Notes on the General Theory of Business Finance.

By Sune Carlson[*])

While working on problems of international investments and international finance I have increasingly felt the need for a general theory of business finance. Without such a theory it is difficult to see the relationship between the various problems, and to ask the right questions. When one limits one's studies to financial problems at the national level there are so many things that can be taken for granted, such as the institutional framework, the functioning of the capital market, the goal-system of the management, etc. One does not need to specify all the assumptions one makes in connection with a proposition or a statement. This is not so at the international level. When one compares financial behaviour patterns under different institutional conditions, many of the things that otherwise can be taken for granted suddenly becomes problems. One starts to ask why some institutions have the form they have, or why some problems look so different in one setting than in another.

In the past, economists have not been particularly interested in establishing a general theory of business finance. We have written books on the institutional and legal aspects of business finance, we have compiled statistics, and we have theorized on specific problems such as the cost of capital or the effect of taxation or capital rationing on the financial structure, but we have rarely tried to synthesize our knowledge into a comprehensive theory that can be of use for empirical research[1]).

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[1]) Cf. J. Fred. Weston, "Toward Theories of Financial Policy,", *The Journal of Finance*, 1, pp. 130 ff.

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Lately, we have contributed valuable studies of finance[2]), but these studies have been devoted mainly to normative rules for financial management. We still need a more general theory which can be of help in understanding actual business behaviour. It is my hope that the following notes may help to fill this gap. The very fact that they have been written in connection with a study of international finance, may explain the particular emphasis which has been given to the various problems.

1. *The Nature of the Financing Process.*

Finance deals with the acquisition of funds for a particular purpose. Fröding, the Swedish poet, describes the situation in his poem, "The Matrimonial Problem", where the farm boy Erik and his girl friend Maja talk about everything they must get:

> "A plough we will have and a harrow as well,
> "And a big horse to pull them, as sound as a bell,
> "And a dear little garden with cottage for two,
> "Erik you.
> "Maja you.
> "That's what we'll do!"

And so on. Each one of his verses ends up with the very pertinent question:

> "From where shall we get it?"[3]).

But it is not only farm boys and their girls that need money for the financing of their future happiness. Students need money for their studies, professors for their research and travel, and firms for their business activities.

That there exists a problem of finance depends on the awkward fact that one generally has to pay out money for the things one wants to do before one gets money in the form of income. The young farm couple must buy a plough and a harrow before they can start to produce, and

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[2]) Cf. e. g. Ezra Solomon, *The Theory of Financial Management*, New York, 1963 and the essays by David Durand and by F. Modigliani and M. H. Miller in Ezra Solomon (ed.), *The Management of Corporate Capital*, New York, 1961.

[3]) C. D. Locock whose translation of Fröding I have used, ends with the question: "How shall we do it?" As any student of economics can see, this choice of expression blurs the difference between a subsistance and an exchange economy. It is only the latter that interests us here.

the students must pay their living expences before they can earn an income. Similarly, a business firm has many outlays long before it can obtain money through the sale of goods and services.

But before we look at this problem, let us assume that there exists a firm which is in the happy situation of not needing to pay for anything before it can sell the goods that it has produced. During a particular time period the firm employs certain productive services, factory space, machine services, raw materials, workers, etc. It does not have to pay for these services until the end of the period at which time the production process is completed, and all the goods are sold. The quantity og goods produced, Q, will, of course, depend on the quantities of services used, V_1, V_2, ..., V_n. In the theory of production we express this relationship by a function

$$Q = F_Q (V_1, V_2, \ldots, V_n).$$

If the firm should produce not one, but several different products, this function becomes slightly more complicated, but we don't need to get into that problem here.

The money, O, which the firm lays out for the productive services will depend on the quantities used and on the prices one has to pay, P_1, P_2, ..., P_n. This outlay is given by

$$O = V_1 \cdot P_1 + V_2 \cdot P_2 + \ldots + V_n \cdot P_n.$$

Similarly, the gross receipts, R, which the firm obtains from selling the goods will depend upon the quantity and the selling price, P_Q, of these goods

$$R = Q \cdot P_Q.$$

Under the assumption regarding the timing of the payment for services, this firm would have no financial needs, as long as the sales receipts were equal to or greater than the outlays for the productive services. The inflow of cash would then suffice to cover the necessary outflow. But if the firm were unsuccessful in foreseeing the future – if, for example, it misjudged the technical relationships between input of services and output of product, or if it payed more for the services or received less for its product than it had planned – it might need additional financing in order to fulfill its obligations. Since the future never can be fully foreseen, business operations always involve operational risks[4]. In order to cover itself against these risks, the manage-

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[4] In this study, the term "risk" will be used to cover both such risks which can be statistically determined and uncertainties which can only be evaluated subjectively.

ment of the firm would probably like to have a certain liquidity reserve or cash balance which it could draw upon in the case of need. We shall return to the problems of operational risks and liquidity reserves later.

The case described above is, however, most hypothetical, and has little to do with the real business world. As we have previously indicated, a firm generally has many outlays long before it can start to produce, and still more before it receives any money from the sale of its product. Raw materials must be bought and stocked in advance, and because of economies of scale both with regard to purchase and transports, the firm often finds it advantageous to buy large quantities of such materials at a time. The production process takes time and it requires payments of salaries and wages. During the process there will be an accumulation of semi-finished products, and stocks of finished goods may be required in order to offer good service to the customers. Furthermore, the firm may have to wait some time before its customers pay their bills. Finally, the firm may find it advantageous to purchase its own plant and equipment rather than to rent these. All this requires finance.

Instead of a single production period at the end of which goods are sold and services are paid for, we must consider a series of time periods, with associated receipts and outlays. Since the building up or the expansion of a business is characterized by operating deficits, it is only when the firm has completed its growth stage that we can expect the current receipts to cover the current outlays. But once the fim has arrived in such a situation, the financing of its operations becomes more or less an automatic process. Even in this case, however, misjudgements with regard to the input–output relations, or to the prices of goods or services may require that the firm maintains a certain cash balance.

Suppose that the firm starts its business at a point of time, t_0, and that it has completed its building-up period at the time t_n. For purposes of budgeting and accounting, the time interval between these points is divided into a series of time periods

$$T_1, T_2, \ldots, T_n.$$

The period T_1 runs between t_0 and t_1. T_2 between t_1 and t_2 etc. For the time being, let us further assume that the firm pays for the purchase of all raw materials, labour services, plant and equipment, etc. in cash. If we indicate the expected outlays during a particular period, I_i, by O_{T_i},

and the expected receipts by R_{Ti}, the amount of capital, K_{Ti}, needed for the period T_i may be written

$$K_{Ti} = O_{Ti} - R_{Ti}.$$

This amount is equal to the net outflow of cash during the period[5]. Similarly, the cumulated amount of capital K_n, needed at the end of period T_n may be written

$$K_n = \sum_{i=1}^{n} (O_{Ti} - R_{Ti}) + C$$

where C indicates the minimum cash balance which the management wants to have as a reserve against operational risks. Under the assumption that the firm pays cash for all goods and services, the capital requirement is identical with the expected total investment at the time point t_n.

However, a business firm generally receives some of its goods and services on credit from suppliers. Furthermore, in connection with the founding of a company or with a merger, special shares are often issued against non-cash contributions. Thus, in order to get the total expected investment value at the time t_n, we must consider the value of these non-cash contributions from the owners as well as the total amount of suppliers' credit outstanding at the time t_n.

The expected financial position of the firm at t_n may be expressed by a financial statement of the type shown in table 1, where the assets

TABLE 1.

Financial position of the firm at the time t_n

Assets		Liabilities	
Cash balance	C	Suppliers Credit	S
Accounts receivables	A	Total current	S
Inventories		Debts, financial	D
Materials	M	Equity capital issued	E_i
Finished goods	F	-- -- surplus	E_s
Total current	$C+A+M+F$		
Plant and equipment	P		
Total	$C+A+M+F+P$	Total	$S+D+E_i+E_s$

[5] The term capital is used here in the same sense as by Cassel. Cf. G. Cassel, *Theoretische Sozial-Ökonomie*, Vierte Aufl., Leipzig, 1927, pp. 178 ff.
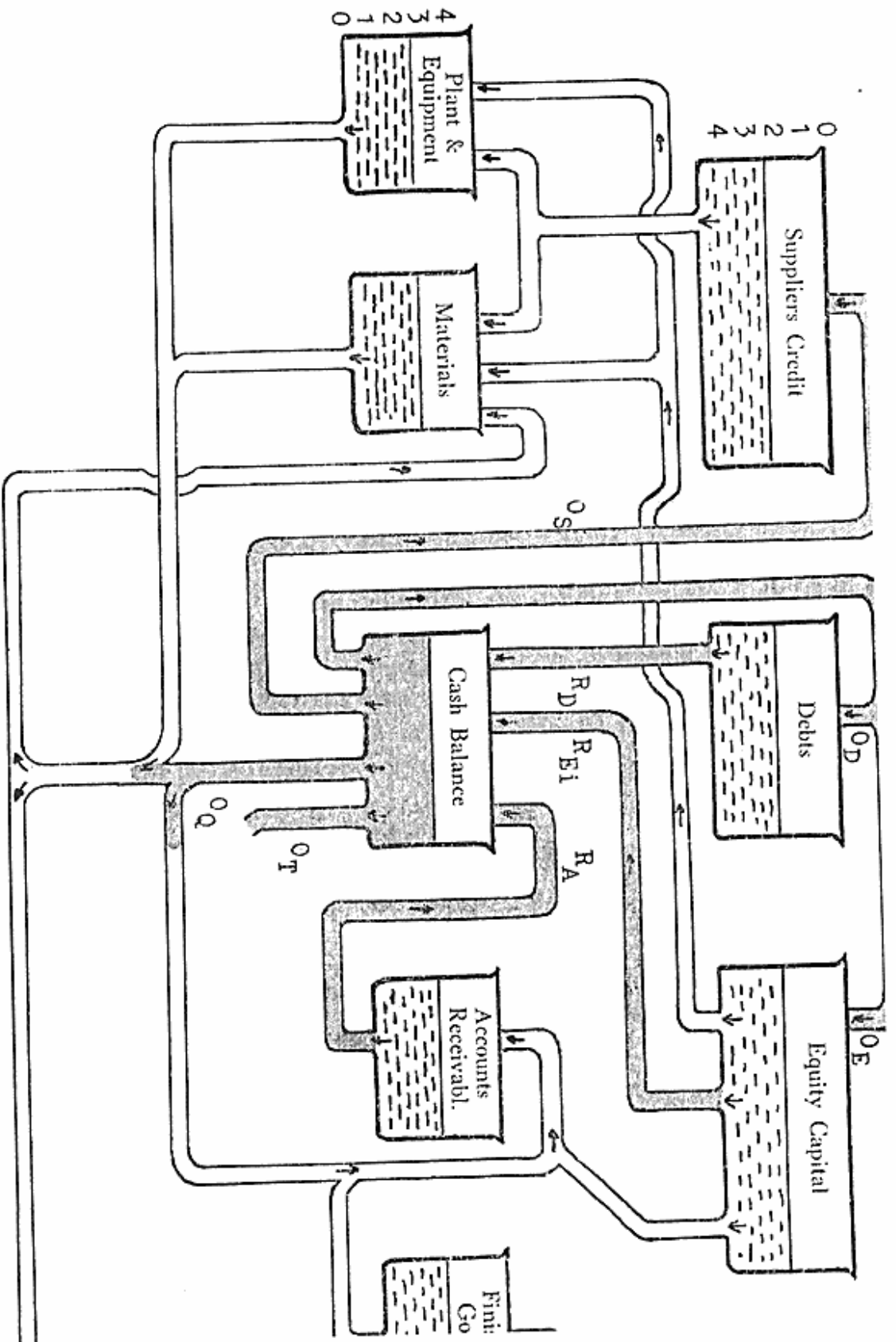
Fig. 1. The financial position of the firm and its relation to cash balances and cash flows (shaded area).

correspond to the firm's investments, including its cash balance, and the liabilities to the firm's total financial resourcts. Since, by definition, the sum of the assets is always equal to the sum of the liabilities, we may write for any points in time:

$$K_n = C + A + M + F + P = S + D + E_i + E_s,$$

and for any time period:

$$\Delta C + \Delta A + \Delta M + \Delta F + \Delta P = \Delta S + \Delta D + \Delta E_i + \Delta E_s$$

where the Δ's stand for the changes of the respective items during the period.

We have illustrated these relationships in figure 1 by two sets of interconnected containers[6]). The liquids in the bottom row containers correspond to the values of the investments, and the empty spaces in the top row containers correspond to the values of the liabilities. What has come out of the latter has run in to the former.

The main purpose of the diagram, however, is to illustrate the relationship between cash flows and finance. We may distinguish cash flows into the following classes:

operational flows

receipts from customers	R_A
operational outlays	O_Q
outlays for taxes	O_T

and financial flows

new debts	R_D
new equity issues	R_{Ei}
payments of suppliers	O_S
amortization of debts	O_D
dividens to share holders	O_E.

For any period of time the difference between the inflows and outflows is equal to the change of the cash balance

$$(R_A + R_D + R_{Ei}) - (O_Q + O_T + O_S + O_D + O_{Ei}) = \Delta C.$$

As already mentioned, it is the function of the cash balance or liquidity reserve to even out such differences.

[6]) The figure may at first appearance look like a plumber's nightmare, but I have found it to be useful when trying to describe financial matters to non-accountants.

We have earlier observed that when the firm has completed its building-up-period, it generally does not need additional external financing. The customer receipts suffice to cover the outlays necessary for running the business, for replenishing stocks, and for reinvesting in plant and equipment. The net operational cash flow becomes the main source for the financing of new investments as well as for the repayment of credits and loans. It is only when this net flow and the liquidity reserve no longer suffice to cover the necessary outlays that the management has to look for other sources of finance. Thus, for the management of a mature firm, the problem of finance appears mainly as a problem of cash flows and liquidity reserves[7]).

2. *The Demand for Capital.*

We have seen above that the total amount of financial resources which the firm will need depends upon its outlays for productive services. These outlays, in turn, depend upon the quantity produced and the amount of capital needed per unit of output, i. e. the average capital output ratio (see figure 2). These relationships are explored i some detail below.

The volume of production depends on the expected return. When a product line is regarded as being profitable, production is likely to be increased, and when the rate of return seems unattractive, production is likely to be reduced. But even if the cost and revenue figures look favourable, the management may decide to curtail production because the *operational risks* involved seem too great.

As shown in table 2, these operational risks may be classified according to their nature as being technical, price or payment risks, and according to their origin as being non-political or political risks. By political risks we mean all risks associated with actions by governments and official authorities. While political risks are discussed primarily in connection with international finance, they are far from unimportant in relation to home operations.

In the theory of investment, considerations of risks are often integrated into the cost and revenue calculations as a modifying element. When we deal with problems of business finance, it seems preferable

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[7]) We may notice that according to common accounting practice, profit is earned when the customers are charged for the goods and services delivered, and not when the bills are paid. We may therefore have a situation, where the operations are highly profitable, but the cash flows are far from satisfactory. The problem may be intensified by the fact that the firm has to pay taxes on the profit.
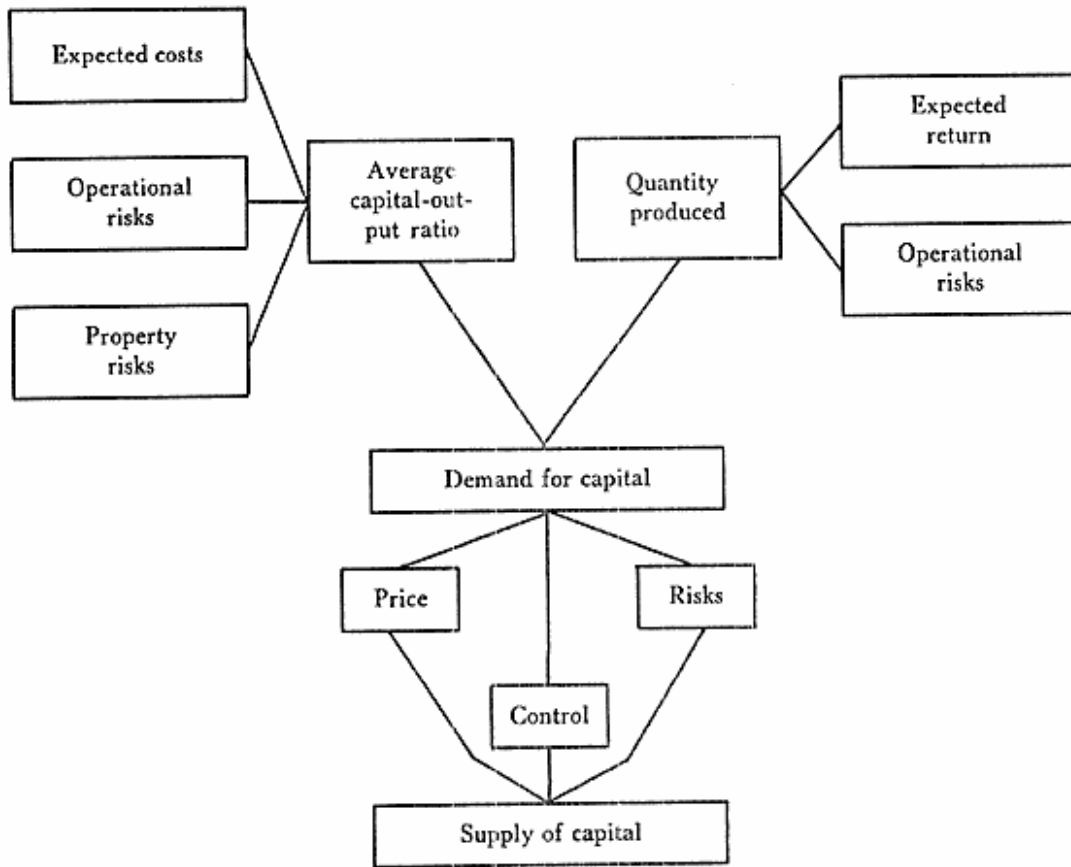
Fig. 2. The main factors determining the firm's demand for capital.

TABLE 2.

Classification of operational risks according to their nature and origin.

Nature of risks	Origin	
	Non-political	Political
	Examples: Risks related to	
Technical risks	Contents of metal in an ore	Legal restrictions of working hours
Price risks	Price decline of finished product or price rise of produvtive services	Price control regulation, excise taxes or minimum wage laws
Payments risks	Insolvency of a customer	Quantitative control of the capital market

to treat risks as a separate factor which influences the demand for capital in its own way (see figure 3). The conception of risk involves certain
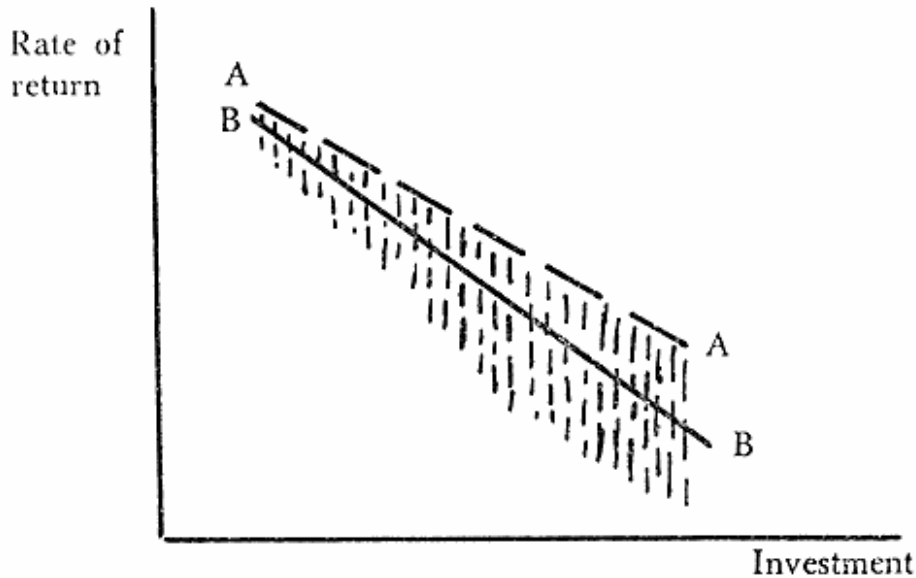

Fig. 3. The rate of return on risk free investments (A—A),
the operational risk (shaded area) and the demand for capital (B–B).

calculations which might be regarded as being objective, in the sense that two persons could arrive at the same estimates, if they had access to the same data. But it also involves purely subjective valuations. One person may evaluate a risk with respect to the worst set of consequences which could resul from the various alternatives under consideration, another with respect to some kind of average of outcome, and a third with respect to a still more favourable set of consequences. Some people like to gamle; other do not.

To some extent the operational risks can be decreased by an increase of costs and a conscious lowering of the expected rate of return. Some technical risks may be avoided by more research, by test runs and by better planning. Price risks may be decreased by more extensive market research and payment risks by better credit-worthiness studies or by credit insurance. As has been mentioned before, the existence of operational risks forces the firm to carry a certain cash balance among its assets, and the interest on this cash balance may be regarded as a cost for the avoidance of certain unfavourable events.

The firm's demand for capital depends not only on the number of output units produced, but also on the average amount of capital that is needed to produce a unit of output. In figure 2 we have called this

quantity the "average capital-output-ratio". From production statistics and statistics of fire insurance values, Lundberg[8]) has calculated these average capital-output ratios for various industrial branches in Sweden for the year 1954. He gets an average ratio for the manufacturing industry of 3.0, but the figures for the various branches vary from 1.6 for the dairy industry to 12.1 for flour mills.. However, these figures refer only to investments in material objects that are covered by fire insurance. To get the total amount of capital needed to produce one unit of output, we must add investments in accounts receivable, market research, product development, advertising, personnel traning, etc. In some branches of industry the capital requirements for these latter purposes are considerable.

Similarly, as the quantity produced is determined by return and risk expectations, the average capital-output ratio is determined by expected costs and by expected operational risks. The productive factors can generally be mixed in various ways, and the firm is apt to select the factor mix that gives minimum costs. One can also select equipment with varying degree of durability. The use of second hand equipment, for example, requires a much lower capital-output ratio than the use of new equipment. But the factor mix and the durability of equipment will also be dependent on the operational risks involved. A more expensive factor may be preferred to a less expensive one because of a greater reliability as regards its future supply, and a lower degree of durability may be choosen in spite of its higher costs in a situation where the technical development of a product or its future demand seems particularly uncertain.

Besides the operational risk, there is another type of risk, the *property risk*, that will influence the capital-output ratio. The property risks are related to the ownership of property. They include such hazards as destruction by fire and other accidents, larceny and embezzlement, property taxation and confiscation. As regards their origin, the property risks may be both political and non-political. As in the case of operational risks, the management may decrease the property risks by increasing costs. It may for example take out fire insurance or increase the costs for fire protection.

As has been indicated above, the firm generally has several types of financial resources at is disposal. It may obtain additional finance from what we may call the commercial credit market, from the capital market,

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8) Erik Lundberg, *Produktivitet och räntabilitet*, Stockholm. 1961, p. 277.

or from sources entirely outside these markets. Thus, we may distinguish the following main channels of capital:

From the *commercial credit market* in the form of

1. increased credit from suppliers $(\varDelta S)$[9],

from the *capital market*, either in the form of

2. new loans, i. e. by an increase of the firm's debts $(\varDelta D)$, or

3. new issues of shares, i. e. by an increase of the equity capital $(\varDelta E_i)$.

from *non-market sources* either in the form of

4. direct contributions from the shareholders in cash or in kind, i. e. by an increase of the equity capital $(\varDelta E_i)$, or

5. retained profit $(\varDelta E_s)$.

Some of these sources may be available for any type of investment, other only for investments of a certain kind or a certain durability[10]. How to select the most advantageous combination among the financial resources available is the principle problem of business finance. We are at Erik's and Maja's question: "From where shall we get it?"

In choosing between various alternatives of finance, the management is faced with three types of considerations (see fig. 2):

      a. the price (or cost) of finance,

      b. the financial or liquidity risks, and

      c. the influence on managerial control.

A young man who is considering how to finance his vacation may be choosing between an invitation to visit the home of one of his girl friends and a visit at a holiday resort. The price of the first alternative – a return ticket and a bunch of flowers to the girl's mother – may seem advantageous in comparison with the price of the second alternative, but the risk and control considerations may determine his choice. He

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[9] Advances from customers is another type of finance, which is directly related to commercial transactions. In order not to complicate the picture too much, we neglect consideration of these advances.

[10] If, by an analysis of financial statements, one tries to find out *ex post* how a particular investment has been financed, the results will often depend on the time period one selects for study. In the short-run the investment in question may seem to be financed solely by suppliers credit or by a diminution of the cash balance, in the medium-run by increased debts, and in the long-run by retained profit.

may fall in love, get married and lose control of his private life. Similarly, when the management of a firm chooses between various financing alternatives, it has to compare their costs, their relative risks, and the effects they eventually may have on the control of the operations of the firm. But before we study these problems further, we must see what they look like from the point of view of the supplier of business capital.

3. *The Supply of Business Capital.*

When we estimate the total supply of and demand for capital in the national accounts, we generally distinguish between three different sectors of the economy; the enterprise sector, the household sector, and the public sector. In our discussion of the supply of business capital, it is convenient to divide the enterprise sector in two parts: the financial sector, consisting of financial intermediaries such as banks, insurance companies and pension funds, and the rest of the enterprise sector. For convenience, we shall use the term enterprise sector to mean this latter part only.

The supply of business capital originates in all four sectors. In an industrial society, suppliers' credit comes mainly from the enterprise sector[11], loans primarily from the financial sector, and equity capital mainly from the household sector. The public sector is, in some countries, an important supplier of business capital, both of equity and of loans. Retained profits come, of course, from the firm itself, i. e. the enterprise sector, but if we consider the ownership of the funds, the household sector is the principle supplier. This is what the average picture looks like. But the conditions vary from firm to firm and also between different time periods. The most noticeable development lately has been the growing importance of the financial sector[12].

The circumstances determining the placement of funds vary, of course, from one financier to another, and particularly from one sector to another. In principle, however, they seem to be the same. The decisive factors appear to be: the price (or income), the financial risks, and the question of control.

[11] The same holds true for advances from customers, although the public sector may be another important source of such funds.

[12] In Sweden one may make particular reference to the growth of the pension funds.

That a placement which yields a higher after-tax income is preferred to another placement which yields a lower income, is evident. To determine the expected yield of a financial venture, however, may be quite difficult. This is specially true when the yield is of an indirect nature, as may be the case in connection with the extension of suppliers' credit or with an investment in a subsidiary company.

Still more difficult is the evaluation of the risks involved in different financial ventures. The supplier of capital meets these risks in two forms: the *risk of return* and the *risk of principle*. The former is the risk that the income from his investment will not have the value which he expected, the latter that he may not get back the full value of his original investment. The values here referred to may be expressed in money terms or in purchasing power. The financier's risks are, of course, associated with the operational and property risks of the firm in which he places his capital. A high operational risk generally implies a high risk of return, and a high property risk generally implies a high risk of principle. In order to decrease the risks, and particularly the risks of principle, the capital supplier may require some kind of mortgage or security. The value of such mortgage depends on the alternative uses for the property mortgaged.

We may regard the supply price of business capital as being composed of two elements: a basic interest rate and a risk premium. The former would correspond to the rate of interest obtainable on risk-free investments, e. g. on constant purchasing power government bonds. We may assume that the risk premium varies in proportion to the risk of principle and the risk of return[13]). It also varies with the length of the investment period.

In practice, however, the supply conditions of capital are much more complicated. Some financiers may be unwilling to take any risks as regards the time distribution of their income, or they may want to feel secure regarding the possibilities of recovering their money whenever they chose. That is, they may only be interested in marketable securities. Others may be willing to absorb a fairly high risk of return, but they may want to have their risk of principle covered. Still others are mainly afraid of inflationary risks but care less about the immediate return on their investments.

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[13]) The interest rate of an unsecured bond is generally higher than for a mortgage bond, and the effective rate of return on a preference share with fixed dividend is generally higher than the bond rate.

In many cases the financier's possibilities to absorb financial risks are restricted by laws and regulations, as in the case of trust money or pension funds. Thus the supply of business capital is composed of a whole series of capital flows, each one characterized by a given risk-absorbing capacity. As was mentioned already, some of these flows are only available for certain kind of investments and for certain time periods.

Considerations of control may also influence the capital supplier. Sometimes, such as when the firm is a competitor, a supplier or a customer, he may be interested in total managerial control of the firm. In other cases he may only want to influence a certain aspect of the firm's activities, e. g. to assure that the firm supplies him regularly with raw material or that it buys his products. His financial interest may then take the form of loan, an advance or a credit. But also when the supplier of capital has no primary interest in control, the financial risks may be such that he will require a voice in the running of the business. When a firm in unable to fulfill its financial obligations, the principle creditors often insist on a share in the management control.

From a financial point of view, control may mean many different things. It can have the form of a total equity interest, a majority or even a minority interest or it may be associated with a substantial loan, advance or credit. What the financier wants is sufficient control to satisfy the specific purpose he has in mind. When he has obtained this control, the control aspect of his investment is satisfied. Control is seen to be a discontinuous variable. In fact it is even more typically discontinuous than the financial risks. This discontinuity is characterized by the existence of important threshold or cut-off values.

4. The choice of financial alternatives.

After the above digression, we shall examine the choice which the management has to make regarding alternative sources of finance. The function of management is, above all, to manage. Whatever it decides, we may assume that its primary consideration is that it remains in control. Thus, in its choice between different sources of finance, management will prefer those that seem less risky from a control point of view. This holds true both for the manager-owner and the employed manager.

Management will feel quite safe as long as it can finance its investments by the use of current operating receipts, at least as long as the dividends paid to the shareholders remain unchanged. Its attitude to-

wards an increase of the equity capital by the issuing of new shares will depend on whether such an action influences the voting majority of the company. To bring in new ownership interests in the firm may have unforeseen and unpleasant consequences. Even when there is no risk for a change in the voting majority, a capital issue involves at least a moral obligation to pay more dividends and this means a need for higher after-tax profits which may involve a future liquidity risk. Additional credits and loans may or may not influence the controlling power of the management. If the liquidity position of the firm becomes strained, an increased indebtedness may bring the management in the hands of the creditors.

Even when the management does not need to be worried about its controlling position, it must be concerned about the future liquidity of the firm. A declining liquidity always means a decrease of the firm's credit worthiness, less chances for rapid trading action and additional worries for the management. Just as the management must evaluate both the return and the operational risks of an investment, it must also consider both the costs and the liquidity risks of a financial operation. We may envisage these risks as part of the financial costs. The cost for the use of a certain financial source, therefore, consists of two elements: The supply price and a certain risk premium. Let us illustrate this by an example.

In figure 4 a we have indicated the supply price (the interest rate) for the additional amount of suppliers' credit that the firm may obtain
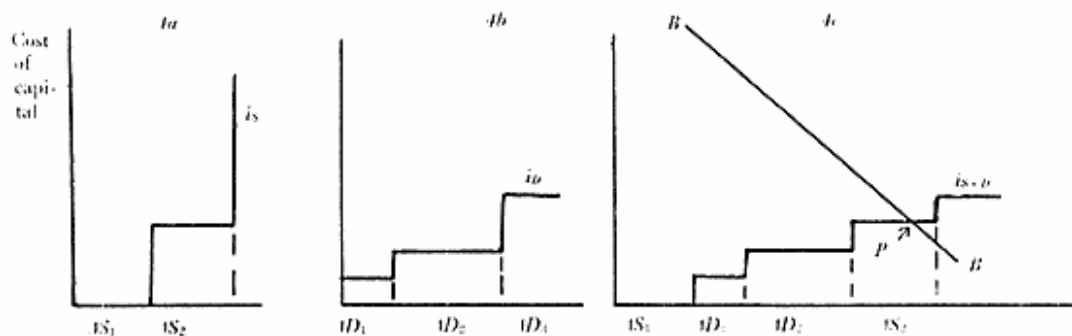

Fig. 4. Individual and combined supply curves for credits and loans.

during a certain time period by the curve i_s. We assume that the firm may get some credit, ΔS_1, free of charge. It may get a certain additional amount, ΔS_2, by prolonging the credit it received during the preceeding period. But in such a case it looses the cash discount, and this may be

quite an expensive operation. Should the firm want to increase the credit from its suppliers any further, we have assumed that the price for practical purposes, will be infinite. In a similar way we have indicated in figure 4 b the price, i_D, the firm would have to pay for additional loans. As long as the management is able to dispose of first class securities, the interest rate is quite low. Thereafter the rate increases as the credit worthiness of the firm declines. If the supply conditions for credits and loans are independent of one another, which they probably are for the normal range of the firm's financial needs, we may add the two supply curves and get a combined supply curve, i_{S+D}, for suppliers' credits and loans (figure 4 c). This curve is assumed to intersect the demand curve for capital (B–B) at the point P. In the absence of any liquidity risk, therefore, the firm would draw alle the suppliers credit, ΔS_1, and part of ΔS_2 and take up new loans of an amount equal to $\Delta D_1 + \Delta D_2$.

The existence of liquidity risks makes the situation more complicated. Also, even though the supply curves of credits and loans may be independent of one another, the cost curves are not. The liquidity risk involved in an extended use of suppliers' credit will depend on the amortization commitments which the firm makes in connection with new loans and *vice versa*. Considering the future liquidity position of the firm, the management may for example prefer to take up the loan
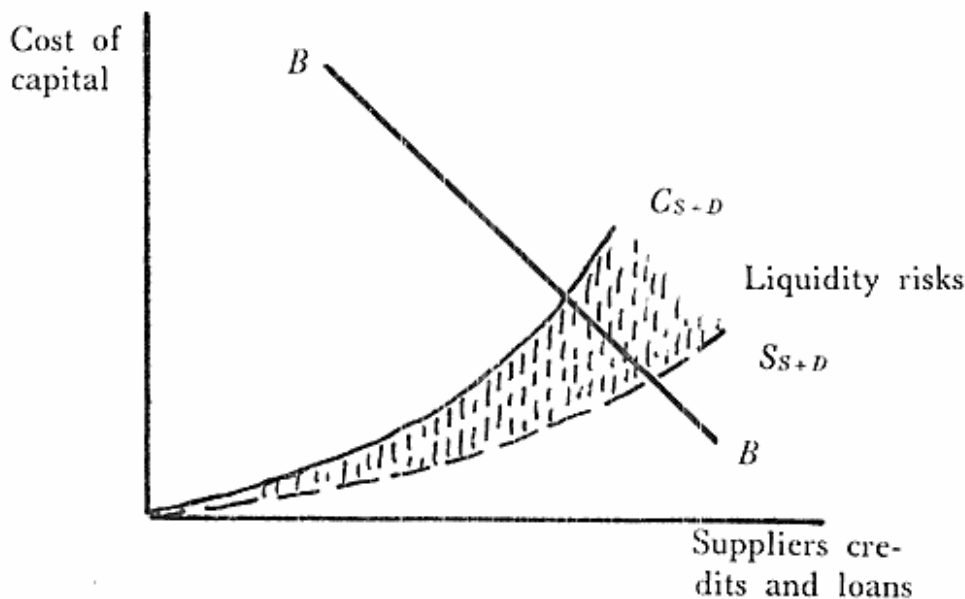

Fig. 5. The relationship between the supply of capital, the liquidity risks and the cost of capital.

ΔD_1 long before it has utilized all the credit ΔS_1, even if this would mean a higher supply price. For every amount of funds needed we may expect the management to select that combination of financial resources which gives the lowest combined costs. It is the costs, thus defined, which we have indicated in figure 5 by the curve C_{S+D}. The corresponding supply curve is labeled S_{S+D}. The distance between the two curves represents the risk factor. Because of the existance of liquidity risks, management will demand less capital than it would in the absence of such risks.

It is common knowledge that the supply conditions for credits and loans are influenced by the financial structure of the firm. The same holds true for the liquidity risks. The higher the proportion of equity
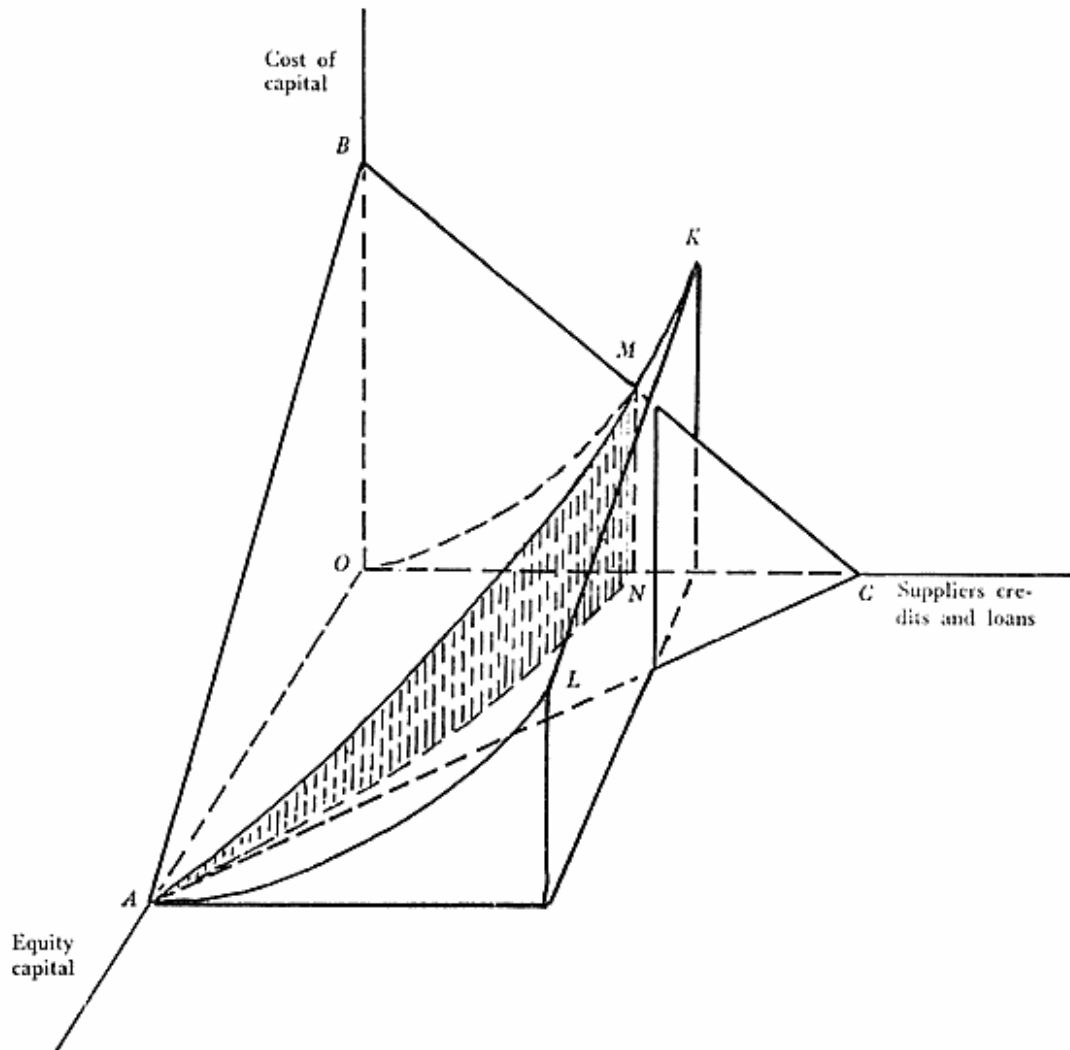

Fig. 6. The relationship between the financial structure of the firm
and the supply conditions for credets and loans.

capital, the more attractive the firm will appear from the point of veiw of the capital supplier. Both his risks of principle and risks of return decrease as the proportion of equity capital increases. For the management, a higher proportion of equity will mean less financial commitments for future periods, which will make increased indebtedness seem less risky. Consequently, there are double reasons for a shift downwards of the cost curve for credits and loans when the equity capital increases.

In figure 6 we have illustrated these relationships by means of a three dimensional diagram. The three axes represent the cost of capital, the amount of the suppliers' credits and loans and the amount of equity capital. The combined cost function of credits and loans is indicated by the surface $OKLA$, and the demand for capital (the marginal rate of return) by the surface ABC. The interesection of these surface is marked by the curve AM, and the combinations of financial resources corresponding to this intersection curve by the projected curve AN. The combinations along this latter curve are of interest to management. If it has choosen a combination to the left or to the right of the curve, it may increase the profit of the firm by increasing or decreasing respectively the amount of credits and loans, until the marginal rate of return is equal to their combined cost.

That management has an interest in choosing a combination along the curve AN is quite clear, but which combination it will select is much more difficult to tell. Its choice may depend on many factors. Its goal may be to get a maximum rate of return on the present equity capital, to maximize the net worth of the equity, or to maximize the turnover under the condition that a certain minimum rate of return is realized. It may even be isterested in lowering the present equity capital by distributing capital surplus or depreciation reserves to the shareholders. Tax considerations and comparisons with the earning possibilities in other types of businesses may also come into the pictures, as do control and risk considerations of the type that we have discussed above. We may make certain assumptions regarding management's behaviour pattern, and in that way find a theoretically ideal choice. However, for an interpretation of the actual choice between alternative financial resources we must investigate all these various factors and study how they influence the management in the particular situation.