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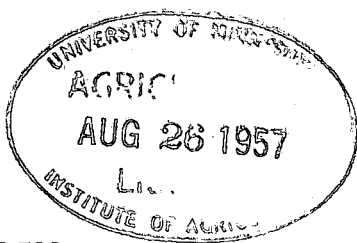
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## CAPITAL FORMATION AND USE IN DANISH AGRICULTURE

COMPARED with other sectors of the economy, agriculture is in a relatively weak position when attempting to secure adequate supplies of capital for optimal production. This position, which is inherent in the conditions under which farmers have to operate, is due mainly to the comparatively low rate of capital formation in agriculture in relation to total investments. At the same time, farmers also have difficulties in obtaining credit on reasonable terms in the normal capital market. In the light of these circumstances, which are well known, it has been found useful, or even necessary, in most countries to introduce measures to support the financing of the farming industry by making capital available to agriculture from the ordinary capital market in such volume and on such terms as will meet the exigencies of the farming industry, and by facilitating capital transfer inside the agricultural sector itself. In these respects Denmark is no exception. The following survey explains in brief outline the mechanism of capital supplies to agriculture in Denmark, where it has been an important public issue for a couple of centuries. It will therefore be useful to view it against its historical background.

In the eighteenth century Danish farming was under-developed and, indeed, undeveloped. The feudal system prevailed and by far the greater part of the land was cultivated under the open-field system by tenants who were backward, oppressed and poor. Towards the end of the century, when the need for fundamental changes in the existing agricultural system was recognized as a precondition of progress and prosperity, far-reaching and profound changes in the system were enacted in the course of about twenty years. This legislation was a complete departure from the old system and laid the foundation for an entirely new agricultural structure. It was not, however, a sweeping revolution. The existing law of property was fully recognized and the reforms were based largely on voluntary participation; but the reform laws were drawn up in such a way as to make it advantageous to carry out the new measures.

Among the measures adopted under this new policy, those which

became important in relation to the provision of capital are those which led to: (i) protection of medium-size family-operated farms, (ii) sale of tenant farms to freeholders, and (iii) a complete change of the village structure by consolidation of the land of individual farms and by moving the farms away from the villages.

The agrarian reformists realized that the rate of progress in the implementation of these measures would depend very largely on the supply of capital—partly because the measures required considerable amounts of capital, and partly because the tenants were too poor and their capital formation was too slow to provide the large amounts required if the reorganization was to serve its purpose and be implemented within a reasonable time.

In the early stages, efforts were made to overcome these difficulties by encouraging the landlords to finance the reforms against compensation from tenants and by making government funds available both as direct subsidies and as loan capital in amounts which, for those days, were very substantial. Through such measures, the desired development took a fairly satisfactory course for a period of about twenty years. The progress was due also in large measure to the very favourable economic conditions prevailing in those years. This was the period of the boom created by the Napoleonic wars, and the resulting upward trend was particularly noticeable for farm products; moreover, a sharp inflationary trend made it fairly easy for the farmers to borrow capital and to meet the commitments they had incurred through the reforms.

But after the end of the Napoleonic wars a violent reaction set in. Post-war developments hit the Danish economy very hard and the position was aggravated by a vigorous deflationary policy. The outcome was that the previous prosperity was now superseded by a general crisis which hit the whole country and had particularly long-drawn and serious repercussions on agriculture. In these circumstances of general poverty, nearly all the reform work had to be suspended almost entirely for many years. The serious agricultural depression brought out in sharp relief the pressing need for large capital supplies to agriculture, and so the question of how capital transfers to the farming industry could be organized more effectively was taken up for consideration.

At that time—1830-40—two important problems demanded solution in agriculture. How could the measures required by the agrarian reforms *per se*, especially the implementation of the freehold policy,

be continued? And, how could long-term improvements be promoted so as to raise the level of agricultural productivity? Both of these tasks depended on long-term investments which far exceeded the farmers' own resources and capacity for capital formation if progress was to be achieved at a rate which would result in a reasonably rapid improvement in prosperity which both the country and the farmers needed badly. For these reasons, the deliberations were concentrated on measures which would result in supplies of long-term loan capital to agriculture. The need for short-term credit was felt to be less urgent in the conditions of production prevailing at that time.

At this stage, several new and very important problems had come into the picture as a natural consequence of the policy to promote freehold tenure. Much more than half of the tenant farms had already been sold to freeholders, but this had generated problems of providing capital, not only to finance improvements of the freehold farms but also transfers of such freehold farms from one generation to the next. These problems did not lead to any doubts about the freehold policy; on the contrary, there was a determined resolve to follow it up, but for that very reason these problems rendered capital supplies to agriculture all the more urgent.

The freehold policy had proved entirely justified and had lived up to great expectations. So long as the two systems of tenure—tenancy and freehold—existed side by side, experience showed freehold tenure to be greatly superior to tenancy. Freeholders made much more rapid and substantial progress than tenants because their capital formation was greater. This superiority was a strong incentive for the promotion of freehold tenure and for providing freeholders with capital for further improvements. But the fact that freeholders invested their entire capital formation, as well as borrowed capital if available, in their farms gave rise to the problem of financing transfers of farms to the next generation. This problem was less difficult in tenancy tenure.

The measure taken to promote capital transfer to agriculture was to establish credit associations and savings banks. These institutions soon became the principal connecting link between agriculture and the capital market. Commercial banks, on the other hand, never acquired any major direct importance for agriculture. Of the two institutions, the credit associations are by far the more important in terms of capital funds supplied, influence on the capital market and functions served. Credit associations thus connect agriculture with the central capital market, thereby acting as clearing houses between

savings and use of capital for the country as a whole. Savings banks, on the other hand, are local institutions organized to cater for fairly limited areas, thereby forming links between savings and use of capital within their own areas.

The relative importance of these institutions is illustrated by the following figures. In 1954 credit associations accounted for 48·5 per cent., savings banks for 17 per cent. and commercial banks for only 2 per cent. of total mortgage loans in agriculture. In that province where agricultural capital formation was highest and, consequently, most funds were available to cope with the need for capital, credit associations accounted for 39 per cent. of mortgage debts and savings banks for 26 per cent. in the same year. In provinces where agriculture uses a relatively large amount of capital for investment in improvements, 50–52 per cent. of the mortgage debt derived from credit associations and 6–14 per cent. from savings banks. These figures show that in all parts of the country the capital market supplies substantial funds to agriculture through credit associations, but capital supplies are greatest to those areas where investments are highest. In regions where agricultural capital formation is relatively high a large part of the capital used can be supplied through local savings banks by means of capital transfers, while the possibility of such transfers is very limited in regions where the capital formation is lower in relation to investment needs. It follows that by facilitating transfers of capital to agriculture, and inside agriculture, the activities of credit associations and savings banks are complementary to a very great extent.

Credit associations are co-operative organizations of debtors incorporated under special legislation originally enacted in 1850 but amended several times to adapt the activities of the credit associations to changing conditions. Savings banks are proprietary non-profit institutions. Their activities are likewise governed by special rules enacted by a law of 1880. Up to 1956 credit associations have only granted long-term loans, running for sixty years, against first mortgage for up to 60 per cent. of the market value of the mortgaged property, while savings banks have extended loans running for various periods within the 60 per cent. limit secured by a first mortgage, and for amounts outside that limit secured by one or more guarantors.

In addition to the long currency of loans, it is characteristic of all mortgage loans raised by Danish agriculture that the security comprises the entire farm as a going concern, with all its equipment and

not only the fixed property. As mortgage loans from credit associations and savings banks are limited to 60 per cent. of the market value, first mortgage loans will cover a considerable proportion of the value of the equipment.

In the last half of the nineteenth century when credit associations and savings banks began to function, their importance to agriculture soon became apparent. They were, in fact, the decisive factors in the development of agricultural production, in the preservation of freehold tenure, in improving the national prosperity and raising the relative standard of living of the farm population. This important role has been maintained over the years and exists up to the present day.

Bonds issued by credit associations proved to be readily absorbable in the capital market at the normal rate of interest for long-term loans. With low instalments on the sixty-year loans, farmers obtained long irrevocable credits on easy terms. Such loans were very advantageous for the financing of long-term improvements of soil and buildings and transfers of farms. In the course of time, the credit associations have provided credit not only from the Danish capital market but also from international capital markets. By various methods Danish credit association bonds were floated, both directly and indirectly, on the stock exchanges of London, Paris and Berlin on favourable terms to the borrowers. This was all the more important as Denmark for many years raised considerable amounts of capital abroad in order to expand the Danish economy. In this way, the credit associations came to act as intermediaries between capital-using farmers and Danish as well as foreign investors. These direct connexions between Danish and foreign capital markets were severed after the end of the First World War, and it has never been possible to re-establish them. Since 1920 Danish agriculture has therefore had to rely entirely on the Danish capital market.

As explained above, credit associations and savings banks became decisive factors in the development of the freehold system by providing a substantial part of the loan capital required for the financing of transfers of farms from one generation to the next. As such loans were limited to 60 per cent. of the market value and as, moreover, credit-association loans and savings-bank loans on an average never went up to that limit, a need arose for additional credit for the transfer of farms. For such requirements it has always been necessary to resort to private loans, mostly from sellers who usually had to accept a second

or third mortgage on the property running for ten or fifteen years. In terms of average figures over a long period, the net result was that when a farm was sold, 28 per cent. of its purchase sum was paid in cash, while the balance was financed with mortgage loans. Existing mortgages taken over by buyers represented 48 per cent., new mortgages 7 per cent. and sellers' mortgages 17 per cent. of such loans. As a result of that system of financing transfers of farms with long-term loans and a high level of mortgage indebtedness, freehold has superseded tenancy tenure. By 1920, 96 per cent. of all Danish farmers were freeholders. This distribution has been maintained up to the last few years.

In addition to supplying agriculture with capital for the financing of transfers of real property, credit associations and savings banks have provided capital for long-term improvements. Taken as a long-term average, borrowings for these two purposes—transfer of farms and improvements—have been of practically the same magnitude by and large. Borrowing has been growing steadily, thus reflecting the sustained expansion of resources working in agriculture. This interdependence between capital formation and use of farms may be expressed in schematic form. When a young farmer buys a farm he pays 28 per cent. of the purchase sum in cash and borrows 72 per cent. During the years when the farm is in his possession he devotes his capital formation to debt services and to investment in the farm, but in addition he gradually raises further loans for improvement. When he retires, the farmer therefore still has mortgages on his property, but his equity has been increased substantially in the form of more valuable assets which his successor must buy at a higher purchase sum. The latter, in turn, is financed, *inter alia*, by higher loans, and the process begins over again. It is a consequence of this procedure and of the very long loans that Danish farms are usually quite heavily mortgaged. In 1954 only 4 per cent. of the 206,000 Danish holdings were not mortgaged. In other words, it never occurs to the Danish farmer to use his capital formation for repayment of his loans at the earliest possible date. It is more profitable for him to invest his savings and, indeed, more than his savings, in improvements of his farm.

In addition to the capital supplied by credit associations, financial institutions and retiring farmers, much loan capital has been transferred to agriculture by the Danish Government. As explained above, such capital supplies began a couple of hundred years ago and since



then this lending has continued in varying forms. In the present century, the volume of government lending has been growing steadily both in absolute loan capital and in the variety of measures financed by the government.

Measures for which the government has made loans available may be divided into three categories. (i) The establishment of smallholdings. This began in 1899, and at times has assumed such large proportions as to represent considerable capital transfers to agriculture in the form of loans or subsidies to indigent farmers for the purchase of land, erection of buildings and acquisition of equipment when new smallholdings were established or existing smallholdings were expanded. (ii) Government-financed subsidies and loans for long-term measures to raise the level of productivity such as improvement or reclamation of land and various improvements of farm buildings. (iii) Government loans and subsidies to see agriculture through acute depressions such as that which occurred in the thirties.

The net outcome over a long term of years has been that, in addition to investing its own capital formation in the farms, Danish agriculture has been operating with substantial loan capital obtained through the capital market from private persons or from the government. Seen from another angle, the position may be summarized by saying that it has been profitable for farmers to use not only their own capital formation but a growing volume of borrowed capital to finance improvements which have been (and still are) a condition for optimal production.

All the measures discussed so far have been designed to supplement agricultural capital formation by transfer of long-term loan capital to agriculture. It is a characteristic feature that organized attempts on a large scale have never been made to meet the short-term capital requirements of agriculture for the financing of seasonal costs of current production. To the extent that such requirements have exceeded what farmers could finance with their own cash holdings, it has therefore been necessary to obtain capital supplies from the money market on the customary terms prevailing in that market.

There are several reasons why no urgent need has been felt for organized attempts to satisfy the requirements of short-term credit. First, Danish agricultural production is fairly liquid inasmuch as 85 per cent. of farm incomes derive from sales of processed livestock products which are produced throughout the year in an even flow which yields a fairly even flow of income. Secondly, seasonal outlays

for cultivation of crops and periodical needs for working capital for livestock production have been financed very largely by intermediaries in the distributive trades who have supplied raw materials on credit and advanced money on produce. Such supplies of short-term credit on terms acceptable to agriculture, which has thus obtained sufficient working capital on reasonable terms, have been due to the rapid development of co-operative undertakings engaged both in the buying and selling of farm products. Co-operatives make credit available on easy terms, and competition has compelled private trade to follow the same course.

In this way, middlemen in the distributive trades have become the connecting link between agriculture and the money market, the intermediaries in turn financing part of their activities by borrowing from commercial banks. Even if Danish agriculture thus does not receive very much capital direct from commercial banks, farmers have nevertheless considerable indirect connexions with the banking system through the financing of agricultural requirements for short-term capital by way of the distributive trade.

Agricultural capital formation, supply and use have obviously varied greatly over the years, depending on agriculture's terms of trade. In periods of expanding economic activity, the farmers' own capital formation has increased, and the use of capital has increased still more, so that net capital supply has usually grown in good years. This is due partly to the fact that prices of real property go up in times of prosperity and increasing capital supplies are required to finance purchases of farms, but it is also due to the optimism generated by prosperity which induces farmers to improve their productive equipment by more than their own capital formation will cover or, in other words, by borrowing. The position is reversed on the downward turn. Prices of farms decline, less capital is required to buy a farm and pessimism caused by the slump and the absence of profit compel farmers to hold back on new capital investments.

Capital formation and use under modern conditions will be discussed in the following paragraphs. For that purpose, it has been found useful to consider the capital balance of agriculture as shown for 1939 and 1954 in Table 1.

The figures for 1939 for assets and liabilities and their relationship are fairly typical of the 'normal' times preceding the First World War and the inter-war years, even if they are somewhat influenced by the heavy depression in the early thirties. The percentage of indebtedness

is probably the most conspicuous feature. It will be seen that total liabilities amounted to 55 per cent. of total assets, and mortgage debts to 56 per cent. of total farm values. While these percentages were rather higher than normal, the normal percentage of indebtedness is nevertheless about 50. This is true of agriculture as a whole and not only of indebted farmers.

TABLE I. *Balance sheet of agriculture, 1939 and 1954*

Values at current prices

<i>Millions of kroner</i>	1939*	1954†	1939 = 100
<i>Assets</i>			
1. Estimated total sales value of farms . . . . .	7,457	18,405	247
2. Non-farm assets owned by farmers . . . . .	740	2,033	275
3. Total assets . . . . .	8,197	20,438	249
<i>Liabilities</i>			
4. Mortgages . . . . .	4,152	5,577	134
5. Short-term debts . . . . .	320	805	252
6. Total liabilities . . . . .	4,472	6,382	146
7. Total liabilities as per cent. of total assets . . . . .	55	31	56
8. Mortgages as per cent. of total farm values . . . . .	56	30	54
9. Estimated total sales value of farms . . . . .	7,457	18,405	247
10. Net liabilities (total liabilities less non-farm assets) . . . . .	3,632	4,349	120
11. Farmers' equities invested in farms . . . . .	3,825	14,056	367

\* 1939: £1 = kr. 21.77; \$1 = kr. 4.92. † 1954: £1 = kr. 19.42; \$1 = kr. 6.92.

It will further be seen that out of total agricultural assets in 1939, 91 per cent. represented the value of the farms, while the more liquid assets such as cash holdings, bank deposits, bonds, shares, &c., accounted only for 9 per cent. In the light of the relatively heavy indebtedness, this distribution of assets reveals that farmers traditionally invest their savings in improvements of the farms. The figures for borrowed capital show that 93 per cent. of the debt consisted of mortgages or other long-term debts, while only 7 per cent. was short-term debt. It follows that the capital supplied to the industry has been devoted very largely to the financing of long-term investments. The great significance of capital supplies is also brought out clearly by the last items which show that out of the total value of Danish farms in 1939, kr. 7,457 million, farmers' equities represented kr. 3,825 million, and borrowed capital no less than kr. 3,632 million.

The table further shows that very substantial changes took place from 1939 to 1954. Total assets went up by 149 per cent. but debts rose by only 46 per cent. so that the percentage of indebtedness fell from 55 to 31, and farmers' equities increased by 267 per cent. These large improvements on the capital balance were due mainly to the

TABLE 2. *Total capital transfers to agriculture by sources, 1939 and 1954*

Millions of kroner. Current values

	Credit associa- tions	Savings banks	Com- mercial banks	Government			Other mort- gages*	Short- term credit	Total debts
				Small hold- ings	Improve- ment loans	Total govern- ment loans			
1939	2,040	707	185	259	128	387	833	320	4,472
per cent.	45.6	15.8	4.1	5.8	2.9	8.7	18.6	7.2	100
1954	2,706	951	130	348	164	512	1,278	805	6,382
per cent.	42.4	14.9	2.1	5.4	2.6	8.0	20.0	12.6	100

\* Predominantly former farm owners.

wartime and post-war inflation, but also to the very considerable investments made in those years and to the relatively large improvement of the agricultural economy deriving from better terms of trade. However, the most characteristic and interesting feature is that during the very prosperous years from 1939 to 1954, the farmers did not feel induced to pay off their debts but devoted their capital formation to investments in the farms with the result that, in terms of current values, the debt even increased—though at a slower pace than the rise in values. There is, however, a certain tendency towards increasing investment of savings in non-agricultural assets, but net liabilities have increased even more, so that net liabilities in 1954 represented kr. 4,349 million and farmers' equities kr. 14,056 million out of the total sales value of farms of kr. 18,405 million. Hence, capital supplies were still a decisive condition for agricultural production.

Table 2 shows, in summary form, the sources of capital supplies. The figures illustrate the great importance of the capital supplied to the farming industry through credit associations and savings banks today. Nearly 60 per cent. of the borrowed capital has been obtained through these institutions. On the other hand, direct commercial bank lending represented only 2 per cent. in 1954. As explained above, however, they advance indirectly a large share of the short-term credit, which represented some 12 per cent. in 1954.

Table 3 illustrates capital transfers to agriculture before the Second World War and in some post-war years. Item 1 shows that very considerable amounts of capital were transferred each year before and after the war, and even if retirement of loans is of considerable proportions, there was a substantial increase in borrowed capital year by

TABLE 3. *Capital transfers to agriculture and loans repaid*

Millions of kroner. Current values

	1937-8 1939-40 average	1946-7	1947-8	1948-9	1949-50	1950-1	1951-2	1952-3	1953-4
1. Gross capital transfers to agriculture . . .	141	533	391	277	266	341	358	379	368
2. Repayment of loans . . .	125	288	219	174	172	177	180	183	195
3. Net capital transfer to agriculture	16	245	172	103	94	164	178	196	173
4. Loans incurred for farm purchases . .	70	118	132	123	137	163	181	213	206
5. Loans incurred for improvements, &c.	71	415	259	154	129	178	177	166	162

year. Items 4 and 5 show the purposes for which capital was transferred to agriculture. It will be seen that farm purchases and improvements generally require similar amounts, except for a couple of years just after the war when yields were very small and large amounts were borrowed to meet deficits. A comparison of items 3 and 4 reveals, however, that loans incurred for farm purchases before the war and in most of the post-war years have been rather larger than the net capital transfer to agriculture; this brings out the great importance of transfers of farms in the capital use of Danish agriculture.

Another important aspect is the relative significance of capital supplies compared with capital formation, which is illustrated in Table 4.

Items 1 and 2 show considerable investments in improvements of farm plants during all the years listed, while investments and disinvestments in livestock vary with the prices and terms of production for livestock products. In total investments (item 3) the remarkable feature is the great increase from 1948-9 when reconstruction got under way after the introduction of the Marshall Plan. Item 4 shows that capital transfers were an important condition for investment, but the greater part of the investment derived from agriculture's own

capital formation, except for the years 1946-8 when considerable deficits had to be met with borrowed capital.

TABLE 4. *Capital transfers for improvements, and capital formation*

Millions of kroner. Current values

	1937-8 1939-40 average	1946-7	1947-8	1948-9	1949-50	1950-1	1951-2	1952-3	1953-4
1. Investments in improvements and machinery . . .	153	295	304	363	435	488	562	572	566
2. Investments in livestock . . .	20	-115	-135	223	120	-49	-63	89	—
3. Total investments	173	180	169	586	555	439	499	661	566
4. Capital transfers to farms for purposes other than farm purchases . . .	71	415	259	154	129	178	177	166	162
5. Capital formation invested in farms . . .	102	-235	-90	432	426	261	322	495	404

Summing up, it may be said that Danish farmers are very investment-minded and probably are also prepared to take investment risks. They traditionally invest substantial sums of borrowed capital in addition to their own capital formation, in order to expand production and raise the income level. In this way, they have been able to maintain a sustained increase in capital formation, but part of this increase has been tied up in payment of rising farm prices. In order to meet the persistent demands for improvement of farm plants there has always been a need for growing capital transfers to agriculture. Such capital transfers have been organized so effectively that it has been possible to meet the farmer's investment requirements for achieving optimal agricultural production.

It should be added, however, that developments in recent decades have created a need for adaptations and adjustments of the traditional procedures for capital transfer to agriculture. As explained above, Danish agriculture has relied mainly on long-term capital transfers, while short-term credit has been of minor importance. In this respect, however, a gradual but important change has set in. Transfers of short-term and medium-term capital have become of growing relative importance for mechanization, improvement of buildings and for construction. For this reason, new procedures are under considera-

tion to meet the need for capital transfers in the shorter terms. As a provisional measure, credit associations have introduced new ten-year mortgages to supplement the traditional sixty-year loans, and production credit organizations have been planned to provide medium-term capital for various investment purposes.

In conclusion, it may be said that it is difficult to express, in aggregate terms, the effects and results of the substantial amounts of capital which have been transferred to Danish agriculture to supplement the farmer's own capital formation, so that it may be determined whether the capital supplies have been inadequate, excessive, or maybe just sufficient. But under the given conditions there can be no doubt that Danish agriculture has been developed to such an extent as to rank, in terms of productivity per hectare and per man, among the highest in the world, having thus made a very substantial contribution to the development of Denmark's economy. Finally, Danish agriculture and the farming industry of few other countries are in the unique position where agriculture's share of the total national income is as big as the agricultural population's share of the total population, and this result has not been achieved by large-scale subsidies and price-support programmes. Danish agriculture has never obtained higher prices for its products than those obtainable in world markets, in constant and keen competition with farmers in other countries who have often been heavily protected or subsidized. A material condition for achieving this position has been an elastic capital service based on commercial principles.