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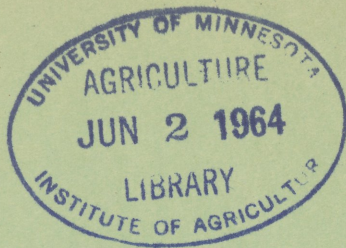
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The Effect of certain Credit Terms* on Economic Farming Units

by

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INTRODUCTION

Rational financing of agriculture and economic farming units are two of the most important problems to be faced in the formulation of a sound agricultural policy. Both subjects have already been exhaustively discussed at numerous congresses, meetings and farmers' days, and even in Parliament. The farming community, organised agriculture, agricultural researchers and the Government are worried about the problem, and serious efforts are being made to formulate a rational policy in this regard. The appointment of an interdepartmental study group in connection with the subdivision of agricultural land (1962), as well as of a study group for the investigation of agricultural credit (1958) and of a further interdepartmental committee to advise the Cabinet with respect to financing (1963), serves to prove the seriousness with which the two problems are approached.

However, no clear analysis of the effect of credit terms on the size of economic farming units has as yet been made. The fact is not generally realised that credit terms, especially with regard to periods of redemption and debt ratios, have a determinant effect on the size of the marginal economic units. Credit institutions do not pay enough attention to this determinant effect of credit terms on the size of marginal economic farming units and family incomes.

In agriculture it is also necessary, in formulating a credit policy, to consider the production potential (and therefore also the profit-earning capacity) of the different types of farming, and also when the creation of economic farming units is a basic aim.

In this article is analysed the effect of certain credit terms on the size of economic farming units, as well as the effect of the profit-earning capacity of a certain farming enterprise on both the size of an economic unit and the credit terms. The aim is to stimulate thought on two very important subjects.

1. ECONOMIC FARMING UNITS

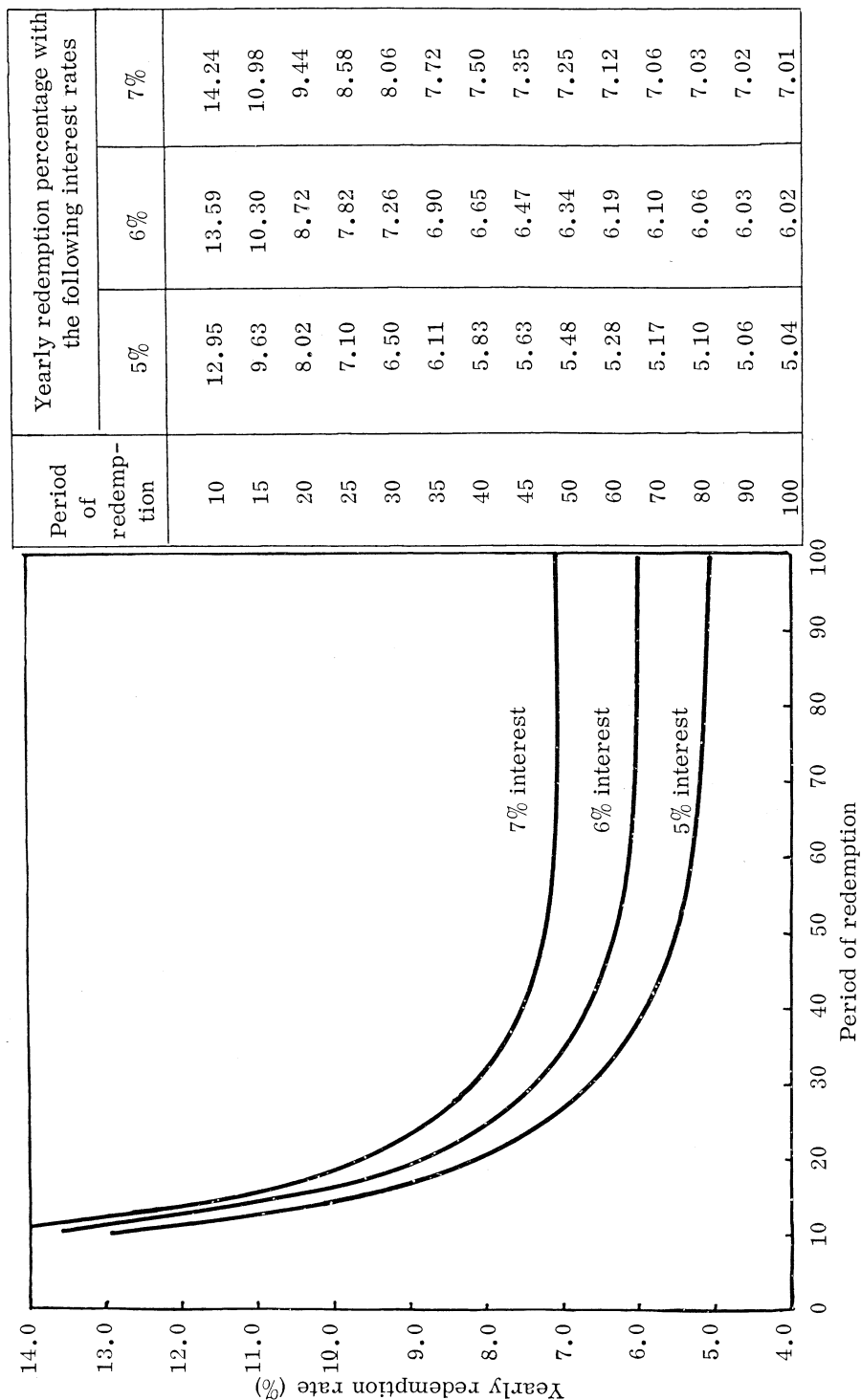
In a previous article** was analysed the determination of economic farming units, and a methodology for determining such units was developed and illustrated.

An economic farming unit may be defined as the minimum size of land which, under certain conditions, will ensure to the farmer or manager, with average mana-

*"Certain credit terms" denote debt ratios, redemption periods and rates of interest determined by suppliers of credit.

**S.P. van Wyk: "The determination of an economic farming unit" - "Agrekon", Vol. 2, No. 1, January 1963.

Graph I. Relationship between period of redemption and percentage redemption (with interest) at different rates of interest.



gerial ability, an adequate average net family income*, enabling himself and his family to maintain a living standard corresponding with that found in the case of comparable professions in the community.

The size of an economic farming unit is the net result of a host of physical, economic and sociological factors. Climatic factors, the production potential of resources, the managerial ability of the farmer, the minimum net family income needed, price relations, credit terms, expectations about the future, etc., are all factors which determine the size of the marginal economic unit.

The importance of these factors and the manner in which the size of an economic farming unit may be determined, had already been dealt with in detail in the above-mentioned article ("Agrekon", January 1963).

2. INCOMES OF MARGINAL ECONOMIC UNITS

Theoretically, a farming enterprise should yield a sufficiently large income to offset all factors of production, including interest on the capital investment and a remuneration for management. If this principle is applied in practice, the size of the marginal economic unit is found to be far in excess of that generally expected.

In practice, the theoretical rate of interest on a farmer's own capital is not a cost item to himself but in reality income that he may use to advantage. This is also true of managerial remuneration. The farmer may use these so-called "costs" to supplement his net family income or to invest in the farming operations or elsewhere.

By ignoring the "cost" of own capital and management and by adding it to net family income, the marginal economic unit may be appreciably smaller than that envisaged in the above theoretical approach, as is illustrated in the calculation below.

Consider a farm with a capital investment of R40,000 earning 8% interest, i.e. yielding a net income of R3,200. Assume a debt ratio of 50 per cent and a rate of redemption of 8 per cent; R1,600 has therefore to be paid annually - leaving an amount of R1,600 as net family income.

However, if all capital has to be compensated for at current rates (say 6 per cent), the annual rate of interest will be R2,400, and the balance remaining as net family income will be only R800. Thus the farm size will have to be doubled to provide a net family income of R1,600**. If the manager is to be compensated as well (at, say, R800 per annum), the farm size eventually will have to be trebled.

It follows logically from the above calculation, therefore, that a more practical approach is needed to the problems of economic units, if many farming units are not to be theoretically classified as being uneconomic.

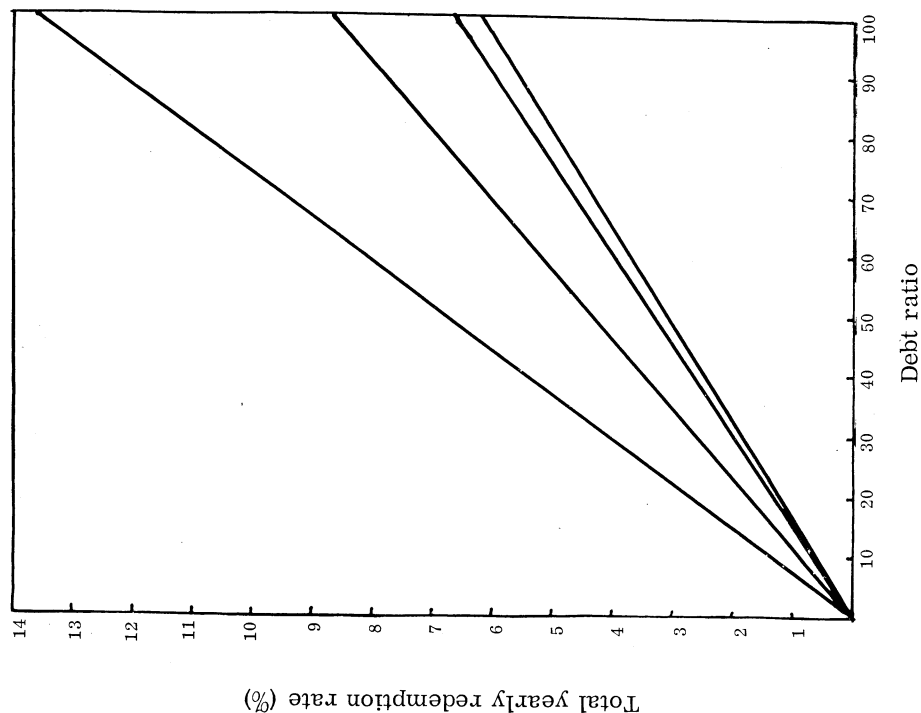
3. CREDIT TERMS

Only three credit terms will be analysed, namely rates of interest, redemption periods and debt ratios:

*Net family income is the average annual amount which is left to the farmer and his family after provision has been made for current farming costs, costs of interest and capital redemption and investment.

**Assuming constant returns to scale.

Graph II. Relationship between debt ratio and percentage of total capital annually repaid at different periods of redemption and an interest rate of 6 per cent.



Debt ratio (%)	Percentage of total capital repaid yearly with the following periods of redemption			
	10 years	20 years	40 years	60 years
	%	%	%	%
10	1.36	0.87	0.66	0.62
20	2.72	1.74	1.33	1.24
30	4.08	2.62	1.99	1.86
40	5.44	3.49	2.66	2.48
50	6.79	4.36	3.32	3.09
60	8.15	5.23	3.99	3.71
70	9.51	6.10	4.65	4.33
80	10.87	6.98	5.32	4.95
90	12.23	7.85	5.98	5.57
100	13.59	8.72	6.65	6.19

(a) Rates of interest cannot be determined arbitrarily; they follow the general rate-of-interest pattern of the country as a whole. The difference in annual redemption costs* (as a percentage of the loan) by three rates of interest is presented in Graph 1 and the subjoined table. Over a short period of redemption, namely 20 years, the annual rate of redemption* is 8.02, 8.72 and 9.44 per cent at rates of interest of 5, 6 and 7 per cent; i.e. there is a difference in the rate of redemption of 0.70 per cent and 0.72 per cent between the three rates of interest. Over a longer term of, say, 60 years, the annual rate of redemption amounts to 5.28, 6.19 and 7.12 per cent at the three rates of interest; in other words, the difference between the three rates of interest is 0.91 per cent and 0.93 per cent (see Graph 1 and the subjoined table).

Seeing that rates of interest cannot be determined arbitrarily, it will suffice to indicate only the abovementioned differences. Lower rates of interest of course mean lower rates of redemption and therefore a smaller annual obligation for the marginal economic unit. Lower rates of interest will therefore tend to reduce the size of the minimum economic unit, while higher rates of interest will have the opposite effect.

(b) Periods of redemption. - The question is what effect periods of redemption will have on the size of marginal economic units. Graph 1 and the subjoined table clearly show that the rate of redemption initially drops rapidly until a period of about 40 years is reached, after which the decrease becomes very small. Thus, for example, the rate of redemption at a 6-per-cent rate of interest is 13.59 per cent at 10 years, 8.72 per cent at 20 years, 6.65 per cent at 40 years and 6.19 per cent at 60 years. At 80 years (if such long-term loans were to exist) the rate of redemption is 6.06 per cent - only 0.13 per cent lower than at 60 years! The period of redemption therefore has (especially over shorter terms) a determinant effect on the rate of redemption, which in turn influences the marginal economic unit. Short periods necessitate higher rates of redemption, which in turn place higher demands on the marginal economic unit, thus having the effect of enlarging this unit. The converse is true of longer periods of redemption.

(c) Debt ratio. - The debt ratio allowed is by far the most important single factor in furnishing credit. Debt ratio is defined as the proportion which all liabilities of the farming enterprise constitutes of the total capital investment in the enterprise.

The annual cost of redemption is usually expressed as a percentage of the borrowed capital. In order to illustrate in a suitable manner the effect of the debt ratio, cost of redemption will henceforth be expressed as the percentage of the total capital investment in the farming enterprise, and it will be called the annual total rate of redemption.

Graph II and the subjoined table reflect the relationship between debt ratio and annual total rate of redemption at four different periods of redemption. Firstly, it is again clear that rates of redemption at the same debt ratios increase appreciably as periods of redemption become shorter. With a 50-per-cent debt ratio, the rates of redemption are 6.79, 4.36, 3.32 and 3.09 per cent at periods of redemption of 10, 20, 40 and 60 years respectively. The initial rapid drop of rates of redemption with short periods of redemption is again observed, as well as the smaller differences with longer periods.

The graph and table further show the pronounced effect of debt ratio on the annual total rate of redemption. With a 20-year period the rates of redemption are 1.74,

*Rate of redemption or cost of redemption includes capital redemption and interest.

TABLE 1. - Total and own capital required to yield a family income of R1,500 from farming at different debt ratios and rates of income and with a period of redemption of 60 years, and an interest rate of 6 per cent

Debt ratio	Rate of redemption over 60 years *	Capital required to yield a family income of R1,500 at different rates of income							
		6%		8%		10%		15%	
		Tot. capt.	Own capt.	Tot. capt.	Own capt.	Tot. capt.	Own capt.	Tot. capt.	Own capt.
%	%	R	R	R	R	R	R	R	R
10	0.619	27,875	25,088	20,322	18,290	15,989	14,390	10,430	9,387
20	1.238	31,499	25,199	22,182	17,746	17,119	13,695	10,900	8,720
30	1.856	36,196	25,337	24,414	17,090	18,418	12,892	11,412	7,988
40	2.475	42,553	25,532	27,149	16,289	19,933	11,960	11,976	7,186
50	3.094	51,617	25,808	30,574	15,287	21,720	10,860	12,598	6,299
60	3.713	65,588	26,235	34,989	13,996	23,858	9,543	13,290	5,316
70	4.331	89,874	26,962	40,883	12,264	26,459	7,938	14,059	4,218
80	4.950	142,857	28,571	49,180	9,836	29,702	5,940	14,925	2,985
90	5.569	348,027	34,802	61,703	6,170	33,852	3,385	15,904	1,590
100	6.188	0	-	82,781	0	39,349	0	17,022	0

* Redemption rate calculated as follows:
$$\frac{\text{Yearly redemption (+ interest)}}{\text{Total capital}} \times 100$$

3.49, 5.23 and 6.98 per cent at debt ratios of 20, 40, 60 and 80 per cent (see Graph II and table).

This annual total cost of redemption must be deducted from the interest earnings of the farm to determine the net interest earnings*. Thus a farming enterprise with a 60-per-cent debt ratio and a redemption period of 20 years will, for example, have to earn at least 5.23 per cent interest on its total investment to cover the cost of redemption. Therefore only earnings above 5.23 per cent are available for net family income.

Higher debt ratios lead to higher rates of redemption and thus require larger marginal economic units if an adequate net family income is to be ensured. Lower debt ratios, on the other hand, will of course tend to reduce the marginal economic units to yield the same net family income.

4. CREDIT TERMS IN THE CASE OF MARGINAL ECONOMIC UNITS

From the foregoing it is clear that rates of interest, but especially periods of redemption and debt ratios, can have a determinant effect on the size of the marginal economic unit. It is, furthermore, a well-known fact that different types of farming enterprises with various combinations of farming operations have different rates of income.** There is also a minimum net family income which will enable the farmer and his family to maintain a reasonable standard of living.

The problem now is to establish the correct credit terms according to region and type of farming, and to ensure at the same time that a minimum net family income is obtained, thus preventing the creation of uneconomic units.

For the purpose of this article a minimum net family income (merely by way of example) of R1,500 per family per annum is assumed. A rate of interest of 6 per cent will be applied throughout. Rates of income of 6, 8, 10 and 15 per cent are used to calculate the capital requirements which will provide a net family income of R1,500 at different periods of redemption and debt ratios. The minimum capital requirements to provide a net family income of R1,500 are therefore calculated according to type of farming (as indicated by expected rates of income) and a variety of credit terms (periods of redemption and debt ratios).

5. CAPITAL REQUIREMENTS OF MARGINAL ECONOMIC FARMING UNITS ACCORDING TO TYPE OF FARMING AND CREDIT CONDITIONS

No detailed knowledge is available of the real profit-earning capacity of different types of farming in different regions. What we do know is that cattle ranching yields a rate of income of about 6 per cent, sheep farming between 6 and 8 per cent, diversified crop and livestock farming in the recognised regions 8 to 10 per cent, and crop farming in certain progressive districts some 15 per cent.

Table 1 illustrates the total and own capital requirements which will yield a net family income of R1,500 at a redemption period of 60 years and a rate of interest of

*Net rate earnings are the total rate earnings of the farming enterprise less cost of redemption ("rate of redemption").

**Rates of income are interest earnings on capital, in other words,

$$\frac{\text{net farming income}}{\text{total capital investment}} \times 100$$

TABLE 2 - Total and own capital required to yield a family income of R1, 500 from farming at different debt ratios and rates of income, with a period of redemption of 40 years and an interest rate of 6 per cent

Debt ratio	Rate of redemption over 40 years *	Capital required to yield a family income of R1, 500 at different rates of income							
		6%		8%		10%		15%	
		Tot. capt.	Own capt.	Tot. capt.	Own capt.	Tot. capt.	Own capt.	Tot. capt.	Own capt.
%	%	R	R	R	R	R	R	R	R
10	0.665	28,116	25,304	20,450	18,405	16,069	14,462	10,464	9,418
20	1.329	32,113	25,690	22,485	17,988	17,299	13,839	10,972	8,778
30	1.994	37,443	26,210	24,975	17,482	18,736	13,115	11,533	8,073
40	2.658	44,883	26,930	28,079	16,847	20,430	12,258	12,154	7,292
50	3.323	56,032	28,016	32,072	16,036	22,465	11,232	12,846	6,423
60	3.988	74,552	29,821	37,388	14,955	24,950	9,980	13,622	5,448
70	4.652	111,275	33,382	44,803	13,441	28,048	8,414	14,496	4,348
80	5.317	219,619	43,924	55,908	11,182	32,031	6,406	15,491	3,098
90	5.982	833,333	83,333	74,331	7,433	37,332	3,733	16,633	1,663
100	6.646	-	-	110,782	-	44,723	-	17,955	-

* Redemption rate calculated as follows: $\frac{\text{Yearly redemption (+ interest)}}{\text{Total capital}} \times 100$

6 per cent at different rates of income and debt ratios. The following important conclusions may be drawn from Table 1:

(a) The capital requirements of an economic unit (net family income of R1,500) drops with a rise in the profit-earning capacity of the farming enterprise. For example, a farmer with a debt ratio of 50 per cent and a 60-year redemption period (rate of interest 6%) will require R51,617, R30,574, R21,720 and R12,598 to yield a net family income of R1,500 at income rates of 6, 8, 10 and 15 per cent respectively. Farmers having limited capital resources should, therefore, turn to enterprises with a relatively high profit-earning capacity.

(b) The minimum capital requirements rise steeply with an increase in debt ratio. A farmer in an enterprise with an income rate of 8 per cent and a 60-year redemption period will require, for instance, capital amounts of R20,322, R22,182, R27,149, R34,989 and R49,180 at debt ratios of 10, 20, 40, 60 and 80 per cent respectively in order to obtain a net family income of R1,500. The "own capital" the farmer should have available decreases, however, as follows with the respective debt ratios: R18,290, R17,746, R16,289, R13,996 and R9,836. The conclusion is therefore, that larger debt ratios require higher investments per economic farming unit, i.e. larger units. The amount of own capital required decreases notwithstanding the increase in total capital requirements which accompanies higher debt ratios. Farmers with limited capital can, therefore, obtain adequate net family incomes only if they can obtain higher debt ratios and the corresponding larger units.

(c) The combined net result of the effect of income rates and debt ratios is, therefore, that farmers with limited capital can continue farming provided supplies of credit are satisfied that such farmers invest in enterprises with a relatively high profit-earning capacity and on condition that relatively high debt ratios are provided for. This is an extremely important aspect of credit policy, especially from the point of view of establishing a prosperous and happy farming community.

Tables 2, 3 and 4 illustrate the capital amounts required to yield a net family income of R1,500 at a rate of interest of 6 per cent and different debt ratios for redemption periods of 40, 20 and 10 years. The following comments may be made:

- (i) Rates of income and debt ratios exert a strong influence on the capital requirements (and therefore also the size) of marginal economic units for all redemption periods.
- (ii) The capital requirements of marginal economic units increase as the redemption periods become shorter. Assuming an income rate of 8 per cent, a debt ratio of 50 per cent and redemption periods of 60, 40, 20 and 10 years, the capital required to yield a net family income of R1,500 will amount to R30,574, R32,074, R41,197 and R124,275 respectively. It is evident once more that the differences between the longer redemption periods are not very large, in contrast with the shorter redemption periods, where large differences in annual redemption rates and capital requirements do occur.

Tables 1 to 4 clearly illustrate the combined effect of credit terms and income rates on the capital requirements of marginal economic units. It stresses the extreme difficulty of the task of formulating a rotational credit policy. Many variables have to be considered simultaneously. A thorough study of Tables 1 to 4 may serve as a most valuable guide in applying judicious credit principles. It appears, for instance, that types of farming with a low profit-earning capacity are completely beyond the reach of farmers having limited capital. With a debt ratio of 50 per cent and an income rate of 6 per cent, as much as R56,032 is al-

TABLE 3 - Total and own capital required to yield a family income of R1,500 from farming at different debt ratios and rates of income, with a period of redemption of 20 years and an interest rate of 6 per cent

Debt ratio	Rate of redemption over 20 years *	Capital required to yield a family income of R1,500 at different rates of income									
		6%		8%		10%		15%		Own capt.	Own capt.
		Tot. capt.	Own capt.	Tot. capt.	Own capt.	Tot. capt.	Own capt.	Tot. capt.	Own capt.		
%	%	R	R	R	R	R	R	R	R	R	R
10	0.872	29,251	26,326	21,044	18,940	16,432	14,788	10,617	9,555		
20	1.744	35,244	28,195	23,976	19,180	18,168	14,534	11,316	9,052		
30	2.616	44,326	31,028	27,860	19,502	20,314	14,220	12,112	8,478		
40	3.487	59,690	35,814	33,237	19,942	23,030	13,818	13,028	7,816		
50	4.359	91,408	45,704	41,197	20,598	26,591	13,296	14,096	7,048		
60	5.231	195,058	78,023	54,171	21,668	31,453	12,581	15,354	6,142		
70	6.103	-	-	79,072	23,722	38,491	11,547	16,860	5,058		
80	6.975	-	-	146,341	29,268	49,586	9,917	18,692	3,738		
90	7.847	-	-	980,392	98,039	69,670	6,967	20,970	2,097		
100	8.719	-	-	-	-	117,096	0	23,882	0		

* Redemption rate calculated as follows:
$$\frac{\text{Yearly redemption (+ interest)}}{\text{Total capital}} \times 100$$

ready required with a redemption period of 40 years, whereas only R12,846 is needed under similar conditions at a 15-per-cent rate of income.

6. CREDIT TERMS AND NET INCOME

The above analyses illustrate the important effect of credit terms as a whole on the capital requirements of the farming enterprise, together with the influence of certain components of financing. The question which will be attended to next is: what part of the net income has to be used for capital redemption (and interest) under different credit terms and rates of income?

According to Table 5, the percentage of net income used for redemption costs depends on income rates, debt ratios and redemption periods. The following conclusions may be made:

(a) At a rate of income of 8 per cent and a redemption period of 40 years, a farmer has to pay 16.6, 33.2, 49.9 and 66.5 per cent of his annual net income in redemption costs with debt ratios of 10, 20, 40 and 60 per cent respectively. Thus it is logical to expect the total capital requirements of a farming enterprise to rise with an increase in debt ratios.

(b) At an income rate of 8 per cent and a debt ratio of 50 per cent, the farmer will have to pay 84.9, 54.5, 41.5 and 38.7 per cent of his net income every year in redemption costs with redemption periods of 10, 20, 40 and 60 years respectively. It is once more evident that there are but slight differences between longer redemption terms, in contrast with those in the case of the shorter periods of redemption.

(c) At a debt ratio of 50 per cent and a redemption period of 40 years, the percentages of the net income which will have to be spent annually on costs of redemption amount to 55.4, 41.5, 33.2 and 22.2 per cent at income rates of 6, 8, 10 and 15 per cent respectively. This important fact should be duly taken into account in financing the farming enterprise.

SUMMARY

1. The effect of financial policy on the size of economic farm units (according to capital investment), as well as that of the profit-earning capacity of different types of farming, has been analysed.

2. Rates of interest are determined by extraneous factors and, despite the importance of these factors, are accepted as constants.

3. The period of redemption has an important effect on redemption rates over shorter periods, but at redemption periods exceeding 40 years this effect becomes less and less.

4. The debt ratio is the most important single factor affecting redemption rates, and therefore also the size of the marginal economic unit.

5. If R1,500 is taken as the minimum net family income, the size of the economic unit will be determined by periods of redemption, debt ratios and rates of income from the farming enterprise (Tables 1 to 4).

6. The capital requirements of the marginal economic unit decrease with an increase in the profit-earning capacity of the particular type of farming enterprise.

TABLE 4 - Total and own capital required to yield a family income of R1,500 from farming at different debt ratios and rates of income, with a period of redemption of 10 years and an interest rate of 6 per cent

Debt ratio	Rate of redemption over 10 years *	Capital required to yield a family income of R1,500 at different rates of income									
		6%		8%		10%		15%		Own capt.	R
		Tot. capt.	Own capt.	Tot. capt.	Own capt.	Tot. capt.	Own capt.	Tot. capt.	Own capt.		
%	%	R	R	R	R	R	R	R	R	R	R
10	1.359	32,320	29,088	22,586	20,327	17,359	15,623	10,996	9,896		
20	2.717	45,690	36,551	28,392	22,714	20,595	16,476	12,212	9,770		
30	4.076	77,962	54,573	38,226	26,758	25,320	17,724	13,731	9,612		
40	5.435	265,486	159,292	58,479	35,087	32,858	19,715	15,682	9,409		
50	6.793	-	-	124,275	62,138	46,772	23,386	18,277	9,138		
60	8.152	-	-	-	-	81,168	32,467	21,904	8,762		
70	9.511	-	-	-	-	306,748	92,024	27,327	8,198		
80	10.869	-	-	-	-	-	-	36,310	7,262		
90	12.229	-	-	-	-	-	-	54,132	5,413		
100	13.587	-	-	-	-	-	-	106,157	-		

* Redemption rate calculated as follows:
$$\frac{\text{Yearly redemption (+ interest)}}{\text{Total capital}} \times 100$$

7. The total capital requirements, and therefore also the size of the economic unit, increase with an increase in debt ratio. The requirements of "own capital", however, decrease with an increase in debt ratios, thereby favouring farmers having limited capital resources.

8. With shorter redemption periods, higher debt ratios and lower income rates, farmers have to part with larger proportions of their annual net income for redemption purposes.

CONCLUSIONS

1. Credit terms exert a profound influence on the size of the marginal economic farming unit. The debt ratio, period of redemption and rate of interest, in this order, affect redemption rates and the eventual size of the economic farming unit.

2. The rate of income obtained from different types of farming enterprises is a determinant factor in making decisions about financing. The rates of income and the farmers' available capital determine the credit terms which will ensure that only economic units are financed.

3. It would appear that redemption periods exceeding 40 years are not necessary. Redemption rates on total capital investment at a debt ratio of 50 per cent are 3.32 and 3.09 per cent at 40- and 60-year redemption periods respectively, i.e. there is a difference of only 0.32 per cent per annum (the difference between 20 and 40 years is 1.1 per cent).

4. Many divergent opinions exist as to the desirable debt ratio, but it is generally felt that a debt ratio in excess of 60 per cent is undesirable. The analyses in this article show that higher debt ratios are permissible, provided it is seen to that the size of the farming unit is adjusted (enlarged) and that the capital is invested in a group of farming enterprises yielding a high rate of income, thus preventing the unit from becoming unrealistically large. This point is illustrated clearly by Tables 1 to 4. If higher debt ratios are allowed without a corresponding adjustment of the size of the farming unit and without ensuring a satisfactory rate of income, the enterprise concerned is doomed from the start. Unfortunately, this often happens with financing in South Africa.

5. Owing to the high capital requirements to obtain an economic unit, farming enterprises with a low profit-earning capacity are completely beyond the reach of a farmer having limited capital resources. Financiers have often been at fault in this respect; in this way creating numerous uneconomic units.

6. It is well-nigh inconceivable that there can be any rational financing without due regard being had to the minimum sizes of farming units and to determine the influence of credit terms on such sizes.

7. From these discussions it follows that a rational finance policy should be very flexible. In cases where the farmer owns a fair amount of capital, a relatively short redemption period (of, say, 30 years) and a debt ratio of 40 to 50 per cent (depending on needs) will be quite satisfactory. When a farmer has limited capital, however, and wishes to establish himself in agriculture, it must be seen to first of all that he will carry on farming on an economic unit. This can be accomplished with his limited capital only if higher debt ratios (of, say, 80 per cent) are permitted and if he invests in a type of farming enterprise with a high income rate (profit-earning capacity).

TABLE 5 - Percentage of net income used for redemption at different debt ratios, periods of redemption and rates of income from farming, with an interest rate of 6 per cent

Debt ratio		Rates of income from farming (i.e. percentage interest earnings on capital)																	
		6% interest						8% interest						10% interest					
		10 years	20 years	40 years	60 years	10 years	20 years	40 years	60 years	10 years	20 years	40 years	60 years	10 years	20 years	40 years	60 years	10 years	20 years
%		R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
10		22.6	14.5	11.1	10.3	17.0	10.9	8.3	7.7	13.6	8.7	6.7	6.2	9.1	5.8	4.4	4.1		
20		45.3	29.1	22.2	20.6	34.0	21.8	16.6	15.5	27.2	17.4	13.3	12.4	18.1	11.6	8.9	8.3		
30		67.9	43.6	33.2	30.9	51.0	32.7	24.9	23.2	40.8	26.2	19.9	18.6	27.2	17.4	13.3	12.4		
40		90.6	58.1	44.3	41.3	67.9	43.6	33.2	30.9	54.4	34.9	26.6	24.8	36.2	23.2	17.7	16.5		
50		113.2	72.7	55.4	51.6	84.9	54.5	41.53	38.7	67.9	43.6	33.2	30.9	45.3	29.1	22.2	20.6		
60		135.9	87.2	66.5	61.9	101.9	65.4	49.9	46.4	81.5	52.3	39.9	37.1	54.3	34.9	26.6	24.8		
70		158.5	101.7	77.5	72.2	118.9	76.3	58.2	54.1	95.1	61.0	46.5	43.3	63.4	40.7	31.0	28.9		
80		181.2	116.3	88.6	82.5	135.9	87.2	66.5	61.9	108.7	69.8	53.2	49.5	72.5	46.5	35.4	33.0		
90		203.8	130.8	99.7	92.8	152.9	98.1	74.8	69.6	122.3	78.5	59.8	55.7	81.5	52.3	39.9	37.1		
100		226.4	145.3	110.8	103.1	169.8	109.0	83.1	77.4	135.9	87.2	66.5	61.9	90.6	58.1	44.3	41.2		

8. Such a flexible finance policy may have a particularly beneficial influence on the stabilisation of the farming community. The tendency towards larger units replacing smaller ones already exists, and it is a fact that in certain circles there is concern about the place and function of the smaller farming unit. Table 2 shows that with a redemption period of 40 years, a 6-per-cent interest rate, an 80-per-cent debt ratio and an income rate of 10 per cent, only R6,406 "own capital" (R32,031 total capital) is needed to obtain a net family income of R1,500 - i.e. an economic unit. If, then, the financial policy is such that this capital can be supplied correctly balanced (in other words sufficient movable and working capital is also supplied) a larger number of farmers can be established on economic units in agriculture than seems feasible at present. Young farmers and other persons who feel attracted towards agriculture could then also enter this sphere. It is decidedly a matter for concern, owing to its high capital requirements, farming at present tends to become a "closed" industry.
9. A clear-cut credit policy is needed to determine economic farming units in decisions as to the subdivision of agricultural land. As far as marginal economic units are concerned, the highest possible debt ratio (80 per cent, for example) and a relatively long period of redemption (e.g. 40 years) will have to be used. This will mean total capital investments of R55,908, R32,031, and R15,491 at income rates of 8, 10 and 15 per cent. The respective amounts of "own capital" required will be R11,182, R6,406 and R3,098. If such credit terms could be formulated, and agricultural land be subdivided accordingly, the problem of uneconomic units will in time become less serious.
10. It is clear that the various aspects of financing, also as regards the prevention of uneconomic farming units, is still in need of much research. Only after thorough research can the supplying of credit be rationalised in a satisfactory way.
11. Judicious financing is a mighty weapon for obtaining higher efficiency and greater stabilisation of the farming enterprise. Financiers will have to take due cognisance of the determinant effect of the interaction between financial policy, rates of income and economic farming units.

"Production economists who focus their attention on agriculture are concerned with choice and decision-making in the use of the capital, labor, land and management resources in the farming industry. The goals of agricultural production economics are twofold: (1) to provide guidance to individual farmers in using their resources most efficiently, and (2) to facilitate the most efficient use of resources from the standpoint of the consuming economy. The implications of these objectives can be better understood if we pause briefly to review this scope and nature of economics".

- E.O. Heady in "Economics of Agricultural
Production and Resource use".