below 0.5	0.5- 1.0	1.0- 1.5	1.5- 2.0	Over 2.0
Operating Expenses	29.74	19.73	25.58	30.37	47.46	44.83
Purchase of Fertilizers	4.55	1.36	3.10	5.18	10.17	8.62
Purchase of Feeds	4.17	2.04	3.10	5.93	10.17	1.72
Purchase of Pigs	7.01	5.45	10.85	4.44	11.87	3.45
Payment of Wages	6.63	1.36	3.88	8.14	10.17	18.97
Others	7.38	9.52	4.65	6.67	5.08	12.07
Purchase of Assets	15.15	10.20	16.28	18.52	15.24	17.24
Land and Land Improvement House, Cattle barns, hog sheds, and Compost House, etc.	2.80 6.25	1.36 6.12	2.33 3.87	5.19 6.67	1.70 10.17	3.45 6.89
Purchase of Cattle	1.51	0.68	0.77	2.22	1.69	3.45
Others	3.41	2.04	8.53	2.96	----	----
Living Expenses	55.11	70.07	58.14	55.11	37.29	37.93
TOTAL	100.00	100.00	100.00	100.00	100.00	100.00

Source: "A Study on the Demand and Supply of Capital of Taiwan Farmers," Department of Agriculture and Forestry, Taiwan Provincial Government, December 1961, p. 75.

Table 31 indicates the duration (term) of loans which the sample farmers obtained. In 1960, 7 percent of the farmer borrowers received loans which would mature within a three-month period, 8 percent for three to six months, and 14 percent for six to 12 months. Only 12 percent were one year and more. Comparing 1960 with 1952, a significant shift to longer-term specified maturities is evident. This picture is somewhat confused by the increase in loans of unspecified term. It is assumed that these are largely from non-institutional sources; largely trade credit from merchants and largely of less than 30-day maturity. This suggests an increase in merchant activity in servicing the very short term production and consumption needs of farmers.

TABLE 31

Term of Loan
(Percent)

Length	1960	1952
Below 3 months	7.17	33.22
3 to 6 months	8.40	31.56
6 to 12 months	14.14	10.98
Over 1 year	12.30	0.12
Unspecified	57.99	24.12

Source: "A Study on the Demand and Supply of Capital of Taiwan Farmers," Department of Agriculture and Forestry, Taiwan Provincial Government, December 1961, p. 25.

Interest Paid on Loans

The interest paid by farmers on their borrowings in 1961 is shown in Table 32. According to the information obtained from farmer survey, most farmers paid interest of 1 to 4 percent per month. In total, 37 percent of the borrowing farmers paid a monthly interest of 1 to 1.9 percent, 21 percent paid 2.0 to 2.9 percent and 34 percent paid a monthly interest of 3.0 to 3.9 percent. Although there is probably an upward bias in the farmers' responses, it is true that most non-institutional lenders charged no less than 2 percent per month during the period under consideration. The prevailing interest rate in the private financial market ranged from 2.5 to 3.0 percent per month.

One qualification needs to be kept in mind. Most private lending is very short term, miscellaneous and unsecured in nature. Furthermore, what the money lender charges as interest is the total burden the farmers have to bear. No other incidental expenses are required. This is certainly not the case in institutional lending. The borrower has to buy revenue stamps amounting to 0.4 percent of the amount of the loan and there are other additional costs. For this reason, from the farmers standpoint, the effective rate on loans from institutional sources is somewhat higher than the nominal rate. In this light, the higher interest rate charged by non-institutional lenders is not of as much importance as it first appears.

TABLE 32

Interest Rates Paid by Farmers
(Percent of Farmers)

Monthly Rate of Interest	Total	Size of Farm (Hectares)				
		Below 0.5	0.5- 1.0	1.0- 1.5	1.5- 2.0	Over 2.0
Total	100.00	100.00	100.00	100.00	100.00	100.00
Unclear	2.66	5.05	4.38	----	----	----
Below 1%	2.46	1.44	2.92	4.42	----	1.82
1.0 - 1.9%	37.30	27.34	35.77	41.59	45.45	50.91
2.0 - 2.9%	21.11	25.18	21.89	19.47	15.91	16.36
3.0 - 3.9%	33.81	37.41	33.58	32.75	31.82	29.09
Over 4%	2.66	3.60	1.46	1.77	6.82	1.82

Source: "A Study on the Demand and Supply of Capital of Taiwan Farmers," Department of Agriculture and Forestry, Taiwan Provincial Government, December 1961, pp. 28, 82.

Table 31 also indicated some correlation between the interest rate paid and the farm size of the borrow. In general, the larger the farm size, the lower the rate. Larger farmers' borrowing is concentrated on interest rates ranging between 1.0 and 2.0 percent per month. The explanation for the lower rate would appear to lie mainly in the fact that larger farmers with larger loans and higher absolute interest costs are more interest-sensitive and therefore seek out the lower-cost sources and negotiate the lowest rate available. The existence of this tendency is supported by the fact that more farmers in the smaller farm-size group do not know what interest rates they are paying. About 10 percent of the farmers with farm-size below 1.0 hectare do not know what the interest rate is on their borrowed money. But none of the farmers cultivating farms exceeding 1.0 hectare are unclear about the interest rate on their borrowings.

Interest is usually paid at the time of repayment of principal if the loan matures within a short period, but monthly, quarterly, or semi-annually if the loan is of longer term. On some loans the interest payment is deducted from the principal when the loan is advanced. In this case the effective interest rate is higher than the nominal rate. This method is only used by some private lenders, and is an exception rather than the rule.

Source of Funds for Repayment

If a loan is used for farming purposes, it should be repaid out of the farm income, either from gross or from net farm receipts. Table 33 indicates that most of the loan repayment is made out of the sales

proceeds of major farm products, such as rice and hogs. In total, 24 percent of the borrowers repaid their loans out of the sales proceeds of rice; 25 percent from sales of hogs; 29 percent from sales of other products. Sales proceeds constitute the repayment fund for 78 percent of the borrowers. The balance, or 22 percent of the total borrowers repay their borrowings from other sources, such as income from non-farm and off-farm employment.

TABLE 33
Source of Fund for Repayment
(Percent of Borrowers)

Source	Total	Size of Farm (Hectares)				
		Below 0.5	0.5- 1.0	1.0- 1.5	1.5- 2.0	Over 2.0
TOTAL	100	100	100	100	100	100
Sales of rice	24	15	31	26	28	28
Sales of hogs	25	30	17	23	39	24
Sales of other products	29	16	31	38	26	43
Other	22	39	21	13	7	5

Source: "A Study on the Demand and Supply of Capital of Taiwan Farmers," Department of Agriculture and Forestry, Taiwan Provincial Government, December 1961, pp. 35, 90.

The data in Table 33 confirm the deduction that the larger the farm size, the more farmer borrowers repay loans out of their farming income. For instance, almost 40 percent of those cultivating farms below 0.5 hectares repaid their loans from non-farm and/or off-farm income, but only 6 percent of the largest class of farmer repaid the loan from this source. Conversely, the smaller the farm, the less the loans are repaid from farming income. This is as would be expected because farmers meet the needs of family consumption before selling the surplus. The exceptions are found in the cash crops such as fruits and in hog raising in which the size of enterprise is not closely related to land area.

SUMMARY AND CONCLUSIONS

In reviewing the development of the agricultural credit programs in Taiwan, one finds that many factors have contributed to the success of these programs. The following section briefly summarizes these factors.

1. The system is based on an organization of long standing. Most of the farmers' association credit departments have a history of more than 50 years service in the rural areas. The credit operation is not new to the employees; in fact, they are well experienced in this area. The credit departments are not new to the farmers; in fact, farmers have transacted business with their organizations for a long time. Most, if not all, farmers have maintained business ties of varying degrees of importance with their FA's. The operations of the farmers' associations have been closely related to the farmers' farming and living requirements. The newer agricultural credit programs did not have to start "from scratch." In this setting, results are achieved with a considerable degree of efficiency.

2. The general environment is advantageous. Generally speaking, political, economic, and social conditions have been reasonably stable since around 1950. The national economy has been growing rapidly since that time. Farm product markets have been stable and farm prices favorable. The farmer's economic horizon has become wider in scope and longer in time. Credit needs for expansion and improvement have increased with the growth of the national economy.

Immediately after the second World War, a series of land reform programs was carried out to protect farmers' interests. Rent ceilings were imposed on the tenanted farmland. Public land was distributed to the farmers who were actually cultivating land. And finally, the excessive tenanted farmland was purchased by the government and resold to the tenants on a ten year installment payment basis. Owing to the land reform program, the farmers became able to reap all returns from investment in improvements. Farmers' incentives to increase production were greatly enhanced.

Due to the cultural background and perhaps also due to general prosperity in agriculture, default on loans is extremely rare in Taiwan. The borrowers seem to always somehow repay what they borrow. Farmers may meet difficulties in repayment when their crops are destroyed by natural hazards, such as typhoon and flood. Even in this situation, the typical consequence is no worse than extension of the loan and postponement of the repayment until the next harvest. This is why no information on loan delinquency as such is found in the documents regarding agricultural credit in Taiwan.

3. The organizations are geographically easily accessible to the farmers. The farmers' associations are distributed throughout the province and some FA's even maintain branch offices within their business areas. The majority of the farmers live within the area covered by a radius of five kilometers around the FA head office. This distance can be easily reached by bicycles, motorcycles and public buses. It takes from 10 to 30 minutes to get to the FA from most villages. The farmers can commute to the FA during lunch break or early morning without disturbing their farm work schedules. Spatial convenience is very important to the credit agency in establishing close ties with the farmers. If the credit agency cannot be reached within one hour or so by the most popular means of transportation, contacts between farmers and credit personnel--either in the office or on the farm--are minimal.

4. The farmers' associations which actually handle farm credit business are cooperative organizations. Since the associations are autonomous organizations, their legitimate owners are their farmer members. The elected officers come from every part of the organizational and business area and are well acquainted with the backgrounds of the farmer members in their localities. The elected personnel of the farmers' associations then are in an excellent position to provide information on individual borrowers, help supervise the use of the loans made. It goes without saying that these personnel perform important functions as a bridge between FA's and their members.

The operational structures of the farmers' association are also advantageous to the successful development of the credit business. When the farmers market their produce through, and when they purchase farming and living materials from, the FA marketing and purchasing departments, financial support is provided from the credit department. When a farmer needs funds to adopt new farming techniques or start a profitable farm enterprise, financial support is provided by the credit department. When a farmer contacts the credit department directly, technical assistance is given by the extension as well as the marketing and purchasing departments. The close cooperation of these three operational departments in servicing farmers' needs contributes much to the success of credit programs. This close cooperation cannot be expected if these departments are not integrated parts of a single organization.

Although the agricultural credit program in Taiwan has a record of successful achievements, it also faces problems. Further success of the farm credit program depends to a large extent on the solution of these problems. These are discussed further in the remainder of this paper.

1. The government enterprises finance farm production to facilitate their business operations. Lending operations by these agencies have culminated in excessive specialization and unnecessary duplication in financing agriculture and, therefore, should be gradually shifted to regular agricultural credit institutions. However, the regular credit institutions--notably the Land Bank, the Cooperative Bank, and the farmers associations--depend largely on deposits as the source of lending funds and consequently are not always in a position to provide loans when needed, or in the amounts and for the periods of time required by farmers.

Even if provision is made by the government for accommodation through special funds, coordination of agricultural credit institutions is urgently needed. In the credit program of the agricultural banks, there is a great deal of competition and duplication which obstructs the efficient use of lending funds. Under these conditions, there is the danger that farmers in the more prosperous agricultural areas may over-borrow, while those on less productive land in more remote areas have little access to institutional credit. The unified agricultural credit program is designed to cope with this problem and has proved a partial success. But one cannot expect to find all answers in the unified agricultural credit program.

2. Farmers' associations are in a favorable position to render improved credit services directly to farmers because of their knowledge of farmers and farming, and because they can tie the farmers' borrowing with their purchase of farm supplies and marketing of farm products and with their extension education programs. However, a number of weaknesses are evident in the present arrangement of the credit departments of farmers' associations. The most conspicuous is that they have no capital of their own. Since 1958, under provisions of the supervised farm credit program, they have accumulated some capital out of business profits but the amount accumulated to date is inadequate. Consequently the FA credit departments must rely on deposits from members and borrowing from banks for their loan funds. Improvement of this situation is observed but the problem is far from completely solved.

The credit department of a farmers' association is not segregated accounting-wise from other departments of the association. The accurate appraisal of the status of a credit department can only be made through a complete audit of all departments of the association since all assets and liabilities are combined. This is necessarily a difficult task since the activities of a farmers' association are numerous and varied. The weaknesses of the credit departments due to the lack of rigid fiscal control limit their growth and effectiveness and expose their funds to risks that credit institutions should not assume. Furthermore, the responsibility of supervision of the credit business of farmers' associations has become so decentralized among authorities concerned that government supervision is superficial.

Combination of the credit business with other phases of FA activities shows another weakness. The funds in the credit department are usually utilized by other departments. While this may sometimes result in the efficient use of the available funds--so long as the using departments do not fail to pay the interest--it becomes a serious burden to the credit department if the interest is not properly paid. It is most unfortunate if the credit department suffers losses because of a failure in the business operations of other departments of the same association.

3. It is often mentioned without proof that agriculture in a developing country is capital hungry. This is true of Taiwan if one is talking about capital per farm worker or per farm, but it is by no means true if one is talking about capital per unit of land. If capital is measured on a per hectare of farm land basis, Taiwan's agriculture is equipped with more capital than American agriculture. Even so, capital per farm worker is low and must be increased if development is to continue. The possibility of accomplishing this through reduction in number of farm workers is remote. Hence, increase must result in large measure from increases in capital investment. With the present intensity of capital investment per unit of land, future programs of investment must be highly selective. Otherwise, efficiency of capital will inevitably decrease, and the limit for further development through capital-credit investment will appear. This is primarily a policy rather than an operational problem, but without its solution farm credit programs cannot make their maximum contribution to economic development.