EVALUATION OF LONG TERM PROGRAMS FOR AGRICULTURE
WITH RESPECT TO REQUIREMENTS AND SUPPLY OF CAPITAL

PART TWO

EZRA SADAN
YAIR KADISHAY

FINANCING CAPITAL FORMATION
IN THE KIBBUTZ SETTLEMENT

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Rehovot, Israel
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Introduction

The major subject of the second part of this study is the financing of capital formation in the developing kibbutz settlement. The survey of the kibbutz settlement close relationships with the capital market led us to devote a particular chapter to the underlying "farm" credit system. Chapter 5 - the first chapter in this part - deals with the flows of savings, net increments of credit and gross investment. Chapter 6 deals with the corresponding stocks: accumulated savings, liabilities and assets. Some aspects of the credit system are considered in Chapter 7.

The kibbutz settlement is an enterprise - including the farm - and a consumer unit at the same time. Hence it is practically impossible to study the financing of the farm section of the complex unit separately. The kibbutz should be considered as a whole, in this respect clearly resembling the conventional family farm, looked upon as an integral unit.

Similar difficulties arise in the attempt to define the outlines of the credit system for agriculture. The term "farm" means a household and a firm. The term "agriculture" is similarly extended beyond the limits of the industry to denote a socio-economic sector. Furthermore, in Israel (Palestine) we are concerned with an agricultural settlement (colonization) concept which calls for definitions which are even broader than the conventional ones. Consequently we consider the financing of capital formation in the enterprise and in the "household" taken together.
The lack of equity at the establishment stage and extensive borrowing throughout their development, characterize the agricultural settlements in Israel, particularly the kibbutz settlement.

This reliance upon extended-credit is summarized in Fig. 5.1 and Table 5.1 which relate the flow of total gross investments to the flow of total net increments of credit in the groups of settlements under study, in the time series and in an enlarged cross-section in 1960.*

With few exceptions the ebb and flow of gross investments seem to coincide with the ebb and flow of the net increments of credit. In view of the composition of the net increments during the early periods the correspondence between the two streams undoubtedly reflected a definite causal relationship. This close association could be interpreted as a dependence of the investment-flows upon the net flow of "new" credit. This flow of "new" credit could be visualized earlier as a factor exogenous to the individual farm. The interrelationship became more complicated at a later stage.

(*) An attempt to analyse the inter-relationship between investment, rates, and other economic variables is presented in the first part of this study.
Fig. 5.1 -- The Flows of Gross Investments and the Net Increments of Credit

The Established Group 1936 - 1960
Table 5.1: The Correspondence Between Investments and Credit-Simple Correlation Coefficients

<table>
<thead>
<tr>
<th>Year:</th>
<th>1942</th>
<th>1944</th>
<th>1946</th>
<th>1948</th>
<th>1950</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>r</strong></td>
<td>.806</td>
<td>.891</td>
<td>.836</td>
<td>.888</td>
<td>.803</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>r</strong></td>
<td>.927</td>
<td>.852</td>
<td>.786</td>
<td>.790</td>
<td>.807</td>
</tr>
</tbody>
</table>

The Whole Population

1960

.860

(* Simple correlation coefficients between annual gross investments per member and annual net increments of credit per member.)
Savings and the Flow of Gross Investments

Gross Savings. Total gross investments in Fig. 5.1 consists of investments in the real assets of the firm, investments in the household, hoarding, and the acquisition of financial assets. Net increments of credit in that figure include net additions of "producer" as well as "consumer" credit. The difference between the annual gross investments and the annual net increments of credit is the units' gross savings of that period. Annual gross savings are the sum-total of the households' net savings and the firms' retained profits on the one hand and the units' annual depreciation allowance on the other.

The distinction between net savings and retained profits is rather vague, and with few exceptions the decisions concerning them involve the unit as a whole. Once again, this is also a characteristic of the family farm. Yet, unlike the small family farm saving in the cooperative take the form of business-savings, i.e. retained profits.

Fig. 5.1 may suggest that gross savings have played a minor role in financing the flow of gross investments during the period of expansion 1945 - 1960. We note that the relative importance of gross saving as a source of financial means tended to decline toward 1955.
This decline characterizes the development of the population as a whole during that period. This can be seen in Table 5.2 which compares the weights of gross savings in financing the flow of gross investments in the three major groups of settlements in consecutive five-year intervals. This decline of the gross savings relative to the flow of investments is partially explained by the acceleration of the latter from 1945 to 1955.

Table 5.2: The Share of Gross Savings in Financing The Annual Gross Investments.

<table>
<thead>
<tr>
<th>Year</th>
<th>Established</th>
<th>Intermediate</th>
<th>Young</th>
</tr>
</thead>
<tbody>
<tr>
<td>1940</td>
<td>51</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1945</td>
<td>49</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1950</td>
<td>28</td>
<td>24</td>
<td>13</td>
</tr>
<tr>
<td>1955</td>
<td>26</td>
<td>11</td>
<td>5</td>
</tr>
<tr>
<td>1960</td>
<td>45</td>
<td>38</td>
<td>27</td>
</tr>
</tbody>
</table>

However, the following Fig. 5.3 reflects a "stagnation" stage in the absolute real gross savings per member in the group of established settlements and a corresponding sharp decline in the two younger groups.

Figure 5.2 -- Changes in the Annual Real Gross Savings Per Member 1940 - 1960
This is a puzzling development for two reasons. First, the units' stocks of real assets per member in 1955 were much larger than the corresponding stocks in the earlier periods. We could expect larger depreciation allowances in 1955. Second, the units' real incomes per member in 1955 were much higher than incomes in earlier periods. Hence, we could expect higher net savings in real terms in 1955. These two propositions lead us to expect higher gross savings in 1955 contrary to the actual development. Most perplexing in this respect is the fact that the recorded gross savings in the youngest group in 1955 fall short of a corresponding statistic obtained for the established group fifteen years earlier, in 1940. The answer to this puzzle lies in the domain of net savings.

Net Savings (*

The Expected Rate of Net Savings. The rate of savings in a comprehensively-cooperative-unit is inherently lower than the corresponding rate in a conventional household, under similar circumstances—particularly at a given level of disposable real income—because:

(a) Pooling together one hundred or more households the risk-motive for saving is weakened. This is partly the result of the real effect of the mutual-insurance arrangements but it is also the result of a disproportionate sense of security of the individual member. (b) In order to prevent a membership-drain the cooperative must cope with the "general" standards of living. This means that as a consumer the "average" individual member behaves as though he were an employee of the cooperative rather than the proprietor. The important point is that "high wages" in this respect mean immediate-consumption-expenditures. The "employer attitude" disregards, or at least partially overlooks, net additions to the cooperative equity as part of the real income. Since these net additions are the only form of savings in the case of a comprehensive-cooperative the "employee-attitude" has an adverse

(* The following three paragraphs are part of a study of the kibbutz consumption patterns by E. Sadan and Z. Trop.)
effect upon saving. As additional factors affecting the rate of saving we could mention (c) the better position of the cooperative household in the capital market as compared with the conventional household. This last statement may be rephrased as an explicit proposition which suggests that net increments of credit, or at least of subsidised credit, have a direct negative effect upon saving.

In the propositions stated above we have speculated about the possible explanations for lower rates of savings in the kibbutz. Yet, only the second proposition offers an explanation of sorts to the reflux in net savings toward 1955. Rising standards of living outside the cooperative sector, in fact outside the farm sector, forced the kibbutz to raise the level of consumption expenditures at the cost of no, or even negative net savings.

Inflation and the Rates of Net Savings. The inflationary conditions during the late 'forties and the early 'fifties could affect the rate of net savings in two ways. Inflation brought about a considerable capital gain to the settlers, a typical group of net debtors. To the extent that these windfalls affected the level of consumption directly these gains might have had a negative effect upon the measured rate of saving. This rate is expressed as the ratio of real savings to the real income - imputed as the firms' share in their value added. Note that the indirect effect of these windfalls is the change in the firms' share in the value added due to the rise of the share of the firms' equity in their total liabilities. Inflation, credit rationing, and pegged interest rates resulted in a series of relatively low rates of interest even negative real-rates, low rates could be expected to have a negative effect upon the rate of savings. Capital gains and low real interest rate comprise the so-called "inflationary atmosphere" which is assumed to have a devastating effect upon savings. Still, the most serious outcome of the inflation
could have been a "money-illusion" in the imputation of the firms' depreciation allowances. Accounting principles required that the firms impute a nominal depreciation allowance as a given percentage of the recorded values of their capital stock. These records become meaningless due to a continuous inflation. A highly sophisticated management could disregard the official capital allowance and refer to a corrected evaluation. Yet, an ordinary group of people might be swayed to "compromise" and consider the nominal figures with some insufficient corrections.

Some Empirical Results. Table 5.3 presents our estimates of the rates of the "real net savings" and the rate of the "observed net savings". The estimates rest upon our measurements of real consumption expenditures and differ in the definition of net savings, hence, in the definition of income. The "real" variable is related to the imputed real depreciation-allowance and the "observed" variable corresponds to the conventional imputation.

Equation 5.1 summarizes the major relationships in the consumption-saving domain of the cooperative settlement. The parameters presented are least-square estimates obtained for the data collected in the group of established settlements:

\[
(5.1) \quad C_{it} = \beta_1 \bar{T}_{it} \beta_2 r_{it} \beta_3 \bar{L}_{it} \beta_4 \bar{D}_{it} \beta_5 \bar{M}_{it}
\]

\(C_{it}\) = consumption expenditures in settlement \(i\) in year \(t\).
\(\bar{T}_{it}\) = observed current income per member in settlement \(i\) in year \(t\).
\(r_{it}\) = the average rate of interest in settlement in year \(t\)
(see p. 88).
\(\bar{L}_{it}\) = the net increments of credit per member in settlement \(i\) in year \(t\).
\(\bar{D}_{it}\) = the number of dependent children per member in settlement \(i\) in year \(t\).

(* This is the true equation the estimates presented hereby were derived from equations 5.2 and 5.3. Equation 5.2 related the consumption...
M_{it} = the number of kibbutz members in settlement i in year t.
\beta_i = a settlement constant
i = 1, 2, \ldots 33 settlements \ t = 1, 2, \ldots 25 years.

The Parameters may be interpreted as follows(*):
(a) \( \beta_1 \) is the consumption-income elasticity = 0.913 (0.0125)
(b) \( \beta_2 \) - the interest-consumption elasticity - equals -0.0022 (0.0007)
(c) \( \beta_3 \) - the credit consumption elasticity equals 0.0021 (0.0009)
(d) \( \beta_4 \) - the dependents-consumption elasticity - equals 0.0197 (0.0050)
(e) \( \beta_5 \) - the scale (number of kibbutz members) consumption elasticity - equals 1.172 (**)

Note that $b_1 = b_1 + b_3 + b_4 + b_5$. Equation 5.3 relates the consumption expenditures per member to the corresponding explanatory per-member variables:

\[
C_{it} = b_1 b_1 b_2 b_2 b_3 b_4 b_5
\]
when I_{it}, L_{it}, D_{it} stand for the observed income, increments of credit, and the number of dependent children in settlement i during year t. Note that \( \beta_1 = b_1 \) etc., but \( \beta_5 = b_5 - 1 \). Equation 5.3

\[
(5.3) \quad C_{it} = B_1 B_1 B_2 B_3 B_4 B_5
\]
Here \( \beta_1 = b_1 \) etc., but \( \beta_5 = b_5 - 1 \).

(*) In regular characters the estimates obtained for equation 5.2; in small characters the estimates obtained for equation 5.3.

(**) The two estimates are significantly different from one.
Table 5.3: The Average Rates of Net Savings

The Established Group

1936 - 1960

<table>
<thead>
<tr>
<th>Period</th>
<th>Average Annual Income per Member</th>
<th>Average Annual Consumption per Member*</th>
<th>Average Annual Rate of Observed Income per Member</th>
<th>Average Annual Rate of Real Savings</th>
<th>Average Annual Rate of Observed Savings</th>
</tr>
</thead>
<tbody>
<tr>
<td>1936-40</td>
<td>500</td>
<td>448</td>
<td>865</td>
<td>.073</td>
<td></td>
</tr>
<tr>
<td>1941-45</td>
<td>822</td>
<td>802</td>
<td>1059</td>
<td>.021</td>
<td></td>
</tr>
<tr>
<td>1946-50</td>
<td>959</td>
<td>1037</td>
<td>1668</td>
<td>.012</td>
<td></td>
</tr>
<tr>
<td>1951-55</td>
<td>1456</td>
<td>1648</td>
<td>1995</td>
<td>.040</td>
<td></td>
</tr>
<tr>
<td>1956-60</td>
<td>1924</td>
<td>1916</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* At the 1960 price level.
The income-consumption elasticity, which is significantly different from one, suggests that a 10% increase in the observed income should have been associated with a 9% increase in consumption-expenditures. It also implies that in the long run the share of consumption expenditures in the observed income tends to decline through time.

Yet it is, as stated above, the observed income, that is, income imputed in accord with the conventional accounting principles which involved, under the circumstances an element of money-illusion. Thus equation 5.1 is a behavioral function which considers effective variables whether these are illusionary or real. Attempts to insert our *ex post facto* estimates of the real variable were generally unsuccessful. Due to some statistical shortcomings we could not accept this fact as an absolute proof, yet, it seemed reasonable to conclude that the observed income was apparently the effective variable with reference to the income consumption relationships.

The interest-consumption elasticity seems to be rather small in absolute terms. Yet it has the "right" sign and it is significantly different from zero. The implied conclusion is that consumption has been negatively associated with the rate of interest. Thus consumption could have been positively affected by the inflationary conditions in the 'fifties, for instance.

The third variable - the net increments of credit raises some problems of identification. Its inclusion in a single-function analysis is not fully justifiable. In other words the inter-relationships between consumption and the net increments of credit of the same year are rather complicated though the resulted identification problem is not so grave, since the net-increments variable is a lagged variable.

The empirical results confirms our pre-conceived notion of the "real world" in the sense that it suggests that the availability of additional credit has had a positive effect upon consumption thus a negative effect upon savings. At the geometric mean the elasticity
obtained may be interpreted to imply that a 100 IL. of additional credit resulted in an additional immediate consumption expenditures of about 4 IL.

The other two elasticities concerning the number of dependent children and the size of the kibbutz respectively suggest that (a) consumption is positively and savings are negatively associated with the number of dependents and (b) with respect to savings the kibbutz manifests some "diseconomies" of scale.

The comprehensive analysis of the saving-consumption patterns falls beyond the scope of this study. For our purposes it seemed enough to verify a fundamental characteristic of the system. Namely, that net savings played a minor role in financing the formation of the settlements' capital. Regardless of its origin this phenomenon is not necessarily unique to Israel. It is in fact one of the shortcomings of a policy intended to encourage a rapid capital formation and an immediate improvement of the standards of living in a low-income community. This policy can hardly depend upon savings, it must rely on extensive flows of financial means from the "outside".
Farm Credit and Investments

A General Outlook. The institutional framework implemented to serve the flow of loanable funds to, from, and within the farm sector is referred to as the Farm Credit System. The farm sector in Israel has always been a net-debtor and the major role of the system was the recruiting of loanable funds.

The various channels of the farm credit system can be classified according to their corresponding sources which allow for a net inflow of loanable funds. We therefore distinguish between the following two branches of the system: the first is the "Public" Branch which consists of:

(a) The sponsoring settlement agencies and (b) The treasury and the government-controlled Bank of Agriculture.

The second is the "Commercial" Branch which consists of an institutional and a non-institutional channel. The institutional channel includes the (c) commercial banks, (d) the mutual funds and (e) other cooperative organizations which were originally set up as purchasing and marketing cooperatives but extended their activities to include finance and credit. The non-institutional channel consists of (f) suppliers and (g) individual money lenders. (*)

This classification of farm credit accentuates the differences in sources and in the institutional set-up as well as some fundamental differences in the principles of credit allocation. It also reflects some specialization in financing particular types of farm and non-farm investments.

The public institutions main concern were investments in the farm and the non-farm fixed assets. One of the sponsoring agencies - the Jewish National Fund - for instance, specialized in the acquisition and reclamation of land. It has allotted land parcels and allocated funds for land reclamation following a policy of strict specialization.

(*) The organizations in group (e) were not accredited finance institutions hence this group might be considered as part of the non-institutional channel.
and rationing. Another agency - The Foundation Fund and the Jewish Agency have rationed their funds in the form of long term credit to which explicit restrictions, with specified goals, were attached. Generally these funds were intended to finance investments in the long term fixed assets. The government followed a similar policy of allocating funds to the various settlements for specified goals by way of rationing. Both rationing and specialization tend to disappear as we move from the public agencies through commercial banks and mutual funds to the individual money lender. Banks concentrated on short term credit; yet, the meaning of "short term" should be carefully clarified. Individual money lenders relied on short-term notes; this type of credit was unrestricted as far as usage was concerned and openly intended to finance long term projects. The credit extended by cooperative organizations and the group denoted "suppliers", was allocated among the various settlements in some conjunction with the respective economic activity of the lending corporations or individual involved, for instance, a private marketing-agency would offer credit to its clients. Even so a considerable portion of the loans offered by suppliers was identical in nature to those offered by individual money lenders, that is, with no effective restrictions. In terms of the cost of credit our classification is considered as follows. Credit offered through a relative market mechanism characterized the non-institutional channel at the other end of the farm credit system. Between the public authorities and the individual money lender, commercial banks and the cooperative institutions allocated their extended credit in a "compromised" method. These institutions served, to a certain extent, as channels of governmental and public allotments which were subsidized thus necessarily rationed. These rationed funds included qualified permissions granted by the central bank - The Bank of Israel - to extend credit beyond the reserve limitations. Furthermore, an imposed ceiling on interest rates turned the
allocation of credit by commercial banks into a complicated procedure, involving an inevitable element of rationing.

**The Relative Importance of the Various Channels of Farm Credit.**

The major long-term trends in the composition of the net increments of credit are summarized in Fig. 5.3. We observe a definite decline in the relative importance of the institutional sources through time. In particular we observe a decline in the public branch and a corresponding rise in the relative share of the non-institutional sources, particularly the individual money lenders. Similar trends could be traced in the whole population where the share of the institutional sources tends to decline with the age of the settlement.

The trends revealed in the time-series are related to time which is the analogue of age in this case. These trends could be deduced in the time series and the cross section indirectly from the changes in the composition of the net increments of credit with reference to repayment periods. The switch from long term to short term credit in the time series and the cross section reflected in Fig. 5.4 and 5.5 is associated with time or with the settlements' age. Figs. 5.4 and 5.5 present the composition of the net increments of credit classified according to repayment periods in the time series and the cross section. In both cases the "establishment funds" extended by the sponsoring agencies in the form of long term credit lose their relative importance through time, or with the settlements' age; hence, the share of long term credit in general and that of loans offered for twenty years and more, in particular, tend to decline. The latter type of credit virtually disappears. The decline of the relative importance of the sponsoring agencies is of course an expected one. Less expected is the rise in the relative weight of "individual money lenders" and
Fig. 5.3 -- The Composition of the Net Increments of Credit - By Sources. The Est. Group 1936 - 1960
"suppliers". This development seems to indicate a shortcoming embodied in the institutional framework(*).

The public authorities allocated long term credit whereas other sources specialized in intermediate and particularly in short term credit. Furthermore, moving from the public sources to the individual money lender, interest rates rose considerably. Hence, the switch from public sources to the money lenders resulted in a real increase in the cost of credit and laid a heavier burden upon the developing farm. One aspect of this burden was a heavier load of payments, the other was that of a "liquidity gap".

(* Discussion in Chapter 7.)
Fig. 5.4 -- The Composition of the Net Increments of Credit. The Established Group 1936 - 1960

Fig. 5.5 -- The Composition of the Net Increments of Credit. The Cross-Section - 1960.
A Liquidity-Gap. The trend discussed in the previous paragraph has been followed by the lack of the "normal" connection between the composition of the farm and non-farm investments with respect to repayment periods on the one hand and the composition flow of additional "new" credit on the other.

Consequently, this resulted in a liquidity-gap between the settlements' short-term liabilities and short term assets.

The following Figs. 5.6 and 5.7 and Table 5.4 compare the two streams in the group of established settlements and the whole population. We note that since 1950 there has been no association between the composition of the two streams with respect to their time classification. The result was a liquidity-gap between the total short term liabilities and the total current assets. The gap appeared with the expansion of the non-institutional outstanding debt. This was by no means coincidental since the non-institutional credit has been generally defined as short term credit. In this respect the switch in sources mentioned earlier is paralleled by a change in the composition of the net increments of credit classified according to repayments periods, while no change in the composition of the total gross investments takes place.
Fig. 5.6 -- The Composition of the Net Increments of Credit and the Gross Investments
The Established Group
1936 - 1960

\[ a = \text{gross investments in fixed assets as } \% \text{ of the total} \]

\[ b = a + \text{gross savings as } \% \text{ of total gross invest.} \]

\[ a = \text{net increments to long & intermediate credit as } \% \text{ of the total gross investments.} \]

Fig. 5.7 -- The Composition of the Net Increments of Credit and the Gross Investments.
The Cross Section 1960
Table 5.4: Various Types of Gross Investments and Types of Net Increments of Credit as Percentage of Total Gross Investments - The Established Group.

<table>
<thead>
<tr>
<th></th>
<th>Year</th>
<th>1936</th>
<th>1940</th>
<th>1945</th>
<th>1950</th>
<th>1955</th>
<th>1960</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
</tr>
<tr>
<td><strong>Buildings (above 10 years)</strong></td>
<td></td>
<td>51.3</td>
<td>38.8</td>
<td>65.5</td>
<td>61.6</td>
<td>58.6</td>
<td>41.0</td>
</tr>
<tr>
<td><strong>Equipment (1-10 years)</strong></td>
<td></td>
<td>32.6</td>
<td>23.9</td>
<td>20.5</td>
<td>20.3</td>
<td>17.7</td>
<td>20.7</td>
</tr>
<tr>
<td><strong>Shares &amp; Long Term Debentures</strong></td>
<td></td>
<td>4.0</td>
<td>5.0</td>
<td>6.0</td>
<td>15.0</td>
<td>12.0</td>
<td></td>
</tr>
<tr>
<td><strong>Liquid Assets</strong></td>
<td></td>
<td>16.1</td>
<td>33.3</td>
<td>9.0</td>
<td>12.1</td>
<td>8.7</td>
<td>26.3</td>
</tr>
<tr>
<td><strong>Short Term (less than 1 year)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1-4 years</td>
<td></td>
<td>14.1</td>
<td>16.3</td>
<td>7.9</td>
<td>33.2</td>
<td>43.7</td>
<td>40.4</td>
</tr>
<tr>
<td><strong>Intermediate Term</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4-10 years</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-0.8</td>
<td>3.6</td>
<td>13.9</td>
</tr>
<tr>
<td>10-20 years</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>11.9</td>
<td>27.0</td>
<td>17.7</td>
</tr>
<tr>
<td><strong>Long Term</strong></td>
<td></td>
<td>48.7</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>above 20 years</td>
<td></td>
<td>14.2</td>
<td>18.1</td>
<td>4.6</td>
<td>-0.5</td>
<td>-0.2</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td>59.8</td>
<td>49.1</td>
<td>50.8</td>
<td>72.6</td>
<td>78.3</td>
<td>55.1</td>
</tr>
<tr>
<td><strong>Public Sources</strong></td>
<td></td>
<td>40.</td>
<td>16.</td>
<td>20.3</td>
<td>15.7</td>
<td>11.0</td>
<td>6.3</td>
</tr>
<tr>
<td><strong>Commercial Banks</strong></td>
<td></td>
<td>7.</td>
<td>29.</td>
<td>20.1</td>
<td>26.6</td>
<td>10.8</td>
<td>2.5</td>
</tr>
<tr>
<td><strong>Cooperative Credit Organizations</strong></td>
<td></td>
<td>-5.1</td>
<td>27.3</td>
<td>13.4</td>
<td>11.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Cooperative Organizations</strong></td>
<td></td>
<td>15.</td>
<td></td>
<td>10.6</td>
<td>-3.8</td>
<td>10.9</td>
<td>5.1</td>
</tr>
<tr>
<td><strong>Corporation</strong></td>
<td></td>
<td>.4</td>
<td>1.3</td>
<td>2.5</td>
<td>2.5</td>
<td>6.1</td>
<td></td>
</tr>
<tr>
<td><strong>Private Lenders</strong></td>
<td></td>
<td>1.</td>
<td>12.</td>
<td>2.1</td>
<td>2.8</td>
<td>9.7</td>
<td>21.2</td>
</tr>
<tr>
<td><strong>Suppliers etc.</strong></td>
<td></td>
<td>-3.</td>
<td>-8.</td>
<td>2.4</td>
<td>2.7</td>
<td>20.0</td>
<td>8.4</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td>60.</td>
<td>49.</td>
<td>50.8</td>
<td>72.6</td>
<td>78.3</td>
<td>55.1</td>
</tr>
</tbody>
</table>
The Costs of the Policy of the Sponsoring Agencies. Both the cross section and the time series reveal a considerable decline in the relative importance of the net addition of long and intermediate credit. This decline associated with the age of the settlements reflects the direct and some indirect effects of the credit-policy of the sponsoring agencies. The sponsoring agencies undertook the role of financing or inducing the allocation of institutional credit in order to finance the settlements' investment in fixed assets during their period of establishment.

The burden of this policy has become progressively heavier since the mid-thirties, as a result of changing targets, set by the settlement authorities in terms of capital intensity in the farm enterprise and capital "requirements" of the consumer unit. The standards were tentatively set to meet assumed "requirements" in the case of the enterprise which reflected the prevailing price of farm labor. Raising the standards in the case of consumer assets, the authorities responded directly to the rise in the opportunity-cost of the settler.

This policy may be looked upon as an endeavor to cope with the general pace of development, which ultimately resulted in higher farm-capital "requirements". By the same token it also attempted to follow the general trend of the standard of living and, therefore, to help the new settler arrive at a standard of living comparable with that of the established settlement immediately. (See Fig. 5.8 and Tables 5.5 and 5.6).
Fig. 5.8 -- Escalated (Re-evaluated) Debt per Member. The Established and the Young Settlement
Table 5.5: Annual Net Increments of Long and Intermediate Term Credit Per Member IL at the 1960 Price Level

<table>
<thead>
<tr>
<th>Years</th>
<th>Established est. before 1936 (a)</th>
<th>Group A est.1937 - 1940 (b)</th>
<th>Group B est.1941 - 1948 (c)</th>
<th>Young est.1948 - 1958 (d)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1958-60</td>
<td>269</td>
<td>581</td>
<td>1054</td>
<td>1620</td>
</tr>
<tr>
<td>1953-55</td>
<td>349</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1948-50</td>
<td>229</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1943-45</td>
<td>121</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1938-40</td>
<td>163</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 5.6: The Annual Net Increments of Long and Intermediate Credit as Percentage of the Annual Gross Investments in Fixed Assets

<table>
<thead>
<tr>
<th>Years</th>
<th>Established est. before 1936 (a)</th>
<th>Group A est.1937 - 1940 (b)</th>
<th>Group B est.1941 - 1948 (c)</th>
<th>Young est.1948 - 1958 (d)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1958-60</td>
<td>27</td>
<td>45</td>
<td>60</td>
<td>86</td>
</tr>
<tr>
<td>1953-55</td>
<td>23</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1948-50</td>
<td>19</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1943-45</td>
<td>35</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1938-40</td>
<td>70</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
CHAPTER 6
FARM ASSETS AND/liabilities

Introduction

The financing of the farm capital formation has been considered so far in terms of the flow of gross investments on the one hand and the flow of gross savings and the net increments of credit on the other. In the following paragraphs we reconsider our findings in terms of the corresponding stocks. These stocks, assets on the one hand and liabilities and equities on the other, are summarized in the form of annual balance sheets, which presented as a sequence, are intended to reveal the real trends in the settlements' economic and financial position through time. Neither the recorded book values of the settlements' assets, nor the recorded liabilities represent the desired true values. The analysis of balance sheets through twenty-five years of considerable inflation relies upon a somewhat laborious appraisal of assets and liabilities.

The conceptual framework of the re-evaluation of the settlements' assets and some empirical solutions were discussed in some detail in Chapter 2. The two essentials of assets' re-evaluation procedure are the depreciation-pattern and the price index vectors. Once the pattern of depreciation is decided upon and the proper set of price conversion factors (price deflators) is selected, estimation of the real values of the settlements' assets becomes a straight-forward procedure of handling the available investment data. Rewriting balance sheets we preferred to comply with the accepted accounting rules of straight line depreciation, thus adopting the net stock estimates based upon specific price indices.
In the following paragraphs we search for a similar solution for handling the liabilities' side of the settlements' balance sheets.

The three components of the settlements' balance sheets are their assets recorded on the one side and their outstanding debt and equities on the other. The equity is by definition the difference between the book-value of the settlements' assets and their recorded outstanding debt. As long as we restrict ourselves to book-values the only meaningful entry of these three is the outstanding debt. Even in this case some corrections in the official records may be necessary due to an effective official "escalation".

Recalculation of the assets' real values leads us to new estimates of the settlements' equities. The imputed "real equity" is, therefore, the difference between the real value of the settlements' assets and their outstanding debt. This difference represents two or even three different entities. The first are the accumulated savings which are identical in our particular case, to retained profits. The second entity is that of capital gains. These gains could be traced to the settlers' position as net debtors in an inflationary era. To refer to the settlers' gains as "pure inflationary gains" we should assume that the settlers were used to invest in some "general real asset" and acquire their investment funds via nominal debentures. We should also assume that the discount rate on these debentures has been neither subsidized nor stipulated to include a compensatory element due to the inflationary conditions. In reality, of course, settlers invest in a variety of assets. Hence, the real equities are composed of (a) accumulated savings (retained profits) (b) gains due to changes in relative prices and (c) inflationary gains due to changes in the general price level.
Inflationary capital gains were the result of nominal-debt. The question is, therefore, to what extent the outstanding debt can be considered nominal.

**Officially Escalated Loans.** Since inflationary trends have been, to a considerable extent, foreseeable, there has been an understandable inclination among lenders to find ways and means of compensating themselves for the depreciation of nominal assets such as notes and debentures. The institutions of finance could not raise the price of credit because of the imposed ceiling upon interest rates. However, towards the end of the period under study, they found a legal loophole of "escalating" the loans. An escalated loan could be either "linked" to the official foreign exchange rate - "linked to the U.S. $" - or to one of the Central Bureaus of Statistics' price indices such as the Consumer-Price Index. The escalated loan was in fact a real asset in the sense that its current value was imputed periodically according to the current price of a particular bundle of some "real" goods and services at home or abroad. Escalation regarded either principal or, principal and interest as well\(^*\). Payment procedures could vary from periodically stipulated or corrected instalment payments to periodical payment of interest and an inflation premium and deferment of the repayments of a corrected principal. In practice, however, officially escalated loans were hardly escalated during the period under study. The ceiling interest rates on explicitly escalated loans were lower than the regular official ceiling. The escalated portion of each particular loan varied between 50% to

\[ (1 + r) \cdot (1 + p) \times \text{IL} \text{ at the end of the year.} \]

\[ p \cdot r \text{ would be a compensation for the depreciation of the principal,} \]

\[ p \cdot r \text{ would be a corresponding correction regarding the interest payments.} \]

In our discussion the term "premium" stands for "p" alone.
100% of the loan during this period (1954 - 1960); the actual extent of escalation was determined through political negotiations. Thus the intended premia on these loans during the period under study were left, to a considerable extent, below the rates implied by the rate of inflation reflected through any acceptable price index. Because premium plus interest rates on these loans were rather low, this type of loan had to be rationed (*).

Furthermore, almost ninety percent of the officially escalated debt in agriculture was "linked to the U.S. $" at the exchange rate of $1 : 1.80 IL. The farmers' decision to link their debt to the U.S. $ left their debt at its original (nominal) level as long as the official foreign exchange remained intact. The inevitable devaluation of the IL. took place in 1962. The organized farmers used political pressure to avoid actual payments of escalation-premia inferred by the devaluation. They compromised, instead, on an arrangement which could be interpreted as an insufficient escalation premium payment. After this experience the foreign exchange rate as an escalator was practically abandoned by the finance institutions.

In order to decide whether these loans were really escalated, or to what degree one has to arrive at a reliable estimate of the real interest-rate (excluding premia). The money interest-rates attached to non-institutional credit during the same period of time and the actual rates of inflation imply a real interest rate of about 10%. In view of this approximation the officially escalated loans - with 6% interest and a less than 3% premium were actually unescalated.

(* This was the situation during the period under study. We note, however, that later with a more strictly applied escalation procedure, expected money rates of interest (premium included) on escalated credit allocated by finance institutions fell closer to the actual rates on credit acquired from non-institutional sources. This fact was reflected in a relieved pressure upon the rationing mechanisms.)
Unofficially Escalated Loans. Money lenders in the growing gray market of non-institutional credit were aware of the inflationary trends. The more important the non-institutional market became, the more significant was the shift from intermediate term credit to short and very short term in this market. This way both lenders and borrowers could control the real value of their assets and liabilities without being obliged to risk long term predictions regarding future rates of inflation. Interest rates in this market definitely include a compensation element which reflects the expected rates of inflation on both the demand and "supply" sides of credit. In a perfectly-competitive market the knowledge of the rates of interest and inflation renders a notion of the "real" interest rate. In an imperfect market, where commercial interest rates include discriminatory elements for "special risk compensation" beside the real interest-rate and the implicit inflation premium, even this knowledge would be insufficient.

Credit Classification. Since the necessary detailed information is not available, one has to settle for the best estimate possible; the distinction between various degrees of escalation has been given up and the various sources of credit were classified into two groups, "escalated" and "non-escalated". Thereby institutional credit has been considered non-escalated and non-institutional credit as escalated. Another attempt which eventually led to similar conclusions was based on the assumptions that all credit until 1952 was non-escalated; institutional long and intermediate credit during the later period was non-escalated, institutional short term credit was semi-escalated; and non-institutional credit escalated. We observed a fast then creeping inflation during the earlier period (1940-1950), then a fast and, again, creeping inflation in the later period. (*

(* See Table 7.2.
We assume, therefore, that no precautionary steps had been taken during the first period—when institutional credit was dominant—and no steps could be taken during the second period. The simplified classification took into account the fact that institutional and longer-term credit were dominant in the first period. Yet, it deliberately overlooked the impossibility of full escalation during the second period on the one hand and the possibility of partial escalation of the institutional short-term credit at a later stage. Since the introduction of the more sophisticated classification has virtually no real effect upon our estimates we tend to believe that the errors involved cancel each other out.

Supplementary Assumptions and Notation. In the following discussion the first classification is adopted. Two additional assumptions lie at the bottom of the equations presented;

a) intra annual inflation is ignored, henceforth;
b) recorded investment and credit increments are converted into real terms—at a given price level—by the end-of-year price conversion factors.

The stock variables are:
a) \( S_t \) accumulated net savings at the end of period \( t \)
b) \( G_t \) accumulated capital gains at the end of period \( t \)
c) \( E_t \) equity
d) \( A_t' \) the stock of liquid assets (cash balances and short term promissory notes)
e) \( A_t'' \) the stock of "real" assets (household, plant, livestock and equipment)
f) \( L_t' \) non-escalated liabilities (institutional)
g) \( L_t'' \) escalated liabilities (non-institutional)
The corresponding flow variables are:

h) \( S_t \) the flow of savings during period \( t \)

n) \( L''_t \) increments of escalated credit during period \( t \).

Real and Nominal Values. All flow variables are measured in current prices i.e. in current IL. (\( \text{BD} \)) per year. Among the stock variables \( S'_t \), and \( A''_t \) are measured in real terms that is at the price of end of period \( t \), hence:

\[
S'_t = \sum_{t=1}^{t'} P_{t'/t} S_t
\]

\[
A''_t = \sum_{t=1}^{t'} P_{t'/t} A''_t
\]

where \( P_{t'/t} \)'s are price conversion factors (price deflators) more precisely

\[
P_{t'/t} = \frac{\overline{P}_{t'}}{\overline{P}_t}
\]

\( \overline{P}_t \) is the price index at the end of the period \( t \). At this stage we assume the \( \overline{P} \) is some "general" price index. In other words we deliberately overlook gains due to changes in relative prices.

Accumulated Savings. (*) Savings during period \( t \) are defined as the difference between net disposable income and current consumption expenditures. Since the economic unit under study comprises a firm and a household at the same time, disposable income is roughly the difference between the firm's revenue and total costs. Consumption expenditures on the one hand and costs on the other include interest payments made by the economic unit as a household.

(*) See Appendix to Chapter 6.
or a firm respectively. These payments, which the accountant considers as interest, consist of "real" interest payments and the payment of inflation premia. To the extent that this economic unit pays these premia, a relevant part of the unit's total debt is maintained at its nominal level. Paying these premia out of one's revenue constitutes saving (*).

In terms of assets and liabilities net saving are defined as follows:

\[ S_t = A_t + A''_t - (L'_t + L''_t) + (P_{t/t-1} - 1) L'_{t-1} \]

Namely, saving during period \( t \) equals the difference between total investment in producer and consumer assets, in inventories and in liquid assets minus the net increments of credit plus inflation premia paid during that period. It could be shown that the corresponding equation for accumulated savings at the end of period \( t \) (at the end-of-period price level) is the following:

\[ S_{t'} = \sum_{t=1}^{t'} \left[ P_{t'/t}(A'_t + A''_t - L'_t) - L''_t \right] \]

(* Take, for instance, a farm (firm and household) unit. At the beginning of a one year period the farmer buys an asset worth 10,000 IL, borrowing 10,000 IL to finance this purchase. For the sake of simplicity let us assume that depreciation during this period is negligible. At the end of the period the current value of this asset is 11,000 IL, as a result of a ten percent (neutral) rise in the price level. Inflation is foreseen and the farmer pays 20% interest which includes 10% interest-proper and 10% as an inflation premium. To make his annual interest payment the farmer may decide to borrow an extra 1,000 IL, thus maintaining his debt on par with the real value of the acquired asset. However, if he decides to pay the whole sum of 2,000 IL out of his income he actually saves 1,000 IL and becomes the proprietor of 1/11 of his asset. Conceptually this sum is charged as cost against the farm gross income thereby not being considered as part of the disposable income. Conceptually it should be considered as part of the farmers annual savings thus a part of the annual disposable income.)
Accumulated Net Capital Gains. Capital gains in the case of the economic units under study were made possible by the unescalated loans available. Potential capital gains were realized to the extent that the settlers did not invest in liquid assets which included cash-balances, etc. Annual capital gains during period \( t' \) and the accumulated gains at the end of period \( t' \) could be imputed as follows:

\[
(6.5) \quad G_{t'} = (P_{t'}/t' - 1 - 1) \sum_{t=1}^{t'-1} P_{t'-1/t} (L_t' - A_t')
\]

and

\[
(6.6) \quad G_{t'} = \sum_{t=1}^{t'} (P_{t'}/t - 1) (L_t' - A_t')
\]

Equity and the Balance Sheet Equations. Following the definitions of accumulated savings and accumulated capital gains the real equity is defined as the sum total of these two.

\[
(6.7) \quad E_{t'} = S_{t'} + G_{t'} = \sum_{t=1}^{t'} A_t' + \sum_{t=1}^{t'} P_{t'}/t A''_t' - \sum_{t=1}^{t'} L_t' - \sum_{t=1}^{t'} L''_t'
\]

Equation 6.7 is, in fact, an explicit form of the real balance sheet equation. It may be compared with the recorded-balance equation 6.8.

\[
(6.8) \quad E_{t'} \text{ (recorded)} = \sum_{t=1}^{t'} A_t' + \sum_{t=1}^{t'} A''_t' - \sum_{t=1}^{t'} L'_t - \sum_{t=1}^{t'} L''_t
\]

The only difference between 6.7 and 6.8 is that the real assets \( (A_t') \) appear in equation 6.7 as a re-evaluated stock as compared with the nominal (both-value) stock of real assets in equation 6.8.
Specific Price Indices. For the sake of uniformity the price conversion factor in equation 6.2 is substituted by a vector of specific price indices following the previous chapters. Hence,

\[
A''_{it} = \sum_{i=1}^{I} \sum_{t=1}^{t'} y_{it} P'_{it}/P''_{it}
\]

\[i = 1, 2, \ldots I \text{ types of real assets. Equation 6.9 replaces equation 6.2, equation 6.1 remaining intact.}
\]

Consequently we must select the "right" price index for equation 6.1, that is, the "right" (unofficial) escalation index. As an approximation we accept the consumer price index. Noting that the result gives a notion of the relative importance of accumulated savings which is biased upward because this "general" index has risen much slower than the cost of building or farm machinery indices in the period under study. Accumulated savings are imputed as a residual for an equation paralleling equation 6.8 where E and G are known and S is unknown. Since E reflects the rise in the relative price of the settlers' assets and G does not, S includes the relative-price-gain element and accumulated savings imputed this way are not really savings. The imputed gains are, in fact, an estimate of the loss incurred to the finance institutions - a loss which they could have avoided.
The Annual Balance Sheets

The Established Group 1936 - 1960. The state of financial affairs of the established kibbutz settlements might have been far from perfect. But, their official financial statements - their recorded balance sheets - are exceedingly discouraging. The following table suggests that in 1960 the settlers' recorded equities are negligible. The equity in an average settlement amounts to a meagre sum of fifteen hundreds IL. (approximately $500) per member. In relative terms the equity constitutes fifteen percent of the settlements' total liabilities.

For a more appropriate appraisal we turn to the series of reconstructed balance sheets.

This series of reconstructed sheets clearly demonstrates that the "share" of the settlers' equities exceeded the fifteen percent mark. These "shares" varied between sixty and forty percent from 1945 to 1960. More important the per-member equity in absolute terms has been far from negligible. It amounts to 750 IL., 2,660 IL and 6,150 IL (at the 1960 price level) in 1940, 1950, and 1960 respectively. Questioning the origin of these real equities we find that per-member accumulated savings amount to 600 IL., 1,500 IL., and 2,400 IL. respectively. Hence, the series of reconstructed balance sheets conceals the poor performance of the settlers as savers. Accumulated savings considered as "normal" equities constituted between thirty to sixteen percent of the settlements' total liabilities. In this respect the recorded balance sheets of 1960 were not so deceptive. The recorded equity constitutes fifteen percent of the recorded liabilities and the accumulated savings from sixteen percent of the real liabilities. This phenomenon is interpreted as a "neutral" re-evaluation effect.
Table 6.1: Recorded and Reconstructed Balance Sheets

<table>
<thead>
<tr>
<th>The Established Group</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
<tr>
<td>1936</td>
</tr>
<tr>
<td>A</td>
</tr>
<tr>
<td>-------</td>
</tr>
<tr>
<td>Recorded Balance Sheets</td>
</tr>
<tr>
<td>372 D 310</td>
</tr>
<tr>
<td>E 62</td>
</tr>
<tr>
<td>Real Balance Sheets</td>
</tr>
<tr>
<td>372 D 310</td>
</tr>
<tr>
<td>E 62</td>
</tr>
<tr>
<td>Capital gains as a percentage of the real equity.</td>
</tr>
<tr>
<td>19.7</td>
</tr>
</tbody>
</table>

A = Assets  
L = Liabilities  
D = Outstanding debt  
E = Equity  

Assets in the first row and debt-outstanding (D) are the officially recorded (book) values.  
Assets in the third row are reappraised values corrected for changes in the price level,  
This component was imputed according to equation 6.9.  
Equities were calculated as the difference between (A) and (B).  
The weights of capital gains in the real equities were calculated according to expression 6.6.  
Depreciation pattern is straight line.  
The real balance sheets were imputed at the current price level in each year, for the sake of clarity, all entries in the real balance sheets were then converted to the 1960 - price level by the consumer price index.
"Neutrality" characterizes the later periods. It manifests, in some sense, the close association and resemblance between patterns of investments and of credit increments.

It is recalled that the estimates of the equities and their components follow the assumption of a straight line depreciation of the fixed assets. Another crucial assumption in our imputations has been the application of specific price indices rather than one "general" price index. Replacing the first assumption, that is, substituting gross stock for the net stock, we arrive at considerably higher estimates of the "real equity" and "accumulated savings". On the other hand, replacing the specific price indices by a general price index, that is, following equation 6.2 rather than equation 6.9 we arrive at considerably lower estimates of the share of "accumulated savings" in the real equities. These low estimates exclude both types of capital gains mentioned earlier. In 1960 the corresponding upper limit estimate is 6,800 IL. obtained for the gross stock and specific price indices. The lower limit estimate is a mere sum of 800 IL. per member obtained for the net-stock and the consumer price index as a general index (*). Intermediate estimates are 4,200 IL. per member (gross stock, a general index) and 2,400 IL. per member (net stock, specific indices). Most naturally the two crucial assumptions, the one regarding the depreciation-pattern and the other regarding the degree of potential escalation, have a decisive effect upon our estimates.

Turning back to our standard estimates we find that accumulated savings in the group of established settlements were positive values. This point is emphasized in view of our previous remarks in this respect.

(* This estimate corresponds to the series of income saving and consumption presented in Table 5.3.)
Fig. 6.1 -- Aggregated Balance Sheets. The Group of Established Settlements 1936 - 1950
In Current Prices

---

\[ d = \text{re-evaluated assets} \]
\[ C = \text{escalated debt} \]
\[ a = \text{recorded assets} \]
\[ b = \text{recorded debt} \]

---

000,000
IL. (£P)

15

10

5

\[ d = \text{re-evaluated assets} \]
\[ c = \text{escalated debt} \]
\[ b = \text{recorded assets} \]
\[ a = \text{recorded debt} \]

---

1940 1945 1950
year
Fig. 6.1 -- cont.

1950 - 1960

real equity = capital gains + accumulated savings
The composition of the real equities is explicitly stated in Table 6.1 which presents the major three figures of the recorded and the reconstructed balance sheets. In 1955, for instance, this table states that the real value of the total assets in an average settlement was 2.64 mil.IL. (as compared with the recorded 1.31 mil.IL. of which 56.1% were accumulated capital gains thus only 43.9% or .64 mil.IL. were accumulated savings).

The Outstanding Debt. The flow of net increments of credit underwent considerable changes through time. The corresponding changes in the outstanding debt could be deduced from Fig. 5.3 above indirectly. The following Figures 6.2 and 6.3 offer a direct glimpse at the composition of the outstanding debt of the established group. Fig. 6.3 presents the composition of the outstanding debt with respect to the repayment periods while Fig. 6.2 refers to the various channels of farm and settlement credit. Both figures rediscover the declining importance of the long and intermediate term credit through time, and reveal the declining role of institutional credit. The trends are inter-related as can be seen from the following Table 6.2.

In the twenty-five-years-period under study, the average repayment period in the established group dropped from twenty years to four. The relative weight of the outstanding debt to the sponsoring agencies declined from over 50% to less than 20%. This last statement is somewhat misleading. In view of our previous remarks it is quite clear that the recorded outstanding debt is the real debt only in the sense that it represents the nominal sum which the borrowers should pay today in order to reduce their debt to nil. Should inflation be curbed it may also represent the eventual repayment. It does not represent, however, the lenders real sacrifice or the "rewritten outstanding debt".
Fig. 6.2 -- The Composition of the Outstanding Debt by Sources. The Established Group 1936 - 1960

<table>
<thead>
<tr>
<th>Year</th>
<th>Suppliers etc.</th>
<th>Coop.</th>
<th>Individuals</th>
<th>Banks</th>
<th>Public Institutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>40</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>45</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>50</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>55</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>60</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Fig. 6.3 -- The Composition of the Outstanding Debt by Repayment Periods. The Est. Group 1936 - 1960

short term - less than one year

10 - 20 years

10 - 20 years

above 20 years
Table 6.2: Short Term Credit as Percentage of the Total Outstanding Debt to Various Lenders

The Established Group 1941 - 1960

<table>
<thead>
<tr>
<th>Year</th>
<th>The Public Agencies</th>
<th>Commercial Banks</th>
<th>Mutual Funds and Coops</th>
<th>Individual Money Lenders*</th>
</tr>
</thead>
<tbody>
<tr>
<td>1941</td>
<td>.7</td>
<td>62.</td>
<td>26.</td>
<td>18.</td>
</tr>
<tr>
<td>1945</td>
<td>1.3</td>
<td>39.</td>
<td>39.</td>
<td>18.</td>
</tr>
<tr>
<td>1950</td>
<td>.9</td>
<td>64.</td>
<td>49.</td>
<td>15.</td>
</tr>
<tr>
<td>1955</td>
<td>5.7</td>
<td>67.</td>
<td>50.</td>
<td>47.</td>
</tr>
<tr>
<td>1960</td>
<td>4.3</td>
<td>62.</td>
<td>61.</td>
<td>76.</td>
</tr>
</tbody>
</table>

* Other than suppliers etc. The debt to suppliers is almost by definition, 100% short term credit.
The "re-written" figures are the sum of the recorded figures plus the corresponding lenders' capital loss which is almost identical to the borrowers' capital gain (*). By definition the relative weight of the institutional debt, thus the relative weight of the long and intermediate debt, are higher in the case of the rewritten outstanding debt than in the case of the recorded one. Table 6.3 presents the actual differences in the established group for selected years.

Table 6.3: The Share of the Long and Intermediate Debt to Finance-Institutions in the Total Outstanding Debt.

<table>
<thead>
<tr>
<th>Year</th>
<th>1936</th>
<th>1940</th>
<th>1945</th>
<th>1950</th>
<th>1955</th>
<th>1960</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a)</td>
<td>%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>66.7</td>
<td>60.1</td>
<td>58.4</td>
<td>45.5</td>
<td>34.0</td>
<td>25.7</td>
</tr>
<tr>
<td>(b)</td>
<td>%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>66.7</td>
<td>66.1</td>
<td>65.8</td>
<td>53.1</td>
<td>46.3</td>
<td>36.7</td>
</tr>
</tbody>
</table>

We could have referred to the rewritten debt as the intended debt. It is not clear, however, to what extent the capital loss incurred to the public agencies, should be considered as such. To a certain extent it was an intended loss, that is, a subsidy or a grant.

(*) The term A should be excluded from equation 6.5 in order to transform it into a capital loss equation.

The youngest group was most highly financed enjoying relatively generous loans offered by their sponsoring agencies. The established group was second-best in this respect due to a longer and a better period of accumulation. Two criteria of an appropriate financial positions are a relatively milder burden of a liquidity gap and a higher equity to debt ratio. Table 6.4 suggests that the liquidity in 1960, that is, the ratio of current and liquid assets to the short run debt has been .98 in the young group as compared with .62, .59, and .67 in the established, and in the intermediate groups respectively. The equity in 1960 comprises 42, 33, 28 and 20% of the total liabilities in the established, the intermediate, and the youngest group respectively.

A smaller liquidity gap characterized the young settlement as such. For instance, intermediate group B as a young group in 1950 was characterized by a liquidity ratio of .96. In the farm credit system under study liquidity problems are an "old-age" condition.

Equity appears to improve with age. First of all, the long established settlements had a longer period for equity accumulation. Though incomes in the early pre-statehood era were rather low, accumulated savings per settlement in 1950, amount to more than one half of the total savings accumulated in this group toward the end of 1960 and more than the average settlements in two of the other three groups have ever accumulated. In Chapter 5 we discussed few propositions regarding the kibbutz settlement as a saving-consumption unit. The simpler one suggested that the level of consumption in a kibbutz is predetermined. Consumption is identified with "labor costs", both the size of the labor force and wage rates being pre-determined.
### Table 6.4: Reconstructed (Real) Balance-Sheets of the Average Kibbutz Settlement

,000 IL. at the 1960 Price Level

<table>
<thead>
<tr>
<th>Group</th>
<th>1950</th>
<th>1955</th>
<th>1960</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plant</td>
<td>930</td>
<td>647</td>
<td>400</td>
</tr>
<tr>
<td>Equipment &amp; Livestock</td>
<td>377</td>
<td>193</td>
<td>113</td>
</tr>
<tr>
<td>Revolving Financial &amp; Liquid Assets</td>
<td>303</td>
<td>217</td>
<td>167</td>
</tr>
<tr>
<td>Total Assets</td>
<td>1,611</td>
<td>1,057</td>
<td>680</td>
</tr>
<tr>
<td>Equity</td>
<td>747</td>
<td>280</td>
<td>50</td>
</tr>
<tr>
<td>Long-Term Credit (over 10 years)</td>
<td>260</td>
<td>373</td>
<td>347</td>
</tr>
<tr>
<td>Gross Equity</td>
<td>1,007</td>
<td>653</td>
<td>397</td>
</tr>
<tr>
<td>Intermediate Credit (1-10 years)</td>
<td>167</td>
<td>157</td>
<td>110</td>
</tr>
<tr>
<td>Slwot-Term Credit</td>
<td>437</td>
<td>247</td>
<td>173</td>
</tr>
<tr>
<td>Total Liabilities</td>
<td>1,611</td>
<td>1,057</td>
<td>680</td>
</tr>
</tbody>
</table>

(* See ff. (b) to Table 6.1.)
Following this proposition we note that while incomes in the pre-statehood era (before 1949) have been rather low the pre-determined labor costs have been relatively lower. We note also that after 1949 the pre-determined level of consumption has been high enough to leave the average younger settlements, due to their lower incomes, with no savings or even negative residuals. With this proposition in mind we observe the declining share of accumulated savings from the established group to the youngest one. As for capital gains, the policy of the sponsoring public agencies and the effects of the inflation combines together have resulted in a more or less equal share of capital gains in the total liabilities of the four major groups of kibbutz settlements. It is recalled that the public agencies have undertaken the role of financing the settlements during their establishment stage. However the rising standards have resulted in much heavier allotments in the younger group of settlements. The younger groups have had larger allotments in the form of subsidized unescalated loans. Still the older settlements with smaller allotments were exposed to longer periods of inflation and rising relative prices(*).

In other words, the younger settlements enjoyed relatively smaller gains on larger sums while the others enjoyed relatively larger gains on smaller sums.

Another way to look at the equity of a sponsored settlement is to combine the first two entries of the liabilities side in their balance sheets. Inasmuch as the settlement agencies may be considered partners, the sum of these two entries comprises the settlements "gross equity". This gross equity is comprised of accumulated savings, capital gains and the outstanding long-

(* The benefit of relatively low prices of farm assets may be interpreted as a benefit of relatively higher prices for farm products.
Table 6.5: The Components of Gross Equity as a Percentage of Total Liabilities

<table>
<thead>
<tr>
<th></th>
<th>1950</th>
<th></th>
<th></th>
<th>1955</th>
<th></th>
<th></th>
<th>1960</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Estab</td>
<td>Inter-</td>
<td>Inter-</td>
<td>Estab</td>
<td>Inter-</td>
<td>Inter-</td>
<td>Estab</td>
<td>Inter-</td>
<td>Inter-</td>
</tr>
<tr>
<td>Accumulated Savings</td>
<td>26</td>
<td>6</td>
<td>2</td>
<td>24</td>
<td>22</td>
<td>18</td>
<td>0</td>
<td>16</td>
<td>12</td>
</tr>
<tr>
<td>Capital Transfer</td>
<td>20</td>
<td>20</td>
<td>5</td>
<td>31</td>
<td>27</td>
<td>26</td>
<td>23</td>
<td>26</td>
<td>21</td>
</tr>
<tr>
<td>Equity</td>
<td>46</td>
<td>26</td>
<td>7</td>
<td>55</td>
<td>49</td>
<td>44</td>
<td>23</td>
<td>42</td>
<td>33</td>
</tr>
<tr>
<td>Long-term Credit</td>
<td>16</td>
<td>35</td>
<td>51</td>
<td>6</td>
<td>10</td>
<td>17</td>
<td>44</td>
<td>10</td>
<td>20</td>
</tr>
<tr>
<td>Gross equity</td>
<td>62</td>
<td>61</td>
<td>58</td>
<td>61</td>
<td>59</td>
<td>61</td>
<td>67</td>
<td>52</td>
<td>53</td>
</tr>
</tbody>
</table>


run debt to the sponsoring agencies, which is almost identical to the total long-run outstanding debt. Since capital gains to one partner - the settlement - are capital losses to the other - the sponsor - we may define the gross equity as the sum of accumulated savings, capital transfer and the outstanding long-term-debt to the sponsoring agencies. The "gross equity" always constituted more than 50% of the total liabilities.

The Outstanding Debt. The composition of the outstanding debt in the cross-section clearly resembles the corresponding series in the established group alone. As can be seen in Figs. 6.4 and 6.5, the relative weights of the debt to accredited finance institutions and of long-term credit have tended to decline with the settlement's age in the cross section as well as in the time series.
Fig. 6.4 -- The Composition of the Outstanding Debt by Sources. The Cross Section 1960

Fig. 6.5 -- The Composition of the Outstanding Debt by Repayment Periods. The Cross Section 1960
Appendix to Chapter 6

The Equations of Balance Sheets

Revaluation

The Variables

Stock Variables:

In Fixed Prices

\( S_t \) = Accumulated net savings at the end of year \( t \).
\( E_t \) = Equity at the end of year \( t \).

In Current Prices

\( G_t \) = Accumulated capital gains at the end of year \( t \).
\( L_t'' \) = Escalated liabilities at the end of year \( t \).

Flow Variables (In Current Prices)

\( S_t \) = Net savings during year \( t \).
\( G_t \) = Capital gains during year \( t \).
\( A'_t \) = Net addition to the stock of liquid assets during year \( t \).
\( A''_t \) = Net addition to the stock of real assets during year \( t \).
\( L'_t \) = Net addition to non-escalated liabilities during year \( t \).
\( L''_t \) = Net addition to the escalated liabilities during year \( t \).
\( D_t \) = Real depreciation allowance for year \( t \).
Recorded Variables (Book Values)

DB_t = Recorded depreciation allowance for year t.
EB_t = Net change in the recorded equity in year t.

Note that L'' is a recorded stock variable as well.

We recall that two assumptions have been explicitly introduced in Chapter 6. (a) Intra-annual inflation is nil, and (b) recorded flow variables in current price are converted into fixed-price variables by the end of year price conversion factors.

The Equations.

(a) Accumulated Savings

\[
S_t = A'_t + A''_t - L'_t - L''_t + (P_{t/t-1} - 1) L''_{t-1}
\]

\[
S_t' = \sum_{t=1}^{t'} P_{t'/t} S_t
\]

but,

\[
P_{t'/t} S_t = P_{t'/t} A'_t + P_{t'/t} A''_t - P_{t'/t} L'_t - P_{t'/t} L''_t + (P_{t'/t} - P_{t/t-1} L''_{t-1}) - P_{t/t-1} L''_{t-1}
\]

note that: \( P_{t'/t} \cdot P_{t/t-1} = P_{t'/t-1} \)

and: \( L''_t = L''_t - L''_{t-1} \) thus: \( P_{t'/t} L''_t = P_{t'/t} (L''_t - L''_{t-1}) \)

hence:

\[
P_{t'/t} S_t = P_{t'/t} A'_t + P_{t'/t} A''_t - P_{t'/t} L'_t - P_{t'/t} L''_t + P_{t'/t} L''_{t-1}
\]
and:
\[
\sum_{t=1}^{t'} P_{t'/t} S_t = \sum_{t=1}^{t'} P_{t'/t} (A_t' + A''_t - L_t') - \sum_{t=1}^{t'} P_{t'/t} L_{t'}'' + \sum_{t=1}^{t'} P_{t'/t-1} L_{t-1}' =
\]
\[
\sum_{t=1}^{t'} P_{t'/t} (A_t' + A''_t - L_t') - P_{t'/t} L_{t'}'' + P_{t'/0} L_{t'}''
\]

Assuming \( L''_0 = 0 \)

\[
S_{t'} = \sum_{t=1}^{t'} [P_{t'/t} (A_t' + A''_t - L_t) - L''_t]
\]

Since \( P_{t'/t} = 1 \) and \( L''_t = \sum_{t=1}^{t'} L''_t \)

**b) Accumulated Gains**

\[
G_{t'} = (P_{t'/t-1} - 1) \sum_{t=1}^{t'-1} P_{t'/t-1} Q_{t'}
\]

where \( Q_{t'} = L_{t'}' - A_{t'}' \)

\( Q_{t'} = L_{t'}' - A_{t'}' \)

assuming \( Q_{0'} = 0 \)

\[
G_1 = 0
\]

\[
G_2 = P_{2/1} Q_{1}'
\]

\[
G_3 = P_{3/1} Q_{1}' + P_{3/2} Q_{2}'
\]

\[
G_4 = P_{4/1} Q_{1}' + P_{4/2} Q_{2}' + P_{4/3} Q_{3}'
\]

\[
G_{t'-1} = P_{t'1/1} Q_{1}' + P_{t'1/2} Q_{2}' + \cdots - P_{t'2/1} Q_{1}' - P_{t'-2/2} Q_{2}' \cdots - Q_{t'-2}'
\]
\[ G_t = P_t Q_t' + P_t Q_t' + \ldots - P_t Q_t' Q_{t-1} Q_{t-2} \ldots \]

Hence:

\[ G_t = \sum_{t=1}^{t-1} P_t Q_t' Q_{t-1} \]

\[ = \sum_{t=1}^{t-1} (P_t Q_t' - 1) Q_t' = \sum_{t=1}^{t-1} (P_t Q_t' - 1) (L_t' - A_t') \]

Since \((P_t Q_t' - 1) Q_t' = 0\)

(c) Equity

\[ E_t = S_t + G_t = \sum_{t=1}^{t-1} P_t Q_t' A_t' + \sum_{t=1}^{t-1} P_t Q_t' A_t" - \sum_{t=1}^{t-1} P_t Q_t' L_t' - \sum_{t=1}^{t-1} L_t"' \]

\[ = \sum_{t=1}^{t-1} P_t Q_t' A_t' + \sum_{t=1}^{t-1} P_t Q_t' L_t' \]

\[ + \sum_{t=1}^{t-1} A_t' \]

\[ + \sum_{t=1}^{t-1} L_t' \]

\[ = \sum_{t=1}^{t-1} A_t' + \sum_{t=1}^{t-1} P_t Q_t' A_t" - \sum_{t=1}^{t-1} L_t"' - \sum_{t=1}^{t-1} L_t"' \]
(d) **Accumulated Savings**

**In Terms of the Recorded Equity**

\[
S_t = A_t' + A_t'' - L_t' - L_t'' + (P_{t/t-1} - 1) L_{t-1}''
\]

\[
= E_t(\text{rec}) + D_t(\text{rec}) - D_t + (P_{t/t-1} - 1) L_{t-1}''
\]
Some Aspects of the Credit System

The Framework. The schedule outlined in Chapter 5 arranges the various channels of farm credit according to their position in the institutional framework. It starts with the government and the sponsoring agencies, continues with the various commercial credit and finance institutions, then ends with the non-institutional sources - suppliers and individuals. In terms of the principles of allocation this arrangement corresponds to a shift from subsidized credit and rationing - to a market mechanism. Formally it is a shift from long-term to short-term credit.

The flow of loanable funds from the "primary" sources - individuals, the agencies, and the government - reached the settler either directly or indirectly through banking institutions. A significant portion of the in-flowing funds originated abroad, transfer payments reached the settlers as personal reparation funds from Germany, and indirectly through the sponsoring agencies and the government. The capital in-flow from abroad reached the settlers through the government and commercial banks. The banks recruited funds abroad for their financial activities and served as intermediaries between financial institutions abroad and the settler-borrower in Israel.

Figure 7.1 is a simplified flow-chart of loanable funds in the 'fifties and 'sixties intended to trace the major flows according to their specific characteristics. The adjoining Figure 7.2 traces the channels of the in-flowing capital and transfer payments.
Fig. 7.1 -- The Flow of Loanable Funds

market mechanisms \[\rightarrow\] rationing

"primary sources"

the public pensions funds

financial assist.

develop. funds

the sponsors

the government

"secondary"

deposits

credit against dividends

guaranteed notes

commercial banks

gov. bank of agr.

"co-op. mutual. funds"

emergency credit & misc.

escalated development loans

establish. loans

long & intermed.

Non Institutional \[\rightarrow\] Institutional

short

regular supervised control.

establish. intermed. loans

Non Institutional \[\rightarrow\] Institutional

short

regular supervised control.

establish. intermed. loans
Fig. 7.2 -- The Inflow of Funds from Abroad

1. Personal transfer
2. Credit - financial institution abroad
3. Credit against bonds (shares) - sold abroad
4. Institutional transfer
5. The public
6. Trust funds
7. Credit against bonds (in foreign exchange)
8. Commercial banks
9. Foreign loans to the government
10. The sponsors
11. The government

Transfer payments → capital movements
Rationing and Controls - The Institutional Branch. (* Subsidies, rationing, and controls characterize the institutional branch of the farm and settlement credit system in Israel. The degree of rationing and control vary from one type of credit to another.

Establishment loans - non-escalated and with minimal rates - were heavily subsidized and strictly rationed. The rationing criteria being the settlers' essential "needs", social geographical and political priorities, etc. (**) Various types of development funds were offered in an earlier period by the sponsoring agencies and later by the government through the Bank of Agriculture. These funds were rationed as intermediate-term loans at less generous rates. Toward the end of the period under study, these loans have become semi-escalated, still, partly subsidized thus strictly rationed.

The "Directed" short-term credit has been extended by the banks beyond their stiff reserve-limits (**). Permission to surpass the reserve limits was conditional - rationing and control being the inevitable attachment. Yet the allocation procedure has been rather simple, since this type of credit was

(* Note that we use the term rationing in this paragraph to denote quantity-rationing and not rationing via differential interest-rates.

(** In the discussion in Chapter 5 we have noticed that "needs" were defined and re-defined in an attempt to comply with current developments in the agro-technology and the standards of living.

(***) Reserve ratios were as high as 85%.
intended to subsidize specific crops. The rules of allocation were clearly defined, for instance: definite acreage allotment, etc.. By comparison the allocation of loanable funds extended as government-assistance to the financially-shaken settlements was quite intricate. Rationing meant an involved process of negotiations, pressures, and counter-pressures, an appraisal of the settlement's financial conditions was supposedly the major criterion but the loosely defined standards left the real decisions to the discretion of the administration.

Other types of short term credit were extended by the banks, according to their business considerations. An over-draft arrangement was a predominant form of short term credit. The clients were authorized to over-draw funds according or in proportion to their turnover. Due to a serious impediment discussed in the next paragraph, even these types of credit were partially rationed by the banks.

The method of allocation of escalated loans fell closest to market mechanisms mainly because this type of credit was free of that impeding element namely, free of the effect of the ceiling imposed on the rate of interest.

The "Maximum Interest" Law and the Non-Institutional Branch.

The decline in the relative importance of the sponsoring agencies in the course of development is clearly intended. The shift from public to commercial sources in the case of the established settlement could be considered as a successful materialization of the policy aimed at the "financial independence" of the settlers. However, subsidized credit was replaced neither by accelerated savings nor by funds directly controlled by banking and finance institutions. A major source of loanable funds were "individuals" and suppliers. The funds were usually acquired against promissory
notes either directly or through commercial banks. This astonishing development characterized the capital market in Israel which has been crippled by a ceiling imposed upon interest rates. The enforcement of this law, forbidding rates higher than 10% for agriculture, in an inflationary era meant low, if not negative, real interest rates. One loophole was the escalation procedure mentioned above. Inflation premia were declared by the courts as not being a part of the interest payments with reference to the imposed ceiling. Another outlet was the indirect or direct transactions in promissory notes. These notes could be negotiated through commercial banks which served in this transaction as an intermediary in a very strict sense. They made contact, offered a guarantee and served as broker and collector. When notes were being sold directly - not through the banks - the implicit discount rates exceeded the imposed rate. Similarly, the banks handling the notes charged considerably high commission over and above the legal maximum rate.

Of the two outlets the notes were an earlier development. Besides the decisive role played by the imposed ceiling in the development of the non-institutional branch, we could mention additional contributing factors: (a) the existence of "hot" or "black" money i.e. undeclared capital which sought refuge in the farm sector and to a limited extent (b) personal or even family relationships between the borrowing kibbutz and the individual money lender.

**Short and Long Terms.** In the financial complex of the kibbutz economy short and long term funds have been pooled together. In other words the kibbutz considers credit as such without time qualification. The result was a practice of financing long term investments by short term credit. This practice could be ration-
alized from the borrowers' point of view in terms of their net-income-maximizing policy. However, this practice involved an endeavor to gauge future developments in the money market. The attempt was indispensable since long term investments in fixed assets have been financed by renewable short term credit subject to variable stipulations of rates upon renewal. This kind of manipulation required managers with the perception of professional financiers (*). The market could hardly accommodate the unsophisticated and the inexperienced. This fact might have contributed to a series of quasi-bankruptcies.

The Marginal Factor Costs. The borrower does not distinguish between short term and long term credit i.e. between operation and investment funds; we follow this approach and refer simply to loanable funds at large. The "supply" of loanable funds as visualised at the settlement level could be described as a dichotomy. Subsidized-rationed, credit on the one hand and an almost perfectly elastic supply curve of "non-institutional" credit on the other. Since implicit and explicit subsidies varied in magnitude the pseudo "supply" curve of credit facing the individual settlement is in fact, a typical marginal factor cost curve.

The conventional marginal factor cost curve facing a small-holder is one aspect of the so-called "capital rationing"

(* In extreme cases kibbutzim operated like quasi-savings-banks, recruiting funds from a considerable number of individual depositors. Handling this operation required a highly proficient management. Note that the deposits could be demanded almost instantaneously while the funds were invested in long term projects.)
Fig. 7.3 -- Two Hypothetical Marginal-Factor-Costs Curves

(a) Zoa capable funds

(b) loanable funds

money-interest rates

loanable funds

loanable funds
phenomenon (*). The upward rising marginal factor cost curve, reflects a notion of the risk element on behalf of the suppliers of loanable funds to the small-holder. Namely it is generally assumed - (a) that the risk element may be expressed in the form of a rate added as a premium to the interest-rate-proper and (b) that risk is positively associated with the extent of borrowing.

The concept of a rising marginal factor cost of investment funds to a small-holder is therefore a notion of a risk element positively associated with the amount borrowed which is expressed as part of the "money interest rate". The potential borrower in the "normal" case may ignore the risk element completely, that is, his demand schedule may be free of risk considerations. Still he is reminded of the risk involved through the "supply" of investment funds, namely by the rising marginal factor costs of investment-funds.

(* Rationing in this context is interpreted as rationing via differential rates.
The "abnormal" curve (b) in Fig. 7.3 is intended to represent a typical kibbutz case. Here, the curve which consists of steps in the rationing section ends up with a straight line parallelling the quantity axis i.e. with a perfectly elastic section. The dichotomy was never so complete and hence, the supply of funds at the institutional end never so imperfect.

To the extent that the non-institutional end was really elastic, even if imperfectly, it was the result of two decisive factors:
(a) the suppliers' confidence in an unwritten mutual assistance agreement which binds the kibbutz settlements together and (b) the suppliers' belief that the government or the authorities of the public institutions or both would never let the kibbutz down.

Thus - "a kibbutz cannot undergo real bankruptcy" - is a naive though very popular theory.

Since no risk of default is incurred to the lender there is no real need for a risk premium on his behalf.

The stability of the system hinges upon the behavior of the borrower. Yet, one can hardly expect the kibbutz to evince a small-holder's risk aversion. The internal constitution of a "riskless society" and the kibbutz' own warrantable expectations regarding governmental or public assistance transformed the kibbutz into a reckless borrower and investor.

The switch from institutional to non-institutional sources was followed by a series of pseudo-bankruptcy particularly in the intermediate groups.

The high rate of inflation in the early 'fifties resulted in very low real-interest-rates, virtually negative rates. This applied to non-institutional short term credit as well, since even the high nominal rates could hardly cope with the rate of
inflation. Being too optimistic a considerably large group of settlements overextended their borrowing of short term renewable credit in order to finance their long term investments. Then conditions changed, inflation subsided, and the relative price of farm product which had been relatively high during the phenomenal population growth of the early 'fifties - declined. This tide brought about a series of financial difficulties. The government and the sponsoring agencies adopted a policy of refinancing the hard pressed settlements, thus preventing real bankruptcies. To a certain extent this was an expected move. As for the later period this action was interpreted by the parties involved - borrowers and lenders - in a way which helped to "perpetuate" instability.

A considerable number of the settlements established after 1936 and before 1948 underwent a process of financial rehabilitation. After their "rehabilitation" they were soon pressing for a new rehabilitation program which "had to be launched". The process of rehabilitation was known as a "conversion", since it was intended to convert the short term debt to non-institutional sources into longer-term debt. The simple criterion of financial difficulties has been the measurement of the liquidity gap measured as the difference between short term liabilities and short term assets. The funds of the "1956 conversion" were distributed among seventy-two settlements participating in the program. Within three years, the rehabilitated were ready for yet a new rehabilitation. With the exception of two settlements the liquidity-gap three years after the conversion were larger than those observed before rehabilitation.
The Stability Problem. The national movement of kibbutz-settlements in Israel constitutes an extreme case of inter-firm cooperative grouping in the capital market. The notion of "grouping" in this context is that of economic units - firms or households - bound together by some formal or informal mutual financial-assistance arrangements, joint liability agreements or even incorporation. Grouping may have a direct effect on the markets for loanable funds when the group is framed on these markets as a credit organization which executes its transactions as one organized unit. Alternatively, a group may be organized off the markets thus indirectly affecting its member's position on these markets.
The crucial element of capital rationing which may be eliminated through cooperative grouping is related to the "normal" utility schedule of the potential lender to the relatively small economic unit(*).

(* Assuming diminishing marginal utility of income the potential lender is expected to prefer a bond issued by a group of borrowers to a bond issued by a single borrower even when expected returns are identical in both cases.

Consider, for instance, the simplified case of a potential buyer of a $1.00 par-value obligation. Assume that this lender is faced with three possibilities (a) an obligation of one single firm, (b) an obligation of two cooperating firms, (c) an obligation of three cooperating firms. The firms are identical in every respect and the probability of default of each firm is denoted by p. It can be shown that in either (a), (b), or (c) the expected redemption value of the obligation equals $(1 - p)$ with $p = .25$ for example the expected value is $75. Yet, in terms of "utiles" the three alternatives differ in their expected utility.

Fig. 7.4 plots the utility schedule of this "average lender". The expected utility derived from (a) is AA' as compared with BB' for (b) and CC' for (c).

As the number of the firms participating increases the derived utility converges to DD'. While the expected redemption value (R) of (a) and (b) equals $(1 - p)$ the difference in the corresponding expected-utility-levels equals $p (1 - p) [u(1) - 2u(0.5)]$ where $u(R)$ stands for the utility function and $u(0) = 0$. Assuming a diminishing marginal utility schedule this difference is positive i.e. (b) is preferred to (a) etc.
Cooperation is by no means the only way to eliminate this element of capital rationing. A competitive banking system may serve the goal effectively. However, banks in this system should be large enough to succeed and numerous, or small enough, to prevent them from sustaining a monopolistic position.

Rationing due to the "smallness" of the firm is generally followed by discrimination with respect to the economic and financial position of each particular firm. As mentioned above, one criterion in this respect is the extent of borrowing. The problem of stability arises when the elimination of rationing due to "smallness" results in the lenders' disregard of qualitative and quantitative aspects of the economic and financial position of the particular firm in the cooperative grouping.

Fig. 7.3 above illustrated the ultimate case. A section of an upward rising marginal factor cost curve is transformed into a perfectly elastic supply curve. This supply curve, defined at the firm's level, reflects the willingness and readiness of the suppliers to lend to an "average" member-firm. This supply curve does not reflect the barriers commonly imposed by the cooperative group itself. In the long run the very existence of the cooperative grouping depends upon such barriers. The situation within the group resembles that of a marketing-cartel. In a cartel, a member-firm is tempted to evade the regulations of the cartel, take advantage of a relatively high price and sell over its marketing quota, thus the delinquent firm hopes that its partners faithfully observe the regulations. Similarly a member firm in a cooperative grouping may be tempted to take advantage of the relatively easy terms of credit. Why not acquire credit through or with the backing of a cooperative group at a rate which includes a low risk premium, then invest the acquired funds in a promising but a risky proposition which normally carries a higher risk premium? Given the probability
of default of a single firm the public is willing to lend to a cooperative group at terms easier than these offered to an unorganized firm. Yet, a barrier-free cooperative grouping should end up with a higher default-rate thus with interest rates which include non-zero or even considerably high risk (or insurance) premia. In a homogeneous cooperative group this may not be disastrous in the sense that the cooperative may continue its operation with a shift of the member-firms' business in terms of the risk undertaken. In a group of heterogeneous firms with respect to their economic activity in general or to their managers' attitude towards risk in particular the operation and existence of the cooperative grouping is more problematic. The member firms with high risk aversion will retain their membership as long as the net effect of being organized on the one hand and covering the risk or insurance premia of their less inhibited partners on the other is to reduce their rate of interest.

In an attempt to preserve its soundness the cooperative group may simulate the imperfect market:

(a) It may allocate funds using a "mechanical" rationing method. This method relies upon a specified list of projects or objects and their corresponding financing rules. This is an intra-firm rationing which eventually results in an inter-firm rationing. A rigid set of regulations must be inefficient in the two dimensions: net returns and risk. Following predetermined prescriptions, the allocation of funds should result in some disparities in the returns to factors of production, that is, in divergencies in marginal net returns - given the degree of the risk involved (*).

(b) A more intelligent method of rationing would be to study the prospects of each particular case. This may be an elaborate method

(*) We may speak of equality in expected marginal net returns given the variance of net returns, as a state of no disparities.
which requires a good deal of supervision, which is easily converted into participation in the management of the firm.

(c) Another method would be the implementation of a mandatory and a progressive credit-insurance scheme which would re-install the upward rising marginal factor cost curve.
The Transplantation Problem

Introduction. The farm credit system in Israel is a transplanted system. Its conceptual and institutional framework originated in western Europe. In this chapter we intend to examine two well established European systems and re-examine the Israeli set-up with special reference to the transplantation problem. The two countries selected for this purpose are Denmark and the Netherlands (*). Despite the apparent differences, a comparative study of farm credit in Denmark, the Netherlands and Israel is not necessarily a study of obvious contrasts. The farmers' close association with the capital market in Denmark and the Netherlands goes back a century or more. This long acquaintance has resulted in the erosion of the traditional smallholders' aversion toward borrowing from and saving through banking institution. As far as farm credit and finance are concerned the Dutch and the Danish farmers may be considered as "agro-businessmen". The minimal effect of psychological inhibitions, and social restraints which characterize these communities of established agro-businessmen characterize the relatively young kibbutz-settlement in Israel as well.

(* In our inquiry into the set-up of the Dutch and the Danish farm credit system we were assisted by officials of the Raiffeisen bank in the Netherlands and the following institutions in Denmark: (a) Andelsbanken; (b) Bondestandens Sparekasse (c) Dansk Landbrugs Realkreditfond and (d) Østifternes Kreditforening. We wish to express our indebtedness to them for their very kind assistance. The following remarks are not intended as a complete account of either the Dutch or the Danish farm credit system. Nor can we present a "complete solution" for transplantation problem with reference to the Israeli set-up.)
In fact, one could hardly expect a group of Jewish settlers, the descendants of urban tradesmen, to be less sophisticated than the Dutch or the Danish farmers, at least not in this respect.

Surprisingly, even the financial problem of the settlement (colonization) stage is not unique to Israel. While settlers in Israel face the problem of financing the construction of a new farm, the Dutch and the Danish young farmer faces the problem of buying his father's farm. The point of similarity is that settlers and young farmers start with a relatively small equity. For the Israeli this was a "normal" situation, for the young Danish farmer this is the result of the conventional inheritance arrangement which leaves him with one third or one fourth of the farm property as his own equity. As far as the financial aspects of the situation are concerned this is a case of settlement on the one hand and re-settlement case on the other. In both cases the outright solution is an extensive reliance upon credit.

The farm sector produces approximately ten percent of the gross national product in the three countries; hence, "farm credit" cannot be more than a secondary entity, if not actually an integral part of a general credit system.

Yet, an important difference between these other two countries and Israel in the field of farm credit and finance is the important part played by the government of the latter. This important difference reveals, among other things, the difference between a settlement project and re-settlement.

The Farm Credit System in Denmark and the Netherlands - A General Outlook. Generally speaking, the Danish farm credit system might be regarded as a "lender-oriented" one. This distinction, is somewhat superficial but it may help to outline broadly the framework. An "orientation" is obviously the result of some historical development. However, the following remarks do not go beyond the operation
of the two systems today. Neither the Danish nor the Dutch systems of today are exclusively agricultural. In the Netherlands, where the system consists of two major institutions for farm credit and finance advances to the non-agrarian sector amount to approximately one half of their total assets. In Denmark where a variety of specialized institutions handle and transact the various types of banking business this percentage varies from one institution to another. In both cases, particularly in the latter, even the mere designation of an institutional framework as a farm credit system is somewhat dubious. The Dutch system consists of two networks of cooperative banks organized in the (a) Cooperative Centrale Reiffeisenbank (Utrecht) and (b) Cooperative Centrale Boerenleenbank (Eindhoven). The typical institutions of the Danish system are the following: (a) first mortgage associations - the Kreditforeningen; (b) second mortgage associations - the Hypotekforeningen (c) a third mortgage institution - the Danske Landbrugs Realkreditfond; (d) Savings-banks - Sparekasser and (e) a commercial cooperative bank - the Andelsbanken A.M.B.. The following Figure 7.5 offers a brief review of the typical assets and liabilities of these institutions. As suggested earlier in this paragraph the Danish system is "lender oriented". In this sense Figure 7.5 reflects specialization in the assets with a corresponding specialization in the liabilities of the credit institution. Note that the typical suppliers of, and demanders for loanable funds are represented by the liabilities and assets of the credit intermediaries respectively.

Suppliers and demanders of loanable funds may be subdivided into groups according to their attitudes toward risk and liquidity.

One interpretation of the two systems is the following. The three types of liabilities reflect - from A to C - an increasing liquidity preference and a decreasing risk aversion on behalf of the suppliers of loanable funds on the one hand. On the other
Fig. 7.5 -- Typical Assets and Liabilities -
Farm Credit Institutions

**DENMARK**

- **A**
  - a loans against real-estate mortgages
  - b loans against chattel mortgages
  - c bills discounted, advances etc.

- **L**
  - first mortgage assn.
  - second mortgage assn.
  - third mortgage assn.
  - d bonds
  - e saving accounts
  - f current accounts

**THE NETHERLANDS**

- a
- b
- c

- coop. banks
- e saving accounts
hand, the three types of assets represent - from D down to F - a growing liquidity and an increasing risk and uncertainty in the prospects of the demanders of loanable funds. The Danish system is specialized to coordinate the three types mentioned above while the Dutch system is specialized in the accommodation of suppliers but does not pursue this line of specialization in its advances.

It has been pointed out that neither the Dutch nor the Danish system is exclusively farm-credit system. Yet, the latter is definitely an open one which not only serves a variety of potential borrowers but attempts to attract a variety of savers and depositors. The Dutch system caters to the business of farmers smallholders such as craftsmen, and tradesmen as well as individuals particularly purchasers of homes. It is limited, however, in attracting a definite type of suppliers of loanable funds, namely depositors in saving and to some extent demand deposits. As mentioned earlier one half of the advances of the two cooperative networks and, approximately one half of their deposits are held etc. Hence the Dutch farm sector is more or less balanced. The Danish farm sector is hardly "self-sufficient" in this respect. This cannot be deducted from the financial statements of the variety of credit institutions involved but official surveys suggest that the Danish farm sector is indeed a net-debtor. (*

The 1st and 2nd Mortgage Credit Associations in Denmark. The Danish credit association is an ingenious device which introduces the small-holders' debentures to the stock market. The stock market, usually set for trade in shares and debentures of big corporations, does not accommodate the small-holder directly. Yet, the setup of the credit association clearly and openly connect the small-holder with the market. The credit association is one, or a group of,

(* We are indebted to Mr. J. Skovback of the Federation of Danish Farmers for his valuable assistance in gathering the information regarding the Danish system.
societies the members of which are the borrowers. The society
issues a series of "mortgage" bonds. Joint liability arrangement
ties the borrowers together within each particular series of bonds.
In other words, a group of borrowers is directly related to a series
of bonds. The borrowers mortgage real estate or sign fiduciary
bills of sale which serve as securities for their debt to the
association. The loan is given in the form of bonds rather than
cash. The operation of the association may be looked upon as
follows: first, it examines the case of a potential member-borrower.
When accepted the member must render some securities in the form
of real estate or chattel mortgages and comply with a joint liabil-
ity arrangement. He is entitled to a certain number of bonds issued
by the association - the total par-value of which equals the loan
offered to him. Then the member-borrower sells these bonds through
a bank, which serves as a broker, on the stock market. But, he does
so as a partner of a relatively large society which (a) takes the
necessary steps to acquire some (formal) securities (b); determines
how much he may sell i.e. borrow, (c) makes the arrangements for the
interest payment and repayment and (d) serves as a collecting agency.
The amortization period varies between 30 and 60 years for the first
mortgage association and 20 to 50 years for the second mortgage
association. Borrowers may pay their debt either in cash or in
bonds. The interest rate is pegged at an apparently low level of
3 - 6%. Thus bonds are being sold on the market at 60 to 70% of
their par values. The rates reach, therefore, the rather high
point of 8 - 9% but a considerable part of it (3 - 4%) is an in-
flation premium(*).

(*) For a detailed description of the first and second mortgage
credit association see: Th. Thorsteinsson, Mortgaging of Real
Estate in Denmark (1960), and K. Skovgaard "Capital Formation
and Use in Danish Agriculture".
Intermediate and Short-Term Credit in Denmark. The "supply" of intermediate term farm credit is taken care of by a third mortgage institution and some saving banks. Short term credit is being handled indirectly by commercial banks and the cooperative bank in particular. These banks finance the operation of dairies, Feeds and Fertilizer Associations, etc.. Like the associations saving banks and the third mortgage institution which rely upon real estate and chattel mortgages. In the case of the third mortgage association this reliance upon formal securities is somewhat more sophisticated if not sceptical. The officers of the organization feel that they should be more sensitive to the real financial position of their potential client. Being the "antennae" or the "fingers" of the whole system they know well that the weight of a third mortgage is rather uncertain.

The Role of Mortgages in the Framework of Credit Associations in Denmark. Before we proceed it must be emphasized that we limit the discussion to farmers only. We refer to the farmer as a representative of a combined firm and household unit and refrain from making any remarks about pure-households such as the buyers of homes which form another group of potential borrower-members of the associations.

The basic facts are rather simple. (a) In order to acquire investment funds the Danish farmer-borrower must render some securities either in the form of real estate mortgage or in the form of a fiduciary bill of sale of movables. This is a written regulation which applies to the associations and the saving banks and the common practice in private deals. (b) The ceiling of the amount lent by the various credit institutions in each particular case is clearly set as a percentage of the "farm value". Farm values are determined by official assessors. In practice the ceiling is set at 40% for the first mortgage association, 50% for the second, and 60% for the third mortgage association. (c) Due to differential
terms, there is a transitive order of borrowing. The first mort-
gages - thus usually the first mortgage association - come first,
and so on.

It seems odd to question the role of mortgages in this framework of mortgage credit. The simplest proposition is to consider the mortgage as a mere security. As a formal security the mortgage is expected to secure a partial repayment - at least - in the case of bankruptcy. Mortgages are also expected to prevent bankruptcies. This role is usually emphasized with respect to intended delinquency. Yet forced-i.e. unintended - liquidations seem to be the more serious problem in a well established system. The success of the system reflected in the number of foreclosures and forced-liquidations which is rather small. It may also suggest that the naive proposition does not reveal the whole truth. The infrequency suggests that there must be a mechanism embodied in the system which prevents bankruptcies and foreclosures. Mortgage registration serves as a tool, though not necessarily the best tool, in this respect. Checking the amounts borrowed per farm the criteria applied in the regulations of handling-mortgages, particularly the ceiling regulations serve as a tool in preventing the individual farm from undergoing bankruptcy and the system as a whole from becoming unstable.

A "Mortgageless System". We could imagine a Danish-like system of credit associations with mortgage-registration but without mortgages. This mortgageless mortgage-credit system is imaginary of course, but it does not involve wild imagination at all. Mortgages may not entitle the lender to the property of the borrower in the case of a default. Still the registration of a mortgage as a pre-requisite for making a loan may serve as a criterion for the extent of borrowing, thus becoming as powerful as a "real" mortgage in protecting the system. The mortgage may cease to exist as a
formal security, nevertheless, as long as the regulation regarding mortgage requirements and registration are preserved the system is still safe.

Should mortgages and mortgage registration be abolished in a Danish-like system altogether, the inevitable result would be a series of crises if not a once-and-for-all collapse of the whole system. As long as the public has confidence in the soundness of the system as a whole, the farmer can borrow unlimited amounts at the going rate of interest. The farmers' conservative attitude may preserve the system for a while. Yet sooner or later, borrowing should exceed the no-bankruptcy barrier and defaults should become more and more recurrent. Instability in this hypothetical system is an inevitable outcome of the following relationships: (a) the recurrence of bankruptcies and defaults is positively associated with the extent of borrowing; hence (b) the internal rate of return is negatively associated with the recurrence of defaults and (c) the public is willing to hold the associations bonds at a given rate with no direct reference to intra-firm element of risk. Unfortunately this chimerical system is not merely the product of our wild imagination. This is a somewhat exaggerated picture of reality, not in Denmark but in Israel.

The apparent difference between Denmark and the hypothetical or "Israeli" setup is clearly related to the role played by mortgages in the system. We observe a decent mortgage-credit system on the one hand and a system lacking the fundamental pre-requisites for mortgage-credit on the other. However, this observation is somewhat deceptive. It may lead us to the wrong conclusion that the lack of formal securities is the major source of difficulties in the Israeli mortgageless system. Mortgages and real-estate mortgage registration serve as three goals in the Danish-like system: (a) as formal securities; (b) as a source of information regarding the financial position
and the credibility of the potential borrower and (c) as a instrument of automatic control of the volume of borrowing per unit. The essence of the first goal is confidence. Yet in a developed civilization where default is involuntary or intended, the long run confidence is the outcome of past experience rather than a product of a search for formal securities. Thus mortgages and mortgage-registration are first of all instruments of automatic control or automatic barriers.

Considering the general problem of transplantation we wish to emphasize the importance of asking the right questions rather than to clarify the possible solution to the Israeli problem. Too often experts of farm credit in the well established systems are inclined to consider elements of their setup as if these are propositions of "all or nothing". One important, but complex element are mortgages and mortgage-registration. A typical reaction regarding transplantation is that "one cannot consider the establishment of a credit system in an under-developed country where no clear titles of land rights are available". This question of pre-requisites should have been broken down to its fundamentals, instead of examining the feasibility of preconceived formulas.

Turning back to the Israeli case we note that the establishment of a farm credit system, was not free of a naive approach. Naive Transplantation. Mortgages were introduced into the cooperative-farm-credit system in Israel by the sponsoring agencies themselves. Thus land rights were granted in the form of long term renewable and hereditary leaseholds by the Jewish National Fund then mortgaged against loans offered by the Jewish Agency and the National Foundation Fund.

Regardless of the legal difficulties due to the cooperative structure of the kibbutz settlement and the land tenure system, the insistence upon mortgages was an insistence upon the formula with no reference to its real substance. Inasmuch as a guarantee of pay-
ments was needed the effective instrument in this respect were the so-called "Tnuva letters". Tnuva was the marketing cooperative which in these letters promised to cover a certain payment out of the net revenue due to a certain firm. These letters were not "floating" because the cooperative's promise was conditional; that is, should there be a net revenue, payment was guaranteed.

What should have disturbed the farm-credit experts was not the questionable meaning of mortgages as such, i.e. as formal securities, the point being that mortgage-registration was neither a tool of regulation nor even a source of information concerning the credibility of the borrowing-settlement. Furthermore, one could have questioned the effectiveness of the wholesome mortgages scheme, that is, mortgage-registration and a pre-determined and uniform schedule of per-object or per-project lending percentages. This scheme would be ineffective where patterns of economic behavior and performance changed as rapidly as during the establishment phase of the transplanted system. Similar problems, though not as serious, arise in the European "model" system too, where recent attempts to introduce advisory-service instrumental in a direct analysis of the prospects of the potential borrower. At the expense of sacrificing the simplicity and universality of the criteria offered by the "mortgage scheme", these attempts may result in a more complicated, though more effective, set of criteria. We note that it is the operation of the "Marginal lender" in Denmark such as the third mortgage association which leans toward direct analysis. While in the Netherlands questioning the pre-conceived rules of reasonable lending is closely related to the growing importance of the "gardener", the operators of the widespread modern industry of green houses. Thus it is a change of patterns which raises questions regarding the effectiveness of the well established rules.

Notes and Bonds. Direct borrowing from the general public represents a loose end and shortcoming of the Israeli system. Yet the willingness
of the general public to hold the kibbutz' promissory notes seems to indicate that the substitution of the outstanding bulk of promissory notes by issues of "Danish" bonds is not unattainable.

Attaining the goal of "institutioning" the branch of non-institutional credit depends, of course, upon the repeal of the interest ceiling. The success of an organization set forth to tie up the loose ends depends upon the fulfillment of three tasks. The first undertaking is, of course, the issue of bonds. So far transplantation is a straightforward proposition. However, this hypothetical organization could not rely upon a mortgage scheme, hence, it should undertake the role of the registrar and a supervisor. A third undertaking is dictated by the pattern of liquidity preferences of the potential holders of the proposed bonds. Most probably the organization should be capable of bridging the gap between short term credit and long term investments. Under the circumstances the fulfillment of these undertakings, particularly the second one, requires close relationship between the organization and the settler. This implies a "one farmer, one bank" relationship and at this point it seems desirable to reconsider some of the characteristics of the Dutch credit system.

The Comprehensive Farm Credit Institution. Two of the characteristics of the Dutch system call for a special attention in this context. The first is the comprehensive relationship between the individual farmer and the local cooperative bank, which is usually a member bank in one of the two national networks mentioned above. This, we recall, is a relationship which concerns the farmer as a potential borrower as well as potential depositor most probably in a savings account. It is this characteristic that results, at the aggregate level, in a drift toward a balance of assets and liabilities within the sector. Historically, the comprehensive relationship in the Netherlands might have been impossible without the farmers' intensive
participation as depositors as well as borrowers. Yet, considering the feasibility of transplantation we are convinced that the comprehensive relationship may be limited to the borrowing domain. The pre-requisite being the ability of the credit organization to provide funds attracted outside the sector.

In a typical cooperative bank, authorizing or at least a preliminary examination of new loans is the prerogative of a local board. This board consists of people who are familiar with the business affairs of the potential borrower as are the administrators of the bank. In the Dutch system where the bank offers all kinds of credit from very long term to current account this is virtually a complete knowledge of the financial and economic affairs of the member-client. One may question the aptitude and the attitudes of laymen or professionals in applying direct analysis in the allocation of loanable funds in the existing system. However, this system of comprehensive relationships undoubtedly offers real opportunities for the implementation of direct-analysis-methods.

**Liquidity Gap.** A liquidity gap is one of the important characteristics of the Dutch farm-credit system. Unlike the Israeli case the gap in the Netherlands appears in the bank rather than at the farm level. It is not uncommon for banks to hold relatively less liquid assets against liquid accounts such as saving and demand deposits. Still the practice of the Dutch cooperative bank is outstanding in this respect. It stretches the line to hold very long term loans against daily saving accounts (*). In 1964, for instance, 50% of the total assets of the Raiffeisenbank system were long term mortgage loans. While 70% of the total liabilities were daily-

(* Formally, even very long amortization schedule loans are registered as recalled upon demand.)
saving accounts and demand deposits. Of the remaining 30%, two-thirds were three-months, six-months, and twelve months saving accounts (*). Supervised Credit. A recent attempt to cope with the fundamental problem of the Israeli system is the installment of a Rehabilitation program tied to a long term reorganization. This voluntary program is known as the "supervised credit". The principle of this program is "one settlement - one creditor". (**) It requires that a settlement contacts one bank only. The bank is expected to care for all the settlements' financial transactions. An important point is that the settlement surrenders the right to borrow in the open market without the bank's consent.

The essence of this program is, of course, supervision. In view of our previous remarks, this is one of the feasible, though not necessarily the best solution for the inherent stability problem.

(*) Annual report 1964 Cooperative Central Raiffeisen-bank Utrecht.

(**) Three banks participating in the program; two are commercial banks, the third is the Governmental Bank of Agriculture.
The Rate of Interest

In the previous paragraphs we have considered the possible shape of the marginal-factor-costs curves. Figure 7.3 is deliberately drawn to suggest that the "supply" of the loanable funds (outstanding) consists of four "steps". These steps roughly correspond to the four categories:

(a) The institutional long-term credit;
(b) The institutional intermediate-term credit (1 - 10 years);
(c) The institutional short term credit; and
(d) The non-institutional - mainly short term-credit.

Our knowledge of the actual shape of this costs curve is incomplete. Considering the average settlement we do know the width of each step. The rates suggested by Fig. 7.3 correspond to the 1958 - 1960 period. These are the prevailing money-rates of interest during that period.

The marginal rate of interest, that is, the rate of the highest step, has varied between 14 - 18% since the establishment of the state of Israel. The bank rate on short term credit has been approximately 10%. The rates stipulated for the establishment funds (long term) offered by the sponsoring agencies and for the development funds (intermediate term) offered mainly by the government fell close to 3% and 6% respectively. Since no effective escalation scheme took place during the period under study the rates quoted above are money-rates. We recall that these include in the case of the non-institutional interest-rate, which has been the marginal rate, inflation premia. The real rates, or the interest-rates-proper could be approximated as the difference between the money-rate and the corresponding annual rate of inflation(*).

(* This is a rough approximation which rests upon the ex post facto observations of the rate of inflation. It also ignores the cross product of the rate of interest proper and the rate of inflation, and the possibility of non-zero risk premia.
Analyzing the available statistics we could employ three concepts of the observed rate of interest. Actual imputation could be carried on at the settlement level or at the group level.

The three concepts are the following:

(7.1) The rate imputed for the outstanding debt or the "average money rate" in year $t = r_a = \frac{\text{Annual Interest Payment}}{\text{The Debt Outstanding}} = \frac{R(t)}{L(t)}$

(7.2) The rate imputed for the net increments of credit or the "marginal money rate" in year $t = r_m(t) = \frac{\Delta R(t)}{\Delta L(t)}$.

where $\Delta L(t)$ and $\Delta R(t)$ stand for the net increments of credit and the change in interest payments respectively.

(7.3) The "marginal real rate" $r_m'(t) = r_m(t) - p(t)$

where: $p(t) = \frac{1}{P} \frac{dP}{dt}$, $P =$ price index

An ex-post-facto estimate of the so-called "marginal rate" - denoted $r_m'$ represents the investors' real margin under four conditions. First, the ex-ante inflation premium must equal the ex-post-facto rate of inflation. Second, the acquired investment funds should be utilized in the financing of real assets. The rise in the absolute price of the assets concerned must equal the rise in the general price level - $P$; or, the relative price of the assets in question must be considered fixed. Third, the expected combination of the net increments of credit with respect to the variety of sources must be identical to the observed ex-post combination. The fourth condition rests with our distinction between the marginal rate as it is defined with reference to Fig. 7.3 and the "marginal" rate $r_m'$. The former definition implicitly assumes that ratios of net increments of institutional credit are independent of the particular investment activity of the borrower. The latter, on the contrary, must assume that these ratios are proportional to the
investment expense involved in the various projects. For \( r_m \) to be a "universal" rate these ratios must be equal for all possible projects.

Finally, expectations concerning such conditional-rations must be identical with the *ex post* observations(*).

Estimates of the average rates were derived from the available statistics of interest payment and the outstanding debt. Weighted averages were imputed for the time series of the established settlements and for the various groups in the cross section. The rise of the average interest rate in the time series and the parallel rise associated with the settlements' age - in the cross sections, are clearly related to the decline in the relative weight of the credit offered by the sponsoring agencies and the government. The rates imputed are money-rates and the ex-post facto rates-proper may be imputed as the differences between the money rates and the annual rates of inflation. The resulted negative rates are somewhat perplexing but not surprising. If not for the non-institutional credit the average rates of real interest could have been negative during fifteen out of the twenty-five years period. The non-negative rates would re-appear toward the end of the period as a result of the rise in the relative weight of the non-institutional credit and the decline in the annual rates of inflation.

(* Let us assume that there is one institutional creditor whose policy is to lend a portion \( c \) (0 < \( c \) < 1) of the investment expense of a "marginal" project. (The assumption stated above is that all projects are marginal projects). The creditors' interest rate proper is \( r_c \). The non-institutional rate is \( r_n \). It can be shown that the marginal rate equals \( c r_c + (1 - c) r_n \).
Table 7.1: The Average Money-Rate of Interest

<table>
<thead>
<tr>
<th>Year</th>
<th>The Established Group</th>
<th>Intermediate A</th>
<th>Intermediate B</th>
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(a) The outstanding debt in equation 7.1 includes debt to suppliers.

(b) The outstanding debt L(t) in equation 7.1 excludes debt to suppliers assuming that the corresponding interest payment figure R(t) excludes payments to suppliers which have been disguised as part of the prices of the goods delivered.
Fig. 7.6 -- The Average Money-Rate of Interest

Subscripts $a$ and $b$ denote the two alternative imputations of the average money rates. For explanations see Table 7.1.
Table 7.2: The Rate of Interest - The Established Group

<table>
<thead>
<tr>
<th>Year</th>
<th>The Average Money Rate (a)</th>
<th>The Marginal Money Rate (b)</th>
<th>The Rate of Inflation (c)</th>
<th>The Marginal Real Rate (f) = (c) - (e)</th>
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(a) See ff (a) Table 7.1.
(b) See ff (b) Table 7.2.
(c) Net increments $\Delta L(t)$ in equation 7.2 include "new" debt to suppliers.
(d) Net increments exclude new debt to suppliers.
(e) Reflecting the three-years trends in the consumer price ("cost of living") index.
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Articles


