



**TOGETHER**  
*for a sustainable future*

## OCCASION

This publication has been made available to the public on the occasion of the 50<sup>th</sup> anniversary of the United Nations Industrial Development Organisation.



**TOGETHER**  
*for a sustainable future*

## DISCLAIMER

This document has been produced without formal United Nations editing. The designations employed and the presentation of the material in this document do not imply the expression of any opinion whatsoever on the part of the Secretariat of the United Nations Industrial Development Organization (UNIDO) concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries, or its economic system or degree of development. Designations such as “developed”, “industrialized” and “developing” are intended for statistical convenience and do not necessarily express a judgment about the stage reached by a particular country or area in the development process. Mention of firm names or commercial products does not constitute an endorsement by UNIDO.

## FAIR USE POLICY

Any part of this publication may be quoted and referenced for educational and research purposes without additional permission from UNIDO. However, those who make use of quoting and referencing this publication are requested to follow the Fair Use Policy of giving due credit to UNIDO.

## CONTACT

Please contact [publications@unido.org](mailto:publications@unido.org) for further information concerning UNIDO publications.

For more information about UNIDO, please visit us at [www.unido.org](http://www.unido.org)

We request that some of the papers on the construction  
of the map be reviewed by the committee on the  
subject of the map. The committee on the subject  
of the map is composed of the following members:

United Nations  
Centre for Industrial Development

Original: English

Inter-Regional Symposium on Industrial  
Project Evaluation

07617

CID/IPL/B.22  
Discussion Paper

Prague, Czechoslovakia  
11 - 29 October, 1965

APPRAISAL OF FINANCIAL NEEDS FOR NEW INDUSTRIAL PROJECTS

Prepared by: Charles M. Williams  
Harvard University  
U.S.A.

for: The Centre for Industrial Development  
Department of Economic and Social Affairs  
UNITED NATIONS

This paper cannot be reproduced without permission from the Centre for Industrial Development, United Nations, New York. The views expressed in this paper are those of the author.

65-41398

## I Introduction

### A. Focus and point of view of this paper.

The focus of this paper is the need for funds to carry out new industrial projects and problems related to the effective forecasting of financial requirements. In order to simplify the presentation of our ideas, we assume in this paper that a new corporate enterprise will serve as the vehicle for carrying out the industrial project.<sup>1</sup>

The point of view in this article is that of a development financing organization. It is premised on the concept that development financing agency officials should see their role as very much more than that of simply approving or disapproving financing proposals proffered by a new industrial firm. If they are to be fully constructive and helpful, they should be willing and able to serve as a source of expert advice and counsel in the development of plans for the new project with particular emphasis on the financing planning. Where it seems necessary, the agency must participate actively in the formulation and modification of these plans.

Effective work with management of the new project requires a thorough understanding and appreciation of the point of view and problems of the enterprise and its managers. Although the interests of the development financing agency and those of management may conflict in certain respects, they do share a very basic harmony of interest in the success of the project.

Experience has shown that planning the finances of a new industrial firm is not easy. In fact, it seems very much easier to find instances of inadequate or faulty financial forecasting and planning than to find models of effective performance of this function.

Despite the rapidly expanding literature of business and financial management, literature on the subject of financial forecasting for the new firm is relatively brief and general in nature.<sup>2</sup> Hence, the author has drawn heavily on his experience with case studies of new enterprises in developing the ideas presented herein.

### B. What Effective Financial Forecasting Involves.

In the case of new industrial enterprises, effective financial

forecasting seeks to answer such basic questions as these:

- a. How much funds will be required initially and over a period of the early years of full operation?
- b. When will the need for funds develop?
- c. How long will the need continue? When will cash be generated from the operations of the firm sufficient to repay loans?
- d. How are the needs for funds of the enterprise to be met? How much must be provided as equity investment? How much is to be borrowed from outside sources?
- e. What degree of reliability can be attached to the forecast?
- f. How would the incorporation of alternative assumptions about the pattern of operation of the firm influence the forecasted needs for funds?

As the above questions imply, financial forecasting is essentially the translation of the plans for the enterprise into monetary terms, that is, the impact of the plans on the need for funds of the enterprise. Financial forecasting must be viewed as an important, but integral part of overall planning for the new enterprise. Good financial planning is impossible unless there is equally good planning of facilities, production, sales, and indeed the entire operating program of the new enterprise.

## II The Importance of Effective Forecasting of Financial Needs.

### A. Values to the Industrial Firm.

Even though the development financing agencies should be prepared to lend assistance in the process, the basic work of preparing the financial forecast should rest with the management of the firm itself. Normally, it takes a considerable amount of time, thought, and effort on the part of management if a good and careful job of financial forecasting is to be done. Usually, this financial forecasting must be accomplished at a time when management of the new enterprise is heavily involved in other aspects of planning and starting the enterprise. If management is preparing a financial forecast only as a means of meeting

one of a set of onerous requirements imposed by a financing agency, the forecast will be hurriedly and sketchily prepared and consequently have little validity or value to anyone. Actually, important values can accrue to the new industrial firm itself as a consequence of careful financial forecasting. Managers who appreciate the potential advantages of effective financial forecasting may be expected to do a much more thorough job of financial planning than otherwise is likely. Therefore let us consider some of the chief advantages to the industrial firm, of careful and accurate financial forecasting:

1. Forecasting profits and financing requirements permits a pre-testing of the financial attractiveness of the project to all concerned, both owners and lenders.

2. Estimates of financing needs provide all interested parties with the raw materials for conclusions about the feasibility of the whole project as it is reflected in the forecast. Individual assumptions, say about the level of inventory needed to support a given sales volume, may be separately scrutinized. If found wanting, the implications for the project as a whole may be studied. Such an analysis might indicate that a once attractive project would not yield an adequate return after its assumptions had been more thoughtfully cast. In such cases the effective forecasting could make a very valuable, if somewhat negative, contribution.

3. Effective financial forecasting provides the basis for wise decisions about how to finance the enterprise. For example, the forecast should facilitate deciding how much debt could be serviced without undue strain, as well as how fast it could be repaid.

4. Less readily appreciated than the above three advantages is the potential value of the financial forecast as a control device. By comparison of actual figures as they develop with those originally forecast for cash balances and other critical items, management can take timely note of developing deviations from the planned positions. In effect, the original figures provide checkpoints useful in exposing departures from the programmed progress of the firm. Early recognition of a developing problem can in many instances permit timely solution before it becomes unmanageable.

5. Development of careful and detailed financial forecasts should serve as a useful protective device against underestimate of needs. Even experienced managements projecting a firm's financial needs on an informal or casual basis, often have proven to have

overlooked a secondary but quite significant financial requirement. It has been the experience of a great many development financing institutions that progenitors of industrial projects commonly **underestimate** the requirements for working capital, particularly where interruptions in the flow of work through the factory or goods to customers can be anticipated.

6. Further, an effective job of forecasting financial needs will help importantly in gaining the confidence of the development financing agency or other potential investors in the firm. Conversely, a careless job or one that reflects dubious key assumptions can **stimulate** doubts and uncertainties on the part of organizations or groups important to the success of the project.

D. Importance and Value to the Financing Agency.

Effective financial forecasting for the new project is essential if the financing agency is to do an effective job of allocating resources and assisting development of worthy projects. Insistence that would-be borrowers undertake a thorough job of forecasting financial requirements, should yield a variety of advantages to the financing agency. These advantages include:

1. The forecasts submitted by management afford officials of the financing agency the means by which they can assess the ability of the client firm's management to do effective forward planning. In extreme cases, where the job of forecasting financial requirements is so poor that it reveals basic **irremediable** deficiencies on the part of the promoters of the new venture, it can serve as a useful screening device and give the agency a basis for rejection of the proposed project. Indeed, the very requirement of a specific forecast may serve to end further discussions with visionary entrepreneurs unwilling to come to grips with the requirements of detailed planning.

In other cases the financial forecast submitted by a group planning a new industrial enterprise may reveal serious lack of financial knowledge or ability on the part of a potential management which clearly has production, marketing or other important skills. In such cases officials of the developing agency are alerted to the need to give detailed instruction and assistance to the entrepreneurs in formulating the financial plan for the enterprise. On the other hand, where **extraordinary** financial competence is demonstrated by the future managers of the new firm, the development agency may be willing to extend itself on their behalf further than would otherwise be appropriate.

2. An accurate financial forecast provides the clear understanding by all interested parties of the firm's financial needs which is requisite for a good, viable financing plan with which the enterprise can live over time.

The forecast should provide the materials for planning further expansion and development if the firm is successful and at the same time give suitable protection against the difficulties and disappointments that virtually all new enterprises suffer in one degree or another.

3. The financial forecast should help the financing agency get a good measure of the resources required for the project and the financial support that it will be expected to offer the firm. Obviously, the value in this respect of the forecast will depend heavily on the degree of reliability that the development financing agency believes it can attach to the forecast.

4. Management of the developing financing agency, as well as that of the new enterprise, can make effective use of the forecasts as a standard against which performance can be measured and evaluated. Timely recognition of variance in actual progress from the projected or programmed progress can be highly useful to the development financing agency as well as to the enterprise's management.

C. The Consequences of Underestimate or Overestimate of Requirements.

A great many developments can affect the need for finances as the new industrial project moves into operation. Rarely do projects go exactly according to plan and financial requirements prove to be precisely what they were forecasted. A certain degree of error in forecasting is inherent and if recognized quickly it usually can be dealt with.

In general the consequences of serious underestimate of needs are more likely to prove serious than those of significant overestimation. Underestimation of requirements in the simplest form can result in the enterprise's running out of money and credit and collapsing before the inherent merits of its project have had a chance to show themselves. In other cases underestimate of requirements can lead to subsequent stringencies. Resultant efforts to economize on important equipment or other facilities may seriously constrain the development of the firm.

Overestimate of the potential financing requirements for an



enterprise could so understate the potential return on investment in the project that it is prematurely and unnecessarily abandoned. In other instances, overestimate of requirements can mean overcapitalization. Where the firm is overcapitalized valuable financial resources are wasted. There appears to be a tendency in most overcapitalized firms, however, for management to eventually find reasonable use for initially redundant or unneeded assets.

Speaking broadly, it appears that the consequences of underestimating requirements for funds for a new industrial project are much more likely to have serious, perhaps fatal, consequences than overestimates. In case of doubt then, constructive conservatism seems best served by allowing generously for the requirements of funds for the firm.

### III Review of Major Techniques of Forecasting Financial Requirements.

#### A. The Projected Balance Sheet Method of Forecasting: A Brief Description of the Technique.

Two particularly useful methods of organizing the projections of financial requirements are in widespread use. Since each of these methods represents a distinctive approach to the same point, a great many firms employ both techniques, using one to supplement and support the other. The two methods are the projected balance sheet method and the cash flow forecast method which is also widely known as the cash budgeting method. Let us look first at the projected balance sheet method.

The balance sheet method of portraying future needs for funds is built around a forecast of key balance sheet items as of selected future dates. The investment required in each of the key types of inventory, in accounts receivables, in plant equipment and spare parts, in operating cash, and in any other important kind of asset needed to carry out operations as planned is set forth and tabulated. On the liability side of the projected balance sheet, are calculated first those credits that may be assumed as a matter of course, as well as the anticipated amount of the ownership investment as of that date. In effect, the assets are regarded as "uses" or "sponges" of funds and the liability and net worth accounts as "sources of funds". Carrying out the plans of the enterprise will require predictable investment in the various key assets. On the other hand, the enterprise can count on certain routine sources of credit. The owner's investment in the business as of the future date, can also be predicted. If the indicated sources of

funds fall short of meeting the forecasted investment, the amount by which the sources must be expanded or alternatively the asset investment curtailed is made apparent. If the anticipated sources more than cover the required investment in assets, a measure is provided of the cash cushion which is available beyond minimum working balance needs.

Careful selection of the dates on which to base the projections is essential to effective use of the forecasted balance sheet method. The projected balance sheet forecast provides what is in effect a snapshot view of the financial condition of the firm at a particular point in time, the balance sheet date. It does not reflect needs which may have arisen in the interim. If the forecaster wishes to determine the maximum needs that the new enterprise will encounter, he should be careful to select a date for the forecast which will represent the business at a time of maximum strain on its finances. For firms with a strong seasonal pattern of production or sales, this point of greatest strain is likely to occur during the peak of seasonal activity. Projections of needs at a later period when inventory and receivables have been reduced and cash is high, might fail completely to reflect the heavy needs associated with the peak seasonal activity.

An approach frequently used is to prepare balance sheet projections as of the end of each month from the time the enterprise begins operation to when it is operating at a normal level. Thereafter, quarterly forecasts for the next two or three years, and annual forecasts for following years up to, say a total of five years may be derived.

It cannot be overemphasized that the results of the forecast can be no more valid or reliable than the sum of all the assumptions and predictions employed in developing the subsidiary figures. In making the forecast, judgments must be made about future developments and the enterprise's resultant needs. Financing agency analysts reviewing the forecasts must be prepared to go behind the figures, to expose and understand the assumptions and judgments on which the figures were constructed and to assess the validity and reliability of these assumptions. The technique of constructing a projected balance sheet is not a difficult one for any person with at least a basic understanding of accounting. But the job of making decisions as to the policies that will determine the size of the various asset accounts and the drawing of judgments regarding the uncertain future, calls for high order of judgment and foresight by managements of both the new enterprise and the financing agency.

III

2. Key Determinants of the Need for Major Assets.

Balance sheet projections submitted by the management of a new industrial enterprise should be subject to close review by the development financing agency.

1. The technical validity of the projection should be checked.
2. The review should seek to insure that no key items are overlooked.
3. More importantly, management's judgments underlying the calculated investment needs in the various assets should be carefully weighed. Commonly, capital resources are limited in amount so that the development agency has a very important stake in maximizing productivity of the capital it commits to development projects. 3

To a certain degree the technology of the industry involved and considerations of the economic scale of operations will establish irreducible needs for capital to carry out the project. Nevertheless, it is the rare project indeed in which the need for funds is crisp, immutable and beyond question. Rather the requirements set forth represent the results of a series of judgments regarding operations of the firm. Informed inquiry about the judgments behind the various figures may well bring to light satisfactory alternative operating plans which would conserve resources and reduce the net need for funds.

No two new industrial firms, even in the same industry, can be expected to have identical needs. Nevertheless, it is possible to identify certain key determinants that are likely to be critical in shaping the size of the needed investment in each of the major asset categories. Taking each asset category in turn, we shall attempt to do this.

To illustrate the points in this discussion, let us use as an illustration a hypothetical new firm, Progressive Plastics, organized to make and sell plastic products. In the initial years, the company will concentrate on a line of plastic dinnerware, that is, plates, saucers, and the like to be sold in sets. In later years, the company plans to produce to order industrial products such as the plastic portion of telephone instruments.

C. Key Determinants of the Investment in Fixed Assets.

In the case of many industrial projects, the technology of the industry dictates certain requirements for plant and equipment. Thus,

Progressive Plastics will certainly require certain compression molding machines in which the charge of plastic powder is shaped under heat and pressured into the desired form. Additionally, certain grinding and polishing machines will be required to smooth and polish the rough product that comes from the mold. Obviously, certain materials handling equipment and storage facilities will be necessary. If and when the management decides to expand into the custom molding of industrial products, additional machines, doubtless of the injection type, will be required.

Considerations of economic scale of activity also can be critical in industrial projects. Normally, these set a minimum scale on the productive equipment required for an efficient operation. Beyond this minimum, the estimate of potential demand for the products of the firm is critical in deciding how large a productive unit should be. Once estimates of the total market and the market share that can be obtained has been completed, technical people can convert the desired output figures into the equipment required to produce that output.

Within the broad limits set by the technology of the industry and the requirements of scale, a variety of decisions related to "make or buy" commonly are important. Many items or services can either be undertaken by the new industrial firm, purchased or subcontracted from outside sources. Progressive Plastics certainly will require the production of molds to shape the distinctive pieces of dinnerware it will produce. If it decides to do its own moldmaking, certain facilities and items of equipment will be required that would not be necessary if the aim were to subcontract the production of the molds. Often the possibilities for farming out important parts of the production process are greater in relatively complex and highly developed economies than in the countries in the earlier stages of development. Nevertheless, in most nations the possibility for having work done outside is considerable.

In addition, the requirements for fixed asset investment commonly are importantly influenced by the degree to which the new enterprise will find it necessary or desirable to provide its own supporting infrastructure or facilities not directly central to the production process itself.

In many instances the basic building and land in which the new enterprise is to be housed, can be regarded as a supporting structure rather than clear-cut requirement. Many enterprises do not need distinctive properties. Conventional industrial buildings may be available for rental at satisfactory rates. In the case of Progressive Plastics, ordinary factory buildings suitable for light industry should be sufficient for its needs so that, if rental space is available, the decision whether to rent

or construct its own facilities might well be important. Similarly, the requirements for warehouse space may not be distinctive so that it may be desirable to rent it rather than to construct new facilities. In some instances, the question of whether the firm should generate its own electric power requirements or buy it from already established utility firms may be an important one. Other items of infra-structure such as facilities for feeding and housing employees can call for large outlays and deserve very careful consideration. A related, but different category, is that of transportation facilities. The new enterprise might well consider the wisdom of owning its own trucks or other transportation equipment as against the use of common carriers or contract carriers for the purpose.

Of keen significance to the total investment required for a given physical layout, is the question of the degree of quality or opulence of equipment and facilities to be employed. The difference in outlay between "going first class on basic facilities and equipment" and setting up the facilities with a close eye to economy can frequently be very substantial.

In a great many cases, considerations of full control over the operations, convenience, and perhaps lowest long-term operating costs argue for more complete and expensive facilities and equipment. These considerations must be matched against the need to economize in the use of scarce resources.

#### D. Key Determinants of Inventory Needs.

Not uncommonly, inventory needs are projected by use of a rule of thumb drawn from experience of other firms in the same industry. Such a rule may express the need for inventory in terms of so many days' sales. Thus, it might be determined that an inventory equal to 45 days sales should be adequate for the plastics fabricating industry. In circumstances in which the new firm can be expected to operate under policies and conditions similar to those already in the field, the short-cut approach to forecasting of drawing a ratio from the experience of the established firms may prove satisfactory.

In the actual circumstance, in a great many industries, the policies and circumstances of operation of **different** firms in the same industry vary substantially. Hence, any average ratio for existing firms may have relatively little relevance to the distinctive patterns of a particular new firm. The variety of conditions in different countries compounds this problem. Frequently, there may be no other firms in the identical business as the new enterprise. Consequently, industry experience may not be relevant to the circumstances of the new firm, and any effort to project its needs on the basis of ratios drawn from other countries or different kinds

of industry in the same country may produce dangerously misleading estimates for the new firm. Moreover, the very fact of newness may make the requirements of the new firm distinctive.

Despite the hazards of blind use of industry figures as a substitute for more painstaking and thorough methods of estimate requirements, it is useful for those in the development financing agencies reviewing forecasts of needs to have the benefit of the experience of others in the industry as a yardstick. As a warning to those who would blithely pirate ratios from others, it is interesting to note the inventory levels of all U.S. manufacturers at the end of March 1965 was equal to 61.1 days sales at the rate of sales at the first quarter of 1965. The variation from the overall averages of differing industry groups was substantial. Thus, manufacturers of aircraft and aircraft parts were carrying an inventory's equal to 90 days sales while manufacturers of bakery products had total inventories equal to only 18 days sales.<sup>4</sup> Doubtless there is also a substantial variation between individual firms within the same industry.

What are the key factors that commonly influence management's decision as to carry inventories equal to sales of 20 days or 90 days? A number of key influences or determinants of inventory levels can be identified.<sup>5</sup>

It is useful to divide inventories into three major classes, and consider the determinants of the levels of each separately. In the case of U.S. manufacturers in a recent year, a breakdown of inventory totals showed that the three categories, raw materials, work-in-process, and finished goods were roughly equal in value.

#### Key Determinants of the Investment in Raw Materials

Let us review first key determinants of the need for investment in raw materials:

1. The anticipated rate of usage of the materials in producing finished goods. Obviously, this rate would be related to the anticipated volume of sales.

2. The volume of safety stocks needed to protect against materials shortages that interrupt production. Several factors are important in the judgment as to how many days stock of vital raw materials represents enough protection against running out. Procurement lead time- that is, the length of time required for an order to be filled- is critical. If the supplier is nearby and customarily has inventory on hand for immediate shipment, a relatively small inventory is indicated. Conversely, if a

foreign manufacturer is the source for made-to-order components, and he has heavy order backlogs, the procurement lead time for the item may be very long and much larger stocks of the component are indicated.

A closely related consideration is basic reliability of the flow of raw materials from suppliers. The size of stock may vary directly with the probabilities of interruptions in the flow from the supplier because of his own production difficulties, strikes, transportation difficulties and other such problems. Commonly, distinctive hazards are encountered in maintaining the inflow of items which must be imported. For example, where exchange quotas or other restrictions on free importing of materials exist, the possibilities of interruption due to changes in government regulations or the availability of foreign exchange suggest the need for larger protective stocks.

If particular raw materials can be substituted for others, and particularly if domestic supplies can be substituted for imported items, it will be possible to operate prudently with lower stocks than if the needs are highly specific and substitution is difficult.

Speaking generally, the availability of needed materials from a number of satisfactory sources reduces the safety level required as compared to reliance on a single source.

A further consideration in the fixing of "safety stocks levels" is the estimate of the costs of interruption to production as a result of running out of stock. If the circumstances are such that the company can shift production to other items for the time, and/or the marketing situation is such that sales would not be lost by a temporary shutdown, then it may be possible to operate prudently with relatively small safety stocks. On the other hand, management of a new enterprise that will operate in a highly competitive market may well judge it highly important that there be no interruptions to their ability to service the needs of newly-won customers.

3. A third basic determinant of the size of raw materials stocks is that of economy in purchase. Often it is possible to command favorable prices by purchasing in relatively large lots.

4. An additional determinant is the outlook for future movements in the price of the materials. If management estimates that prices will fall in the future, it may well operate with lower levels of stock than if the price outlook is for steady or higher prices. The outlook for price movements is a particularly important consideration in the

case of companies importing major raw materials from abroad, and the value of the domestic currency is subject to rapid and large changes. Thus, a manufacturer in a country experiencing rapid inflation may attempt to protect his costs of imported materials by maintenance of abnormally large stock levels. Under conditions of uncertain supply and rising prices, it is often hard for an outside analyst to draw a clear line between policies of price "speculation" and of sensible protection of materials supply.

5. A fifth determinant of raw material inventory levels is the cost of carrying raw material stocks. These include the cost of storage, cost of funds tied up, property taxes, insurance, protection from theft, and the risks of physical deterioration during storage. Less obvious, but often of critical importance, particularly in the case of components of industrial projects subject to rapid change in design, are the hazards and costs of obsolescence of particular inventory types.

6. Also of significance to inventory levels, particularly in the case of new enterprises, is the accuracy of procurement and inventory records. It is easy to underestimate the problems of accurate and up-to-date record keeping for fast-moving stocks, particularly in cases where the number of different items in inventory is large.

#### Determinants of the Investment in Work-In-Process Inventories

As the name suggests, this category of inventory comprises the goods in the process of manufacture. The balance sheet value assigned to work-in-process inventory at any particular date represents a summation of all the costs assigned up to that date to partially completed products.

1. A key determinant of the size of in-process inventory is the length of time necessary to complete the process of manufacturer. As extreme illustrations, consider first the case of a food canning company where the process of grading, processing, canning and labelling and packaging items such as peaches normally takes less than one day. Naturally, the canning company's work-in-process at any point in time will be negligible in relation to annual sales. In contrast, the manufacturer of large aircraft normally can expect the process of production and assembly of the complicated aircraft to extend over many months so that the aircraft company might anticipate a sizeable continuing investment in goods in-process.

2. The extent to which the production process is a continuous one will also be important in determining the size of work-in-process inventories. For example, the aircraft manufacturer working on an order



for 200 planes might well try to reduce production costs by making all of a minor assembly in one production run, even though many of these assembly items would not be needed for final assembly for many months. Thus, a decision as to how to produce components--in long or short runs--at first thought, merely a production problem, has decided implications as to the size of work-in-process inventory. It also should be clear that any interruptions to the flow of work through the industrial establishment will have the effect of boosting work-in-process inventory levels relative to sales. The new firm commonly experiences a variety of unscheduled interruptions in its productive activities and estimates of work-in-process requirements should take this fact into account.

3. An additional factor influencing in-process inventory levels is the amount of value added in the process of manufacture. Inexpensive processes even though of long duration may not add up to very substantial monetary requirements.

#### Determinants of the Investment in Finished Goods

A basic determinant of the level of finished goods investment is the ability of the firm to mesh production and sales. If the company is fortunate enough to be able to produce only against firm order and to be able to ship the finished products to the customer as they are completed, an inventory of finished goods may be almost entirely avoided. In this instance it is possible to fit the pattern of sales completely to the pattern of production. At the opposite extreme is the circumstance of the canner of peaches previously referred to who must produce his canned peaches when the fresh fruit ripens. He very likely will be able to sell the fruit only over the entire year. Consequently, the canner must build up high stocks at the canning season and look forward only to their gradual reduction over the calendar year.

2. The competitive situation of the enterprise in the market will have a major influence on the need for finished inventories. Companies in a highly favorable marketing position characterized by excess demand may be able to carry limited stocks of finished goods yet not be badly hurt by occasional inability to fill orders promptly. However, under more competitive circumstances the manufacturer will not wish to risk the loss of sales that might have otherwise have been made were he not "out of stock".

3. The ability to forecast sales with accuracy is a further determinant of the levels of finished goods. If the demand for the

company's products is subject to sharp and unpredictable fluctuations, relatively large stocks must be carried in order to prevent the loss of sales should orders suddenly increase. Conversely, sharp and unexpected declines in the orders for finished goods may lead to very rapid accumulation of finished goods unless production schedules can be adjusted rapidly.

4. The need for finished goods varies also with the competitive need for broad distribution of stocks in its sales territory. Normally, if sales are concentrated in a single geographical area, a smaller amount of finished inventories is required than if a similar volume of sales is made over a very wide area where it will be necessary to carry substantial stocks in various regional warehouses.

5. In industries or countries where sales on consignments is the custom, inventories of finished goods will include the stocks of distributors. Again the extent of the distribution network will affect the level of inventories.

6. A sixth factor affecting the size of finished goods inventory is the variety of sizes, shapes, and models of the company's output. Generally speaking, the fewer the number of items in the line, the smaller the total volume of inventory necessary to service a given level of sales demand.

E. Key Determinants of the Investment in Receivables.

As in the case of inventory, it is possible to make rough estimates of the required investment in receivables by reference to the experience of other firms translated in terms of the number of days the typical account is outstanding before it is paid. <sup>6</sup>Thus, it might be noted that the investment in receivables of all U.S. manufacturers on March 31, 1965 represented 46 days sales at the rate of sales achieved in the preceding quarter. Again, however, in cases where more than very rough approximations are required, it is usually preferable to look at the specific circumstances of the particular firm and the factors that are likely to determine that firm's investment in receivables.

Five factors are particularly important in shaping the size of the particular firm's investment in receivables:

1. The terms of credit normally granted customers judged worthy of credit. In theory, each new firm is free to specify whatever the terms of sale best suit its objectives and circumstances. Conceivably, it may sell only for cash-on-delivery, in order to avoid tying up funds in receivables and risking bad debt losses. If the demand for its products is strong enough, it may well succeed in selling only for cash.

More commonly, the competitive situation will require that the new firm offer its customers credit terms at least as generous as those offered by competing manufacturers. In the U.S. and a number of other countries, particular terms of sale have become traditional for many product lines. Thus, U.S. manufacturers of automobiles have sold on terms of cash payment upon delivery to their dealer-customers while manufacturers of steel wire products sell on terms of 2/10 net 30, that is, 2% discount if payment is made in 10 days and net payment is required in 30 days. In a severely competitive market, a new firm may find it necessary to offer substantially longer credits to its customers than the competition in order to attract a suitable volume of business.

2. Even new firms eager for business will find it unwise to grant credit to all the prospective customers who request it. Instead certain minimum standards of credit worthiness on the part of potential customers must be established before normal credit will be extended. If high standards of credit worthiness are required, a significantly lower level of outstanding receivables to total sales may be anticipated than if loose credit standards are employed. Of course, if unduly severe credit standards are imposed, potential sales may be lost to competitors willing to undertake a greater credit risk and investment in receivables in order to achieve higher sales totals.

3. A third determinant of the level of investment in receivables is the degree of rigor employed by the firm in its collection policies and practices. The closeness with which the new firm follows-up on overdue accounts and the degree of pressure it brings for prompt action on these accounts will have a material effect on the paying practice of many customers and hence on the level of outstanding receivables. Laxity in credit administration is, in most parts of the world, an invitation to customers to abuse the credit terms and to delay payment as long as they think they can get away with it. Obviously, important delays

in receiving payment from customers will cause the investment in receivables to bulge.

4. The degree of efficiency the new firm achieves in the plant and in the office will have a surprising impact on the level of investment in receivables. Fast and accurate paperwork in preparing invoices and in the maintenance of receivables records and follow-up procedures is important. Effective quality control and inspection procedures in the plant also are critical, since shipments below specifications or not precisely in accordance with order terms commonly lead to disputes, and disputes to long delays in getting paid.

5. The most important determinant of the volume of receivables outstanding is the volume of sales for credit. If the other factors cited above are held constant, the level of outstanding receivables can be expected to vary directly with the volume of sales. Thus, increases in sales volume increase the tie-up of funds in receivables.

#### F. Determinants of the Need for Cash Balances.

The new industrial firm must expect to carry some cash on hand and more importantly to maintain significant balances in its bank accounts. How large should these balances be? Several key determinants of the need for cash balances can be identified.

1. All businesses require a certain amount of cash for routine operational needs. Thus, a petty cash fund will be needed for change making and for minor payments best disbursed in currency. A bank account is also necessary to facilitate the collection of receipts in the form of checks or drafts and to permit payment of major expenditures by check or draft. Usually, a portion of the nominal bank balance is immobilized in the bank's processes of collection of checks and drafts deposited. The projection of the minimum balances required to meet these operational needs seldom is very difficult.

2. A second determinant of the need for cash balances is the extent of routine fluctuations in daily receipts and expenditures. The cash account serves to absorb normal ebbs and flows in funds from day-to-day and week-to-week.

3. The bank balances also reflect the desirability of advance accumulation of funds in anticipation of major outlays for such developments as planned expansion of inventories or receivables, income tax payments, debt repayment, and purchases of major items of equipment.

4. A fourth, highly subjective and highly important need for cash balances, stems from the desirability of maintaining reserves of financial strength and liquidity against major unexpected needs. Accurate prediction of requirements is particularly difficult for the new enterprise, and generous cash reserves can protect against serious underestimate of routine needs. Further, unexpected demands on cash can come from interruptions to production and sales due to such events as strikes, transportation tie-ups, or fire or storm damage to production facilities. Sudden declines in sales or unexpectedly high expenses may create major cash drains at a time unpropitious for borrowing or for raising further equity. Moreover, a firm may be forced by competition to make heavy expenditures for new, more efficient plant and equipment to cut manufacturing costs at a time when new capital is relatively unavailable. Often adverse developments setting up heavy cash needs are coincident so that the pressures on cash are multiple in nature.

In this connection, it is interesting to recall the wry comment of an American sage, Benjamin Franklin, that "in adversity a man can count on only three reliable friends: a faithful dog, an old wife, and money in the bank".

On the other hand, absolute security is impossible for any enterprise in an uncertain world. Moreover, maintenance of large amounts of unproductive cash against possible needs dilutes overall return on the investment as well as boosting total financial needs. In the last analysis, the judgment as to the size of the protective cash reserves to be maintained represents a balancing of risk versus cost considerations.

Also important in the determination of the optimum size of protective cash reserves is the assessment of alternative methods of providing reserves of financial strengths. Thus, it may prove on balance more desirable to maintain open but unutilized lines of bank credit against the possibility of unexpected needs. In other cases, equity investors may be able to invest additional funds if the need for such develops. Altogether, the possibilities for developing alternate sources of backup financial strength should be thoroughly investigated before it is determined that large, protective cash reserves are necessary.

#### G. Projecting Major Sources of Funds

Above we have discussed the manner in which the amount of investment in each of the major asset categories can be forecast. The

total of the projected asset investments represents the gross need or use of funds by the enterprise as of the date of the particular projections. Now let us consider the sources of these funds, or in accounting terms, the liability side of the balance sheet. Sources of funds may be usefully divided into three main categories: "spontaneous" sources of credit, negotiated credits, and owners' or equity investment.

#### Forecasting Spontaneous Sources of Funds.

The term "spontaneous" sources of funds is a somewhat overstated label for credit that the new enterprise may normally expect to enjoy without special efforts or negotiations on the part of its management. These include a broad category of diverse items under the label "accrued liabilities". Usually it is possible for the business to receive certain services before it must pay for them. Thus, in many countries, it is customary to pay executives on a monthly basis after their services have been rendered. The total of such outstanding obligations at any single balance sheet date may be significant. Significant accrued liabilities also arise out of the fact that taxes on the income of business units usually are deducted from income well before actual payment must be made.

More importantly, if the new enterprise has reasonable financing and prospects for success are good, it can ordinarily expect to buy raw materials, components and other routine items on the normal credit terms generally extended by suppliers. If the amounts of purchased materials are large, the level of normal accounts payable will also be sizeable. The size of the accounts payable then is a function of the amount of the firm's purchases, the terms of purchase, and the promptness of the firm in settling its obligations. Normally, it is prudent to assume that trade payables will be paid when due. If significant cash discounts are offered for early payment, management must decide whether to take the discount and pass up the additional credit that could be obtained from suppliers by foregoing the discount. Unless the costs of capital to the enterprise are extremely high, it is normally advantageous to take all available cash discounts.

#### Projecting Sources of Negotiated Credit.

Earlier we have spoken of normal trade credit as an important "spontaneous" source of funds. In a great many instances, potential suppliers of items of plant and equipment for the new industrial establishment are sufficiently anxious to achieve sales of such a

volume that they will be willing to negotiate special credit deals. Thus, the new firm may be able to buy major equipment items on extended terms--as much as 5-10 years on important, long-lasting items of equipment. Special credit terms may also be available on routine purchases of materials. Normally, the chances of getting generous special credits from suppliers would be greatest if the following conditions characterized the supply situation:

- a. The main producers are large and comfortably financed themselves so that they are in a financial position to extend generous credit to their customers.
- b. A variety of suppliers make products that are essentially similar.
- c. The major suppliers are operating at less than capacity and additional output can be accomplished at low, marginal cost.
- d. The additional volume of orders from the new enterprise promises to be significant and continuing.

The main thrust of these comments is to suggest that it is often to the advantage of sales-hungry suppliers to extend special credit to new firms which promise to be valued customers. The possibilities for such special terms deserve thorough investigation as the amounts of potential credit that may be available are large.

Commercial bank credit also will represent an important item for most new industrial firms. A reasonably well-financed firm with attractive prospects normally can expect some current credit from its commercial bank. On the other hand, the bankers in a great many countries are more familiar with the financial needs of agricultural or trading firms than of industry. Consequently, the bankers may well be very cautious in evaluating new industrial enterprises. Consequently, before much reliance is placed on bank credit as a source of funds in the projected balance sheet, it is highly desirable that the attitudes of the commercial bankers be pretested and credit arrangements made as precise as possible. Furthermore, one should keep in mind that bank credit may well be withdrawn if the enterprise encounters difficulties. Thus, for the new enterprise, bank credit is likely to be a significant yet not thoroughly reliable source of funds. Further, as indicated earlier, in many circumstances

it may be prudent to develop unused borrowing arrangements against the possibility of unexpectedly heavy requirements in the future.

In the United States and some other countries, life insurance companies and other financial institutions are prepared to make intermediate and long-term loans to industrial enterprises. However, unless the new enterprise has unusually favorable prospects, or can offer some valued security such as tracts of land, the normal uncertainties surrounding new ventures are usually sufficient to turn away long-term lenders.

Where the new firm has been successful in negotiating with a bank or other institutions, the length of term of the loan may well be a measure of the dependability of this source of credit. Management may make firmer plans if the loan is covenanted for a year or more than if it is merely a revolving line of credit.

#### Equity Sources of Funds.

Under normal circumstances, the owners of the new enterprise can be expected to provide the bulk of the funds necessary for operation of the business. It is they that will share in the profits above the return of interest to lenders and it is they who must absorb the principal risks of the enterprise. Equity investment for the new business normally takes the form of capital paid-in by investors subscribing to new common shares. However, the base capital will be supplemented or reduced according to the projected profits or losses of the firm between the interval of its inception and the dates on which projected balance sheets are set forth. Thus, preparation of the projected balance sheet requires an estimate of a profit and loss for the firm in the interval between its inception and the date of the projections. Seldom is it easy to accurately forecast the operating results of a new firm. However, the requirement of a new profit and loss forecast in order to make projected balance sheets forecast of financial requirements should not be viewed as an additional burden. Certainly, it is desirable for planning purposes in any instance to prepare forecasts of the estimated results from operations.

A few useful generalizations can be made regarding the projection of profit and loss statements for new ventures. General experience has underscored the importance of conservatism in predicting the results of operations for the new firm in its early months and years. Commonly, the actual costs of getting started in business are inordinately high and, frequently combinations of unexpected problems force costs well above what might have seemed reasonable estimates. For example, it is normal in the new manufacturing enterprise of any complexity to encounter



problems in training labor and supervisory personnel, so that a high order of rejects and materials spoilage must be expected. It seems good general advice to suggest that the projector should "expect the unexpected" and that the unexpected developments will probably be unfavorable. The thrust of these comments is to urge that the estimates of near-term profitability for the new venture be made on what the projector regards as highly conservative or pessimistic assumptions.

#### H. An Illustration of the Projected Balance Sheet Approach.

Now let us provide a brief and oversimplified illustration of the process of developing a forecast of financial needs by the projected balance sheet method by reference to our earlier example - Progressive Plastics, Inc. The principal promoter of the proposed company is Mr. I.M. Handy, who has been serving as executive vice president of a plastics firm in a different part of the country. Anxious to be head of his own operation, he has succeeded in persuading friends and acquaintances to invest in his new firm. Total commitments from these friends amount to \$300,000, including a \$40,000 investment of his own. He has decided to try to make this amount suffice, although two large investors have indicated that they together could supply an additional \$50,000.

After careful investigation, Mr. Handy found a large industrial building in which two floors adequate for his needs could be leased. The necessary electric power and basic facilities were already available.

After careful analysis, Mr. Handy determined that the new firm could expect to achieve a sales level of approximately \$200,000 a month by the end of the first year of the operation. The sales were expected to remain at about this level for the next two or three years.

Mr. Handy sought to minimize equipment needs by procuring only three new compression molding machines. A fourth machine would be purchased in the used machinery market for a cost of no more than half that of the new machines. The used machine would be used primarily to provide stand-by capacity to cover peak load requirements and breakdowns in the new machinery. To minimize investment in equipment, Mr. Handy planned to operate new machines on a three-shift, 24-hour basis, even though labor on the second and third shifts would be paid somewhat higher hourly wages than for the first shift. Other fixed asset requirements consisted primarily of polishing and grinding machines for the finishing operation, materials handling, and office equipment. Since the costs of the polishing and grinding machines for the finishing operation

were modest, Mr. Handy determined to buy enough of these so that this part of the operation could be accomplished through single shift operation, inasmuch, as the prospective employees for this operation would be women who preferred to work daytime shifts. He estimated that total outlays for equipment would come to \$263,000.

After intensive negotiation, Mr. Handy was able to arrange deferred payment terms on the new molding equipment, so that a large percentage of the purchase price could be repaid over a 36-month period.

Mr. Handy decided to forecast his requirements after the company had reached its anticipated level of sales volume, which he believed would represent the time of greatest financial strain for the firm. Since this sales volume would be reached in approximately one year, he decided to project requirements as of one year after the company began operation. It would take some three months to get ready to begin production, so the balance sheet forecast would be made approximately fifteen months in the future.

Mr. Handy wanted to operate with a level of inventory that would provide reasonable protections against interruption in raw material flows and against sudden spurts in sales. With this policy he hoped to avoid production stoppages. No marked seasonal pattern in sales was anticipated and Mr. Handy hoped to produce at a level rate once sales had plateaued.

Mr. Handy estimated that raw materials would amount to about 40% of the total cost of goods manufactured, which in turn would amount to about \$150,000 per month once the \$200,000 sales level was reached. Consequently, raw materials purchases would approximate \$60,000 a month. After consideration, Mr. Handy decided to try to maintain a supply of raw materials equal to one month's usage.

The requirements for in-process inventory appeared small. In order to insure that the labor in finishing the dinnerware would not be left idle due to interruptions in molding, Mr. Handy decided to carry an in-process inventory of about three days output of the molding machines representing about \$12,000 in total value.

Mr. Handy planned to sell his tableware in sets of 30-60 pieces. Several different designs were to be employed and in each of the designs six basic colors would be used. These marketing requirements appeared to dictate a considerable stock of finished goods, inasmuch as the competitive situation demanded that the company have finished merchandise on hand for immediate shipment as orders were received from retail outlets.

Mr. Handy first planned to carry a finished goods inventory equal to about one month's sales at cost, or \$150,000. After consideration of the financial burden, however, he decided to accept a lower target figure of three weeks' supply, or \$113,000.

It was the custom in the trade to offer retailers 30-day credit terms. Since some customers might be expected to be slow in payment, even though most of the prospective customers were well-established, well-financed firms, Mr. Handy projected his receivables investment as one and one-third month's sales, or \$267,000.

Other asset requirements were expected to be minimal; Mr. Handy decided to make a \$5,000 allowance for these.

Mr. Handy was conscious of his earlier assumption that there would be no seasonal fluctuation in sales. However, from experience he had learned that there would be some fluctuations in the rate of incoming orders and certain unexpectedly slack periods of sale might well occur. To provide for such contingencies and routine fluctuations, Mr. Handy decided to maintain a bank account of \$75,000, a figure equal to approximately two weeks projected, normal expenditures. He would have felt much more comfortable with a larger figure, one say, equal to one month's expenditures. However, he did secure the categorical agreement of two investors to invest an additional \$50,000 when, as and if needed by the firm, so he decided to rely on this additional commitment as a contingent reserve of financial strength.

The tabulation (see Exhibit 1) of anticipated investment at the end of fifteen months totalled \$795,000. Armed with this estimate of likely gross requirements, Mr. Handy turned to the task of generating sufficient sources of funds. First, he undertook a projection of profit and loss for the three months of organization and the twelve initial months of operation. After detailed calculation, Mr. Handy determined that the company would become profitable after about six months of operation and that in the second six months of operation the profits would be sufficient to recoup organizational costs and the losses of the first six months. Hence, the owners' investment would be intact by the time of the projected balance sheet. As indicated earlier, Mr. Handy had negotiated a special credit on the new equipment. After allowing for down payment and payments during the first year, an amount of \$100,000 would be outstanding on the projected statement date. Accounts payable were expected to consist predominately of payables for raw materials, but some additional supplies would also be bought on credit. The terms of purchase of the principal materials were net thirty days, so that Mr. Handy projected a figure of

\$70,000 as a normal level for accounts payable. Accrued expenses would consist largely of accrued rental and accrued wages. While these figures would fluctuate somewhat within the month, they would generally be at a level of about \$25,000.

These projected sources totalled \$500,000, leaving approximately \$300,000 of needs unmatched by sources.

Mr. Handy then investigated the possibilities of bank credit. He found that the local commercial banks were unwilling to make unsecured loans that would be outstanding continuously over a long period, but one bank was willing to make a revolving credit loan arrangement under which the bank would advance 80% of new receivables of firms of good quality. Since Mr. Handy planned to sell to only firms of good credit, he felt justified in projecting bank credit at \$200,000, a figure almost 80% of the total receivables outstanding. Combining the "source figures" in the projected balance sheet, Mr. Handy found that he was still short \$102,000. At this point, he faced some unpalatable choices. He was reluctant to reduce the scale of the enterprise since a smaller operation could expect to have little impact in the market and could not carry an adequate amount of advertising to support sales. Consequently, he decided to take the chances of operating with a two weeks' stock of finished goods thus reducing the finished goods investment by \$38,000 to \$75,000. Next Mr. Handy considered other possibilities for credit. After investigation, he found a leading supplier of the plastic powder, his principal raw material, who was willing to grant 60-day terms instead of the normal 30-day terms, provided Progressive Plastics' purchases were concentrated with his firm. This made possible an additional \$60,000 of continuing credit, or a level of accounts payable of \$130,000. A recasting of the projection of sources brought the total to \$755,000 so that if the cash balance were reduced to \$73,000 sources and uses would be equal.

On the face of the matter, it appeared that Mr. Handy had a feasible financial program. Yet he queried whether his financial plans made adequate allowance for unexpected needs and unforeseen problems.

#### I The Projected Cash Flow Method of Forecasting Fund Requirements.

The most basic and comprehensive method of predicting the amount and the timing of future cash needs is through preparation of a cash flow forecast. Essentially, the cash flow forecast, or "cash budget", is a tabulation of the plans of the firm in terms of their impact on the receipts and expenditures of cash in future periods. The basic theory of the cash flow forecast is simple -- it seeks merely to predict when and

in what quantity receipts of cash will come into the firm and when and in what quantity payments of cash will be made.

In the cash forecast, all anticipated receipts of cash are included, regardless of whether or not they represent income in the accounting sense. Thus, included along with collection of cash from sales and receivables arising out of sales are cash receipts from such sources as sale of securities or sale of fixed assets. Similarly, the tabulation of payments should include, along with routine payments of accounts payable, wages, salaries, rents, etc., any planned payments of taxes, dividends, loan repayments, or outlays for equipment or buildings. It should not include expense items which do not represent outlays of cash, such as the allowance for depreciation and the allowance for bad debts.

The forecaster for a new firm is interested in revealing not only the total outflow and inflow over an extended period, such as a year, but also the timing of the cash flows within this period. In most cash forecasts, receipts and payments are broken down by months but if uneven inflow and outgo are anticipated within the monthly intervals, it may be necessary to break the forecast down into weekly or even daily periods in order to expose maximum needs.

As in the case of the projected balance sheet method, the results of cash flow forecasts will prove only as accurate and as reliable as the underlying planning on which the forecast is based. And as we have seen, virtually all of the significant activities of the firm affect its need for funds. Thus, for complete effectiveness in his work, the forecaster of cash flows needs comprehensive and accurate data on what the operations of the firm will likely be.

In this discussion of cash flow forecasting, we will assume that basic plans for the operation of the business have been developed and that the persons constructing the cash flow forecast will have the benefit of such basic planning materials as the forecasts of anticipated sales broken down into sales for cash and sales on normal credit terms and if important volume of sales on special credit terms are anticipated, a separate breakdown of sales on special credit terms.

From the sales forecast, a schedule of collection of receivables can be prepared. In this schedule, the collections are lagged behind the credit sales by use of appropriate assumptions as to the average time receivables will be outstanding. A next step involves the projection of other receipts, for example, from planned sale of common shares or from anticipated bank loans.

With these data, a schedule of anticipated cash receipts can be prepared which pulls together the projected receipts from cash sales, from collection of receivables and from the other anticipated sources.

In forecasting planned payments, total anticipated outlays are built up from a series of sub-schedules. A first schedule, particularly important in the case of the enterprise just getting started, tabulates the costs of facilities--plant, equipment, spare parts, and any other facilities required. This schedule of facilities requirements then must be converted into a schedule of payments for facilities, by lagging the planned payments behind purchase dates according to the credit terms of purchase of the facilities.

Among the important schedules that follow from the planned production schedules is a schedule of planned purchases of raw materials and other production materials. This schedule of planned purchases in turn must be converted into a schedule of payments for planned purchases by timing payments according to the terms of purchase the firm expects to enjoy.

From the production schedule also is derived a schedule of manpower requirements. This must be translated into projections of wage expense and in turn into a schedule of wage payments. Similarly, other manufacturing expenses must be converted into a schedule of payment for other manufacturing expense.

In a similar fashion, a schedule of payments for general administrative expenses can be made along with an additional schedule of "other payments", which lists any other expected outlays not included in the other payment schedules.

The totals for each of the time periods in question for each of the schedules of receipts and expenditures are brought together in a summary schedule of projected receipts and payments. The totals for payments plus the desired bank balance less anticipated receipts represents the net cash need forecasted for the period. Normally, a cumulative figure for net excess or shortage of cash is carried forward from month-to-month, so that the net need can be determined as of the end of any forecasted periods.

Compared with the projected balance sheet method, the forecasted cash flow approach has some advantages in simplicity of concept and apparent ease of preparation. Actually, in each case much underlying planning is necessary before meaningful financial forecasts can be pulled

together. If common planning assumptions are used in the two approaches, the two should produce identical results. Thus, if we were to prepare a cash forecast for Progressive Plastics covering the period until it begins operation and the twelve months thereafter, the cumulative figure for cash from the cash forecast should equal the \$73,000 balance shown on the projected balance sheet for the date one year after beginning operations. In a real sense, each approach supplements the other and a good set of financial forecasts should include both cash forecasts detailed by monthly periods and projected balance sheets as of month-end for the similar span of time.

#### IV Some Common Problems in Forecasting Needs; Approaches to Their Solution.

Case studies of the results of new industrial ventures have pointed up widespread weaknesses, often serious ones, in the financial planning associated with these projects. In this section we will identify some of the most common problems in the forecasting of financial needs, and where possible, suggest approaches by which these problems may be eased or overcome.

##### A. Inadequate Emphasis on the Process of Planning by Management.

In a great many areas of the world, there is a distinct shortage of highly-trained, professional managers skilled in techniques of business planning. More often the potential managers of new industrial enterprises are men with an orientation toward action rather than toward analysis and planning. Their experience has included little exposure to business planning techniques and they have been accustomed to operating in a manner described as "flying by the seat of your pants". Once they see what they judge an attractive opportunity, they're eager to get started expecting to improvise and adapt as necessary to make the enterprise succeed. As we suggested at the outset of this paper, planning, particularly with reference to the projection of needs for financing and the mustering of sources of funds, has very real advantages. Work on planning can be extremely productive, not just a matter of meeting bureaucratic requirements of a development financing agency. In the long run, education in business management, a training which will doubtless include emphasis on planning techniques, will instill an appreciation of the usefulness of formalized planning. In the near term, however, it seems widely necessary that the development financing agency undertake a continuing missionary effort to promote a greater managerial interest in planning and planning techniques. At the same time it can insist on the preparation by management of meaningful, forward plans as a prerequisite to its financial support. The broad

educational effort and the rigorous requirement should go hand-in-hand since the quality of the planning effort will be much greater if management is sold on the importance of the value of the effort to them, as well as to the financing agency.

B. Limitations on the Capacity to Plan Future Operations.

Even where management is impressed with the desirability of careful planning, lack of skill due to inexperience may limit its capacity to plan effectively. As suggested earlier, even a trained manager may be experienced primarily in marketing, production, or general administration and had little exposure to operational planning. We have emphasized over and over again the point that financial planning is simply an adjunct or a follow-on aspect of overall planning for the enterprise. Thus, a great many of the financial requirements will relate directly to the volume of sales achieved. Yet management may have had little or no training in market research or other techniques useful in projecting realistic estimates of attainable sales volume. Where the need for the project is great or where management has other skills that are impressive, the development financing agency should be willing and able to lend active assistance in the development of the forecasts and in the total planning function. Technical assistance of this nature may prove to be a more valuable contribution to the success of the project than the money provided by the agency. Many development financing agencies do not appear well staffed to actively provide this assistance at present. It seems to us highly desirable indeed, essential, that they equip themselves to render management a high quality assistance in this area.

In other situations, inherent uncertainties in the environment may effectively limit the capacity to plan operations. In many instances, for example, the action of the federal government relative to tariffs or other import restrictions may be of great importance to the forecasting of sales by a new domestic enterprise, yet changes in these government policies and attitudes may be extremely difficult to anticipate. Under such circumstances, accurate planning is impossible. It is very important to recognize the degree of uncertainty behind forecasts, since blind reliance on inherently tenuous assumptions may lead to results worse than if no planning at all had been attempted.

One useful approach in situations where inherent uncertainties are great utilizes multiple projections based on different assumptions about the more important variables influencing future conditions. These can lead to tabulations of minimum and maximum requirements, as well



as to an estimate of most probable requirements. Even if plans are based on the most probable rather than the maximum requirements, management and all concerned are alerted to the possibility that needs might well be at the maximum rather than the most probable level.

C. Failure of Projections to Reflect the Distinct Circumstances of the Particular Project.

As we have indicated at an earlier point, the financial projections must reflect the circumstances, the environment, and the plans and expectations of the management of the particular venture. The use of standard ratios drawn from experience of other firms under different conditions and under particular operating policies can be dangerously misleading. Thus, a U.S. manufacturing firm undertook the establishment of a new plant in the Far East. Drawing ratios from its domestic experience, the total requirements for plant and equipment and working capital were projected at \$2 million. A variety of distinctive local conditions, including the expectations of customers for long-extended credit, caused actual needs to amount to between two and three times the original projections.

Somewhat similar hazards obtain when the job of preparing the financial forecasts is turned over by management to outside accountants. Even if the outside accountants are skilled in the mechanics of forecasting, they often have proved reluctant to question management closely and thoroughly regarding their particular plans for the future. Consequently, the forecasts have been mechanically perfect yet have failed to represent what management actually planned to do and hence proved sterile and misleading. Certainly it is permissible, perhaps desirable, for people skilled in accounting to actually prepare the detailed forecasts, but in such circumstances top management participation in and detailed acceptance of the implicit operating plans built into the forecast is essential. Often, it is useful for development financing officials examining projections submitted to them, to review the forecasts with the top management of the new enterprise to verify the relations of the projections to the actual operating plans and expectations of top management.

D. Widespread Tendency Toward Underestimate of Financial Needs.

As noted earlier, underestimate of actual requirements is much more common than is overestimate of financial needs. Perhaps this stems from the natural optimism that one would expect in men willing to undertake the challenge of a new enterprise. While a certain amount of this optimism is perhaps an essential ingredient for entrepreneurship, it becomes a weakness of financial planning unless it is tempered with

realism. As we have indicated earlier, higher than expected fixed plant and equipment expenditures, tardiness in starting up operations, slippages in production schedules once operations are underway, higher than anticipated costs, and problems in achieving targeted sales levels and collection schedules are extremely common. Failure to allow an adequate margin of error for unexpected, as well as predictable difficulties, is unfortunately common.

Case studies indicate also a widespread tendency toward underestimate of the total burden of financing working capital. Often the management experience has been in the technical end of the business and the needs related to plant and equipment can be visualized and easily accepted. The need for inventories, accounts receivables and cash reserves, however, is less obvious than the requirements for physical facilities and commonly receives inadequate emphasis. Often this underemphasis takes the form of blithe assumptions that the working capital needs can be matched by trade credit and bank loans when, in fact, these sources will be grossly inadequate to match total gross working capital needs. The solution to this problem seems to lie simply in orderly and thoughtful forecasting of working capital needs and related sources. Once this process is accomplished, the net needs should be evident.

E. Widespread Tendency Toward Underestimate of the Financial Needs Related to Expanding Volume -- The Pressures of Prosperity.

Many firms have succeeded in financing the initial sales volume projected, only to encounter difficulties when the company has subsequently achieved a substantially higher volume of sales. As we have seen, the investment in receivables and inventory tends to increase roughly in relation to the growth in sales. While some offset to the net increase in gross working capital needs due to expanded volume is obtained from the boost in trade credit related to increased purchase volume and from higher profits as a result of the higher volume, these commonly are inadequate to match the higher investment required in inventory and receivables. Thus, working capital stringency may be encountered at a time when the company is enjoying an unusual prosperity measured in terms of sales and profits. Known as the "prosperity squeeze on working capital", this phenomenon needs more widespread recognition and explicit reflection in financial forecasts.

F. Failure to Provide Sufficient Uncommitted Reserves of Financial Strength.

In a number of instances, enterprises quite promising for the long term have failed because their managers did not provide sufficient

reserves of financial strength to permit them to overcome immediate difficulties. As indicated in the discussion of the function of cash reserves, a balance must be struck between a risk of failure due to inadequate reserves and the problem of raising enough funds to get the enterprise started. Wherever possible, however, specific and substantial reserves of financial strengths should be built into the financial projections. This can be done by making highly conservative estimates of funds requirements at each point in the forecast, by maintaining substantial cash reserves, by making explicit arrangement for additional sources of funds when needed, or by a combination of two or more of the above. Speaking broadly, the size of the uncommitted reserves of financial strength should vary inversely to the flexibility of operating plans of the venture. Thus, firms operating according to a highly inflexible schedule, should plan for greater reserves of financial strength. For example, a promising venture in the construction of pre-fabricated homes in the northeast United States went into bankruptcy after less than one year of full operations. This firm had experienced management and an excellent product. Operation was to be built around assembly line production of large wall, roof, floor and partition panels with major economies anticipated from continuous large-scale production and from volume purchase. Yet it was apparent that the success of the plan depended upon continuous production at a high volume and that any interruption to the production or sale of homes, or to the collection of the sales receivables, would cause inventories and receivables to pile up and financial requirements to skyrocket. Actually the firm did encounter significant production and sales difficulties and problems of financing the operation quickly became acute inasmuch as little provision had been made for additional unplanned needs. The failure of this company might well have been avoided had the original planning recognized the inflexibility of operating plans and the consequent need for a flexible financing plan.

#### V Methods of Reducing Needs for Funds

In seeking to maximize the productivity of available funds, the financing agency officials should develop skill in bringing to light alternative approaches or devices of management which minimize the need for funds. It may well be that the easiest way to "raise funds" is to take measures to avoid the need for them. A formal checklist of ways of reducing net capital requirements may be useful. Where the situation suggests that particular need-cutting methods from the list might be applicable, these can be raised for consideration of the promoters of the new firm.

More as a means to stir thought which will lead to very much more comprehensive lists, we present below a number of questions

designed to expose fund-conserving possibilities. Some have been mentioned before in this paper; others are added.

1. In considering location of plant or office facilities is appropriate attention given to the availability of such infra-structure items as:
  - eating, housing, transport, educational, and recreational facilities for personnel?
  - water, sewerage facilities?
  - road, air, rail, or water transport facilities?
  - electric and steam power facilities?
2. Is leasing a satisfactory alternative to ownership for:
  - factory buildings?
  - office facilities?
  - warehouse facilities?
3. What are the possibilities for subcontracting operations requiring very expensive or infrequently used equipment?
  - operations at peak load periods.
  - operations which require unusual skills?
4. What possibilities exist for increasing usage of expensive equipment or facilities by multiple-shift operation?
5. Have the possibilities been investigated for joint-ownership and use with other firms of high-cost facilities such as computer centers?
6. Are the opportunities for using used machinery effectively being exploited?
7. Have the possibilities of use of air freight been taken into account in minimizing spare parts inventories?
8. Have considerations of credit availability been weighed appropriately in selecting equipment sources?
9. Are the plans for equipment thoroughly suitable to local circumstances such as the costs of labor, maintenance skills, etc.?
10. In the design of products, is maximum use made of standard components or materials and of domestic materials available from suppliers' shelves on short notice?
11. Are vigorous methods used to keep stocks of various items in balance, recognizing that the utility of inventories may be

limited to the level of the lowest vital item?

12. Are the routines of receipt, stock record keeping, and issue thoroughly methodical and fully disciplined?

13. Are the shortest procurement lead time assumptions and leanest stock levels being employed consistent with reasonable safety?

14. Are the procurement offices and production scheduling offices working closely together so that changes in production schedules are quickly reflected in material orders?

15. Are routines established to get production orders set aside in the plant back into the productive process and the goods into saleable condition?

16. Is vigorous action taken to dispose of obsolete, surplus or otherwise unfit materials or components?

17. Are constant efforts made to shorten production cycles? Do existing methods insure full recognition of all costs and risks of inventory in the decisions as to length of production runs?

18. Have full efforts been devoted to development of multiple sources to replace sole-source suppliers?

19. Can special price cuts be used more quickly on slow moving finished goods?

20. Are maximum efforts being made to flatten out seasonal sales patterns that bulk up inventories?

21. Are the devices to show movement of goods from retailers' shelves being used to provide timely warning of changes in sales at retail level?

22. As new items are added to company's line of products, are there organized, continuing efforts made to delete items so as to prevent needless proliferation of inventory items?

23. Has the feasibility of air shipment to customers been analyzed recently as a substitute for decentralized stocks of high-value, slow moving inventory items?

24. Will competitive conditions permit insistence upon deposits or advance payments against customer orders? This is most likely to be a possibility in the case of orders for special products taking a long time to produce.
25. Would use of prompt payment discounts materially reduce level of outstanding receivables?
26. Are procedures for swift investigation of customer complaints and expeditious resolution of disputes with customers in effect?
27. Are office routines geared to prompt invoicing of shipments?
28. Is the follow-up on overdue accounts vigorous and continuing?
29. Are the receivable accounts reviewed periodically to expose chronic "slow-pay" customers who could be put on cash terms?
30. Have all possibilities for getting customers' checks into the bank rapidly (use of banks as collection points, etc.) been investigated?

Exhibit I

Progressive Plastics, Incorporated

Projected Balance Sheets

As of end of first year of operation

(Dollar figures in thousands)

	<u>Initial Projection</u>	<u>Revised Projection</u>
Cash	75	73
Inventory:		
Raw materials	60	60
In-process	12	12
Finished goods	113	75
Accounts receivables	267	267
Plant and equipment	263	263
Miscellaneous assets	5	5
	<u>795</u>	<u>755</u>
Bank loan	-	200
Accounts payable to suppliers	70	130
Accrued expenses	25	25
Notes payable-equipment supplier	100	100
Paid in capital	300	300
Earned surplus	-0-	-0-
	<u>495</u>	<u>755</u>
Shortfall	300	

Footnotes

1. The experience of the author has been largely in countries where industry is not government owned and operated. While the frame of reference employed in the paper is that of a capitalistic or private enterprise economy, the author believes that many of the basic points will be relevant to new industrial ventures in any country.

2. Those especially interested may find the following finance textbooks of value:

Hunt, P., Williams, C.M., and Donaldson, G., Basic Business Finance, Richard D. Irwin, Inc., Homewood, Illinois, 1961, Chapters 3 through 9.

Kent, Raymond P., Corporate Financial Management Richard D. Irwin, Inc., Homewood, Illinois, 1960, Chapters 5 through 13.

Magee, John F., "Guides to Inventory Policy", Harvard Business Review, Vol. XXXIV, No. 1 (January-February, 1956, pp. 49-60)

Lindsay, R. and Sametz, A.W., Financial Management: An Analytic Approach, Richard D. Irwin, Inc., Homewood, Illinois, 1963, Chapters 5,6,7,16 and 17.

Johnson, Robert W., Financial Management, Allyn and Bacon, Inc., Boston, Massachusetts, Chapter 4.

3. For a very vigorous presentation of the view that capital may well be more abundant than viable projects in many developing countries see: Schatz, Sayre, P., "The Capital Shortage Illusion: Government Lending in Nigeria", Oxford Economic Papers, Volume 17, No. 2, July, 1965.

4. Figures are from "Quarterly Financial Report for Manufacturing Corporations", First Quarter, 1965, Federal Trade Commission-Securities and Exchange Commission, U.S. Government Printing Office, Washington, D.C., 20402.

5. As an illustration of available material dealing with inventory problems at a sophisticated level see: Magee, John F., Production Planning and Inventory Control, McGraw-Hill, Inc., New York, New York, 1958.

6. "Quarterly Financial Report", op. cit., p. 15.

ed  
ction

73

60  
12  
75

267

263  
5

755

200  
130

25  
100

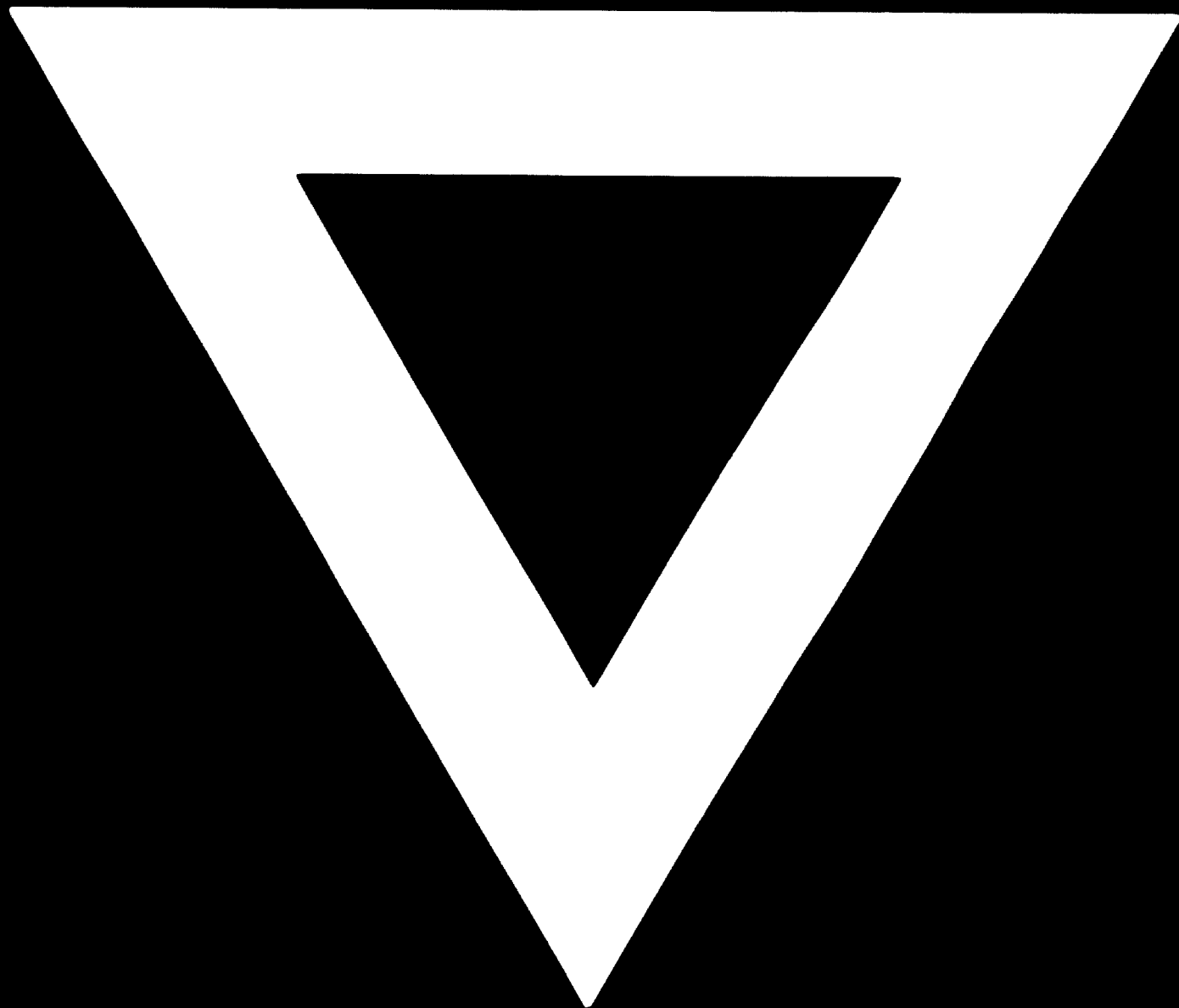
300  
-0-

755





**C-677**



**78.11.15**