FEASIBILITY STUDY OF A COOPERATIVE
IN OUZA'I AREA

A Research Topic

Presented to Business Division

Beirut University College

In Partial Fulfillment

of the Requirements for the Degree

Master of Science in Business

Management

By

Abdo M. Musawi

May, 1988

BEIRUT UNIVERSITY COLLEGE

P.O.BOX 98 13-5053

BEIRUT, LEBANON

APPROVAL OF RESEARCH TOPIC

CANDIDATE ___Abdo M. Musawi___ DATE ___May, 1988___

DEGREE ___M.S. In Business Management___ Advisor ___Dr. Youssef Shibl___

TITLE OF RESEARCH TOPIC ___Feasibility Study of a Cooperative in___

___Ouza'i Area___

The following professor nominated to serve as the advisor of the above candidate has approved his research work.

ADVISOR   ___Dr. Youssef Shibl___
                            NAME

                            SIGNATURE

Table of Contents

List of Tables

Chapter I

Introduction

A. Purpose of Study

This study is concerned with the economic feasibility of the Ouza'i Cooperative S.A.L. Project whose importance originates from the fact that one of its goals is profitability. Moreover, this feasibility study concentrates on the usefulness of investing large amounts of money in such a project.

B. Location of Project

The Cooperative is located on the main road to the south, in the Ouza'i area, and on the site of Haroun Al-Rachid Restaurant.

C. Description of Project

It consists of three floors and a parking.

1- Basement: The area is $1300m^2$ divided into the following:

   a. Warehouses for storage, packing and refrigeration with an area of $755m^2$.

   b. Showroom: the area is $545m^2$ and consists of:

   (i) Dairies (ii) Butchery
   (iii) Stores.

2- Ground floor: the area is $1130m^2$ and consists
of one room for selling food, home and electric-
al appliances.

3- First floor: the area is $1130m^2$ and consists
of:

    a. Department of furniture

    b. Offices of the Cooperative Management

4- Parking: the area is $4500m^2$.

(See Appendix)

D. Cooperative Goals

The Cooperative aim, as it is stated in its by-laws is
improving its members' economic and social situation by the
following:

1- Packing of agricultural and animal
products and marketing them by retail
and wholesale means.

2- Securing all kinds of products to its
customers.

3- Securing all kind of products to its
members.

4- Setting factories and shops for production
in different areas.

E. Methodology

In studying the feasibility of the Project, we will
refer to information about costs from people in charge of the

Project.   Moreover, we will depend on a questionnaire that is distributed to probable customers for the Project to study its demand.

The profitability of the Project will be determined by using:

- The Net Present Value Criterion (NPV)
- The Internal Rate of Return Criterion (IRR).

Chapter II

Investment Criteria for Evaluating the Project

The most common used criteria for evaluating projects are:

- A. Net Present Value
- B. Internal Rate of Return
- C. Average Rate of Return
- D. Pay Back Period

A. Net Present Value

"Net Present Value" is defined as the difference between discounted revenues and discounted costs of a certain project. The rate of discount applied represents the cost of capital to the owners of the project and the period of discounting extends until the terminal year of the project. A salvage value, if it exists, iscredited at the last year. The project is considered economically viable if the NPV is greater than zero. The NPV can be computed as follows:

$$NPV = -Co + \frac{R_1 - C_1}{(1+r)^1} + \frac{R_2 - C_2}{(1+r)^2} + \ldots + \frac{R_n - C_n + S_n}{(1+r)^n}$$

Where:

Co = Immediate Capital Cost of the Project

$C_1 .. C_n$ = Capital Cost and operating cost incurred in cash respective year.

$R_1 .. R_n$ = Expected Revenue Stream of the Project

r = Rate of Discount used which is equivalent to the cost

of capital to the owners.

n = Life Span of the Project

S_n = Salvage value of the investment at year n.

According to this formula, NPV varies directly with the revenue stream and inversely with the cost stream of the project and the rate of discount applied. Thus assuming other variables to remain constant. The higher the revenues are the higher NPV is; the higher costs and rate of discount are the lower NPV is.

The rate of discount in the equation should represent the cost of capital to the business firm which is the weighted average of the cost of debt and the cost of equity to the business firm undertaking the project.[1]

B. Internal Rate of Return

The Internal Rate of Return is defined as the discount rate which reduces the difference between discounted revenues and discounted costs to zero. Alternatively, it is that rate of discount which equates the net revenue stream with total capital invested in the project.

The Project is economically viable if the Internal Rate of Return is greater than the cost of capital to the busine

---

[1] Crash Training Program - Document 1. Economic Aspects of Project Evaluation. Dar Al Handasah Consultants Shair & Partners, Beirut pp. 11-13.

undertaking the project. The cost stream includes capital and operating cost. A salvage value if it exists, is credited at the last year.

$$0 = -C_0 + \frac{R_1 - C_1}{(1+P)^1} + \frac{R_2 - C_2}{(1+P)^2} + \ldots + \frac{R_n - C_n + S_n}{(1+P)^n}$$

Where:

C_0 : Immediate Capital Cost of the Project

$C_1 .. C_n$: Cost Stream of the Project

$R_1 .. R_n$: Revenue Stream

P : Internal Rate of Return

n : Life Span of the Project

S_n : Salvage value of the Investment at Year n

The Internal Rate of Return is usually computed by trial and error. Several discount rates are applied until we discover that rate which equates the cost stream with the revenues stream.[2]

C. Average Rate of Return

This accounting measure represents the ratio of the average annual profits after taxes to the average investment in the project. Once the Average Rate of Return for a proposal has been calculated, it may be compared with a required rate

---

[2] Ibid. pp. 18 & 19.

of return to determine if a particular proposal should be accepted or rejected.

The principal virtue of the Avarage Rate of Return is its simplicity; it makes use of readily available accounting information.

The principal shortcomings of the method are that it is based upon accounting income than upon cash flows and that it fails to take account of the timing of cash inflows and outflows. The time value of money is ignored; revenues in the last year are valued the same as revenues in the first year.[3]

D. Pay Back Period

The Pay Back Period of an investment project gives the number of years required to recover initial cash investment. If the calculated Pay Back Period is less than some maximum acceptable Pay Back Period, the proposal is accepted; if not it is rejected.

The major shortcoming of the Pay Back Period is that it fails to consider cashflow after the Pay Back Period; consequently it cannot be regarded as a reliable measure of profitability. Thus the Pay Back criterion can be deceptive as a yardstick

---

[3] James C. Van Horne, Financial Management and Policy.
Sixth edition, p. 108.

of profitability. In addition to this shortcoming, this criterion does not take into account the magnitude or timing of cashflows during the Pay Back Period but it considers only the recovery period as a whole.

The Pay Back Period continues to be used, frequently as a supplement to other more sophisticated criteria. It does afford management a limited insight into the risk and liquidity of the project. The shorter the Pay Back Period; supposedly, the less risky the project is and the greater its liquidity is. There is some merit to itsuse in this regard, but the criterion does not take into account the dispersion of possible outcomes. Therefore, it cannot be considered an adequate indicator of risk. When the Pay Back Period criterion is used, it is more appropriately treated as a constraint to be satisfied than a profitability measure to be maximized.[4]

Therefore our study will be based on the Net Present Value criterion and the Internal Rate Criterion because they take into account a basic element which is the time value of money and therefore are based on the discounting principle.

_____

[4] _Ibid_. pp. 109 & 110

Chapter III

Demand Analysis and Forecasting

A. The Questionnaire

To determine the demand for the Cooperative's commodities and services, it was necessary to design a questionnaire and distribute it to a sample of probable customers of the Project.

The study includes the areas of Ouza'i, Bir Hassan and Jnah whose respective population are 50,000 and 75,000 according to last statistics done by one of the local sources in January 1988.[5] It was supposed that this region determines the demand for the Cooperative because it is the nearest to this region from any other one outside.

The Questionnaire was distributed and collected during January 1988 in all areas of the region, so it can give true information to help maintaining best results.

The person who was asked to answer the questionnaire was that who buys all or the majority of commodities to his family namely, the father, the mother, the brother or the sister; that is the one who knows the best about the family expenditures which helps this study.

---

[5] Data provided by charitable organization which distribute aid to the areas.

The sample was determined to be 200 families living in the areas of Ouza'i, Bir Hassan and Jnah so that we can project the results on all families in these areas. Also, it was divided into 80 questionnaire for Ouza'i and 120 for Bir Hassan and Jnah, as the percentage of people living in these areas assuming that we have the same average of family size in these areas. Moreover, the importance of differentiating between Ouza'i on one side, Bir Hassan and Jnah on the other is that the last two are relatively far from the Cooperative.

B. Contents of the Questionnaire

The questionnaire consists of two pages containing eight questions so that the reader has to put a (✓) behind the suitable answer to make it easy for him and be sure that he is not giving irrelevant information.

C. Text of the Questionnaire

Please answer the following questions by putting a (✓) in the suitable place in order to make an economical study concerning a cooperative in the Ouza'i area offering all kinds of food, detergents, utensils and furniture.

1- Living place: Ouza'i   Bir Hassan & Jnah

2- Family size: 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, other (specify)

3- Monthly family income:

    from LL 8000 to LL 10000   from LL 30001 to LL 32000

    from LL 10001 to LL12000   from LL 32001 to LL 34000

from LL 12001 to LL 14000   from LL 34001 to LL 36000

from LL 14001 to LL 16000   from LL 36001 to LL 38000

from LL 16001 to LL 18000   from LL 38001 to LL 40000

from LL 18001 to LL 20000   from LL 40001 to LL 42000

from LL 20001 to LL 22000   from LL 42001 to LL 44000

from LL 22001 to LL 24000   from LL 44001 to LL 46000

from LL 24001 to LL 26000   from LL 46001 to LL 48000

from LL 26001 to LL 28000   from LL 48001 to LL 50000

from LL 28001 to LL 30000   more than LL 50000 - specify -

4- Amount spent monthly on all kinds of food, detergents and utensils:

from LL 4000 to LL 6000   from LL 28001 to LL 30000

from LL 6001 to LL 8000   from LL 30001 to LL 32000

from LL 8001 to LL 10000   from LL 32001 to LL 34000

from LL10001 to LL 12000   from LL 34001 to LL 36000

from LL12001 to LL 14000   from LL 36001 to LL 38000

from LL14001 to LL 16000   from LL 38001 to LL 40000

from LL16001 to LL 18000   from LL 40001 to LL 42000

from LL18001 to LL 20000   from LL 42001 to LL 44000

from LL20001 to LL 22000   from LL 44001 to LL 46000

from LL 22001 to LL 24000 from LL 46001 to LL 48000

from LL 240001 to LL 26000 from LL 48001 to LL 50000

from LL 26001 to LL 28000 more than LL 50000 - specify -

5- From where does the family buy food, detergents and utensils?

	All Products	Majority of Products	Half of Products	Some Products
1. **Cooperatives**				
2. **Supermarkets**				
a- In Ouza'i, Bir Hassan & Jnah areas				
b- Outside Ouza'i, Bir Hassan & Jnah areas.				
3. **Small shops**				
a- In Ouza'i, Bir Hassan & Jnah areas				
b- Outside Ouza'i Bir Hassan & Jnah areas				

6- Is the family ready to buy from this Cooperative if it offers a discount of 10% than that of supermarkets and small shops?

7- What is the amount you expect the family will spend monthly on buying food, detergents and utensils from this Cooperative?

Nil

from 0 to LL 2000   from LL 26001 to LL 28000

from LL 2001 to LL 4000   from LL 28001 to LL 30000

from LL 4001 to LL 6000   from LL 30001 to LL 32000

from LL6001 to LL 8000   from LL 32001 to LL 34000

from LL 8001 to LL 10000   from LL 34001 to LL 36000

from LL 10001 to LL 12000   from LL 38001 to LL 40000

from LL 12001 to LL 14000   from LL 38001 to LL 40000

from LL 14001 to LL 16000   from LL 40001 to LL 42000

from LL 16001 to LL 18000   from LL 42001 to LL 44000

from LL 18001 to LL 20000   from LL 44001 to LL 46000

from LL 20001 to LL 22000   from LL 48001 to LL 50000

from LL 24001 to LL 26000   more than LL 50000 - specify -

8- What is the amount you expect the family will spend
    annually on buying electrical appliances and furniture
    from this Cooperative?

Nil   from LL 150001 to LL 175000

from LL 1 to LL 25000   from LL 175001 to LL 200000

from LL 25001 to LL 50000   from LL 200000 to LL 225000

from LL 50001 to LL 75000   from LL 225000 to LL 250000

from LL 75001 to LL 100000   from LL 250001 to LL 275000

from LL 100001 to LL 125000   from LL 275000 to LL 300000

from LL 125001 to LL 150000   more than LL 300000 - specify -

D. The Purpose of Each Question

No doubt that each question is important in analysing and
determining the demand for the commodities displayed in the Co-
operative.

The first question tries to determine the influence of
place of living on the demand for the proposed Cooperative. The

areas of Bir Hassan and Jnah are a bit far from this Cooperative which is found in the middle of Ouza'i area. Moreover, the distance between these areas and the cooperatives of Haret Hreik, Bir Alabd, Sabra, Bourj Abou Haydar, Verdun and Hamra areas is shorter than that between Ouza'i and these cooperatives.

The purpose of the second question is to determine the influence of the family size on spending for there is a positive relationship between both. As the family size increases spending increases and vice versa, but not by the same proportion. Also, by dividing the population of Ouza'i area on the average size of families living in this area, we can determine the number of families. The same applies for Bir Hassan and Jnah areas.

The purpose of the third question is to reveal the influence of income on spending, i.e. income elasticity of demand. According to Engel law when income rises, expenditure on food rises but with lower proportion.

The fourth question traces the influence of both family income and size on spending on food, detergents and utensils.

The fifth question aims to check the relative importance of cooperatives with respect to the families living in Ouza'i, Bir Hassan and Jnah areas.

The sixth question aims to reveal how much people are ready to buy from the Cooperative definitely because they may be interested in such a project, but not able to buy from it for many reasons, among which is the long distance which separates

16.

them from the Cooperative.

The seventh question will help to estimate the demand for
food, detergents and utensils from the Cooperative as well as
the economic feasibility of the Project.

The eighth question aims to determine demand on elect-
rical appliances and furniture from the Cooperative as well as
the feasibility of the Project.

E. Findings of the Questionnaire

Concerning Family Size

We can distribute the sample according to family size as shown in Table 3.1.

Table 3.1

Sample Distribution

According to Family Size

Number of persons	Number of Families	Percent	Accumulated Percent
2	10	5	5
3	36	18	23
4	37	18.5	41.5
5	37	18.5	60
6	18	9	69
7	14	7	76
8	10	5	81
9	16	8	89
10	11	5.5	94.5
11	5	2.5	97
12	6	3	100
13	0	0	100
14	0	0	100
More than 14	0	0	100
Total	200	100	

The average family size in Ouza'i came to be about 5.7, and

that in Bir Hassan and Jnah came to be about 5.6, whereas the
general average was about 5.64. Families of 3,4 or 5 persons
constitute about 55% of all families.

We can calculate the number of families by dividing the
population on the average family size as follows:

Number of families living in Ouza'i area: $\dfrac{50,000}{5.7} = 8,777$
families.

Number of families living in Bir Hassan and Jnah

$$\text{areas :} \qquad \dfrac{75,000}{5.6} = 13,393$$

families.

Concerning Monthly Income

We can distribute the sample according to monthly income as shown in Table 3.2

Table 3.2

Sample Distribution

According to Monthly Income

Interval	Median	Number of Families	Percent	Accumulated percent
8000-10000	9,000	0	0	0
10001-12000	11,000	1	0.5	0.5
12001-14000	13,000	6	3	3.5
14001-16000	15,000	17	8.5	12
16001-18000	17,000	10	5	17
18001-10000	19,000	17	8.5	25.5
20001-22000	21,000	18	9	34.5
22001-24000	23,000	13	6.5	41
24001-26000	25,000	16	8	49
26001-28000	27,000	6	3	52
28001-30000	29,000	24	12	64
30001-32000	31,000	5	2.5	66.5
32001-34000	33,000	7	3.5	70
34001-36000	35,000	5	2.5	72.5
36001-38000	37,000	4	2	74.5
38001-40000	39,000	5	2.5	77
40001-42000	41,000	8	4	81
42001-44000	43,000	3	1.5	82.5
44001-46000	45,000	7	3.5	86
46001-48000	47,000	5	2.5	88.5
48001-50000	49,000	7	3.5	92
	60,000	3	1.5	93.5

70,000	3	1.5	95
80,000	2	1	96
85,000	1	0.5	96.5
90,000	1	0.5	97
100,000	5	2.5	99.5
150,000	1	0.5	100
Total	200	100	

It was meant by income all what the family earns as salaries, wages, rent or interest. However it was difficult to determine the income of those who work for their own as in commerce, because it differs from one month to another, but we were able to get an approximate figure for their average monthly income. Families with an income of no more than LL50,000 per month constitute around 92% of the whole sample.

The average income in Ouza'i came to be LL32,412 where in Bir Hassan and Jnah was LL 31,725, at the same time the general average was LL 32,005. Thisgeneral average came to be more than three times the minimum level of wages.

On the other hand, the Standard Deviation indicated a large dispersion of LL 19,706 from the general average of the sample.

Concerning Monthly Spending on Food, Detergents and Utensils

We can distribute the sample according to monthly spending on food, detergents and utensils as shown in Table 3.3

Table 3.3

Distribution According to Monthly
Spending on food, Detergents and Utensils

Interval	Median	Number of Families	Percent	Accumulated Percent
4000-6000	5000	0	0	0
6001-8000	7000	0	0	0
8001-10000	9000	27	13.5	13.5
10001-12000	11000	15	7.5	21
12001-14000	13000	18	9	30
14001-16000	15000	27	13.5	43.5
16001-18000	17000	17	8.5	52
18001-20000	19000	25	12.5	64.5
20001-22000	21000	10	5	69.5
22001-24000	23000	6	3	72.5
24001-26000	25000	8	4	76.5
26001-28000	27000	4	2	78.5
28001-30000	29000	10	5	83.5
30001-32000	31000	8	4	87.5
32001-34000	33000	0	0	87.5
34001-36000	35000	2	1	88.5
36001-38000	37000	3	1.5	90
38001-40000	35000	7	3.5	93.5
40001-42000	41000	4	2	95.5
42001-44000	43000	0	0	95.5
44001-46000	45000	1	0.5	96
46001-48000	47000	0	0	96
48001-50000	49000	4	2	98
	60000	2	1	99
	70000	1	0.5	99.5
	80000	1	0.5	100
Total		200	100	

It was difficult within this study to subdivide the monthly spending among the three categories of commodities: food, detergents and utensils.

The average monthly spending on food, detergents and utensils for Ouza'i, Bir Hassan and Jnah were LL 19,500 and LL 21,450 respectively and the general average was LL 20,670. The percentage of families spending within the interval LL 8,000 - LL 32,000 represents 87.5% from the sample.

The Standard Deviation indicated a large dispersion of LL 11,705 from the general average of the sample.

Concerning Sources of Getting Food, Detergents and Utensils

The person who read this question had to answer one of the following alternatives:

- Buying all these goods from one source.
- Buying the most of these goods from one source and some from another source (s).
- Buying half of these goods from a source and the other half from another one.
- Buying some of these goods from more than three sources.

For the reason that the ratios of reliance of Ouza'i families on sources of getting food, detergents and utensils differ obviously from the same ratios of Bir Hassan and Jnah families, it was more useful to distinguish between these families to get more analysis.

We can divide the sample of Ouza'i according to the different sources used to get food, detergents and utensils in Table 3.4 below.

Table 3.4

Quza'i Sample Distribution According to
Sources of Food, Detergents and Utensils

Source	All Products	Majority of Products	Half of Products	Some Products
Cooperatives	3	21	4	11
Supermarkets				
- In Ouza'i, Bir Hassan and Jnah Region	9	10	13	7
- Outside Ouza'i, Bir Hassan & Jnah Region	0	0	2	0
Shops				
- In Ouza'i, Bir Hassan & Jnah Region	10	12	8	31
- Outside Ouza'i, Bir Hassan & Jnah Region	0	0	0	1

This Table reveals that:

- The number of families buying food, detergents and utensils from one source is 22 out of 80 (i.e. 27.5%), which means that 72.5% from this sample depends on more than one source to buy these goods.

- There is a dependence on buying from the region whether shops or supermarkets and buying from cooperatives. Buy-

ing from supermarkets or shops outside the region

rarely happens, and in case it happens this is due

to lower prices and proximity to one's work.

Also we can divide the sample of Bir Hassan and Jnah according

to the different sources used to get food, detergents and

utensils as snown in Table 3.5

Table 3.5

Bir Hassan and Jnah Sample Distribution
According to Sources of Food, Detergents
And Utensils

Source	All Products	Majority of Products	Half of Products	Some Products
Cooperatives	13	41	14	18
Supermarkets				
- In Ouza'i, Bir Hassan and Jnah Region	0	2	2	23
- Outside Ouza'i, Bir Hassan and Jnah Region	1	2	1	5
Shops				
- In Ouza'i, Bir Hassan and Jnah Region	11	22	18	41
- Outside Ouza'i, Bir Hassan and Jnah Region	2	1	0	11

This Table reveals that:

- The number of families buying food, detergents and

  utensils from one source is 27 out of 120 (i.e. 22.5%),

24.

which means that 77.5% from this sample depends on more than one source to buy these goods.

- There is more reliance in these two areas on buying from cooperatives with respect to families in Ouza'i. The main cause for that is the relative short distance between these two areas and the cooperatives of Beirut and its southern suburb compared to Ouza'i area.

- There is a higher relative reliance on buying from shops and supermarkets outside the region as compared to the families living in Ouza'i area.

- The reliance on buying is on small shops in the area, and it is less on supermarkets.

Table 3.6 shows the distribution of all the sample according to the sources used to get food, detergents and utensils

Table 3.6

Total Sample Distribution According to Sources of Food, Detergents and Utensils

Source	All Products	Majority of Products	Half of Products	Some Products
Cooperatives	16	62	18	29
Supermarkets				
- In Ouza'i, Bir Hassan and Jnah Region	9	12	15	30
- Outside Ouza'i, Bir Hassan & Jnah Region	1	2	3	5

Shops

- In Ouza'i, Bir
  Hassan and Jnah
  Region   21   34   26   72

- Outside Ouza'i, Bir
  Hassan and Jnah
  Region   2   1   0   12

Based on a score system of one point for total buying from a source, 0.75 point for buying majority of products from a source, 0.50 point for buying half of products from a source and 0.25 point for buying some products from a source, we can put them by order of importance as follows:

Cooperatives	39.3%
Shops inside areas	38.7%
Supermarkets inside areas	16.5%
Shops outside areas	2.9%
Supermarkets outside areas	2.6%
Total	100%

Readiness to buy from the Cooperative if it offers a discount of 10%

Answers were positive so that 80 out of 80 and 119 out of 120 for Ouza'i, Bir Hassan and Jnah respectively were ready to buy from the Cooperative. However, answering this question by "yes" or "no" demands a lot of thinking to know how much the family

is ready to exchange cost of transport and time with the savings it gets through buying from the Cooperative.

Expected Monthly Spending on Food, Detergents & Utensils from the Cooperative.

We can distribute the sample according to the expected monthly spending on buying food, detergents and utensils from the Cooperative as shown in Table 3.7

Table 3.7

Distribution According to the Expected Monthly Spending on Food, Detergents and Utensils from The Cooperative

Interval	Median	Number of Families	Percent	Accumulated Percent
	0	1	0.5	0.5
0-2000	1000	0	0	0.5
2001-4000	3000	0	0	0.5
4001-6000	5000	12	6	6.5
6001-8000	7000	10	5	11.5
8001-10000	9000	25	•12.5	24
10001-12000	11000	12	6	30
12001-14000	13000	27	13.5	43.5
14001-16000	15000	23	11.5	55
16001-18000	17000	10	5	60
18001-20000	19000	18	9	69
20001-22000	21000	7	3.5	72.5
22001-24000	23000	7	3.5	76
24001-26000	25000	9	4.5	80.5
26001-28000	27000	4	2	82.5
28001-30000	29000	9	4.5	87
30001-32000	31000	5	2.5	89.5
32001-34000	33000	1	0.5	90

34001-36000	35000	4	2	92
36001-38000	37000	4	2	94
38001-40000	39000	4	2	96
40001-42000	41000	1	0.5	96.5
42001-44000	43000	0	0	96.5
44001-46000	45000	1	0.5	97
46001-48000	47000	0	0	97
48001-50000	49000	2	1	98
	60000	2	1	99
	70000	1	0.5	99.5
	80000	1	0.5	100
Total		200	100	

- The expected average monthly buying from the Cooperative for Ouza'i, Bir Hassan and Jnah families came to be LL 17,025 and LL 19,342 respectively, whereas the general average was LL 18,415.

- The ratio of families whose expected monthly buying from the Cooperative will not exceed LL 20,000 was 69%.

- The ratio of families whose expected monthly buying from the Cooperative will not exceed LL 50,000 was 98%.

- The ratio of the expected monthly spending on food, detergents and utensils from the Cooperative to the average monthly spending on food, detergents and utensils in general was 84.4% and this shows the sure readiness of families in the areas to exchange their present sources with that of the Cooperative.

Expected Annual Spending on Electrical Appliances and Furniture from the Cooperative

We can distribute the sample according to the expected annual spending on electrical appliances and furniture from the Cooperative as snown in Table 3.8

Table 3.8

Distribution According to the Expected Annual Spending on Electrical Appliances and Furniture from the Cooperative

Interval	Median	Number of Families	Percent	Accumulated Percent
	0	23	11.5	11.5
1-25000	12500	100	50	61.5
25001-50000	37500	38	19	80.5
50001-75000	62500	13	6.5	87
75001-100000	87500	15	7.5	94.5
100001-125000	112500	2	1	95.5
125001-150000	137500	3	1.5	97
150001-175000	162500	2	1	98
175001-200000	187500	1	0.5	98.5
200001-225000	212500	0	0	98.5
225001-250000	237500	0	0	98.5
250001-275000	262500	0	0	98.5
275001-300000	287500	3	1.5	100
Total		200	100	

There was some difficulties in answering this question because it is hard to know the amount of spending on such products that are not essential as food, detergents and

utensils.   It was clear that people are not very interested

in buying these products for two main reasons:

    a- The bad economic situation

    b- Buying from other sourcesaccording to personal

       taste.

Moreover, the ratio of families that are not willing to buy

these products from the Cooperative is 11.5%.   The biggest

ratio of 50% prefer to purchase simple electrical appliances

from the Cooperative as transistors, lamps and electrical

irons.

F. Expected Demand for the Cooperative Products

    - Monthly demand for food, detergents and utensils

       Ouza'i families: 8,772x17.025=LL 149,343,300

       Bir Hassan and
        Jnah families: 13,393x19,342=LL <u>259,047,406</u>

                           Total   LL 408,390,706

       Annual demand: 408,390,706x12=LL 4,900,688,472

    - Annual demand for electrical appliances and furniture:

       Ouza'i families: 8,772x38,281=LL335,800,932

       Bir Hassan and
        Jnah families: 13,393x31,354=LL<u>419,924,122</u>

                        Total   LL755,725,054

    - Total annual demand: 4,900,688,472+755,725,054 =

      LL 5,656,413,526.

If we assume a margin error of 10%, annual sales will decline

to LL 5,090,772,173 and monthly sales will be LL 424,231,014

divided into 86.6% sales of food, detergents and utensils, and 13.4% sales of electrical appliances and furniture. However, it is impossible that at the beginning of work, the Cooperative can sell the amount mentioned above. Therefore, we will assume the sales of January, February, March and April 1989 will be LL 75,000,000, LL 150,000,000, LL 225,000,000 and LL 300,000,000 respectively, and from the beginning of May monthly sales will be LL 424,231,014

Chapter IV

Cost of the Project

The beginning of the Project was in August 1986 when the Management bought Haroun Al-Rachid Restaurant which was located in Ouza'i area on the main road. This restaurant consisted of a ground floor and a basement in addition to a piece of land. The price was LL 3,500,000 divided into LL 1,500,000 and LL 2,000,000 for the building and the land respectively. Construction of the two floorsand adding another one with a parking area began in January 1987 and is expected to end before the middle of 1988. The Cooperative will receive customers at the beginning of 1989 after it is completely equipped. Prices were quoted on December 31, 1987 when the U.S. Dollar was at LL 453 and LL 458 as "ask and "bid" prices respectively. All costs paid before and after this date will be adjusted according to December 31, 1987 prices in order to have a unified basis for the economic feasibility especially after the large depreciation of the Lebanese pound during 1987.

The cost of the Project consists of the following items:

A. Capital Cost

According to Mr. Hussein Musawi, the supervising executive engineer of the Cooperative, capital costs are:

1- Engineering studies

These were done in 1987 at a cost of LL 80,000

31

and after adjustment according to December 31, 1987
prices it will be LL 560,000.

2- Construction Cost

   a- In 1986:

   The building and the land were bought in
   August 1986 for LL 1,500,000 and LL 2,000,000
   respectively and after adjustment according
   to December 31, 1987 prices they will be
   LL 15,793,103 and LL 21,057,471.

   b- In 1987:

   The total construction cost in 1987 was
   LL 22,467,000 which included wages, machines
   lease, building material, payment to cement
   sponsor, supervision, miscellaneous expenses
   and interest for LL 450,000 accrued in a loan
   of 9,000,000 at 10% interest annually raised
   at the beginning of July 1987. After adjust-
   ment according to December 31, 1987 prices
   this amount will be LL 39,314,000.

   c- In 1988:

   It is expected that the total construction
   cost during 1988 will be LL 29,388,000 accord-
   ing to December 31, 1987 prices which includes
   interest for LL 900,000 accrued in the loan of
   LL 9,000,000.

3- Equipment Cost

Equipment that will have a total cost of about $ 1,000,000 will be bought on cash basis during the second half of 1988. This amount which includes costs of transportation and installation, depends on the offers presented to the Project Management. The financing of the equipments, during 1988 will be raised by a loan of $ 1,000,000 at about 5% interest annually from a non-commercial source. With respect to the risk of a rising dollar rate the assumption here is that revenues will rise in parallel line with the dollar rate.

Equipment cost consists of the following:

Item	Cost without Interest	Interest	Total Cost
Decoration	68,700,000	7,866,150	76,566,150
Shelves	91,600,000	10,488,200	102,088,200
Calculators & Type writers	12,400,000	1,419,800	13,819,800
Refrigerators	179,960,000	20,605,420	200,565,420
Airconditioners	45,800,000	5,244,100	51,044,100
Elevator	27,480,000	3,146,460	30,626,460
Electric Generator	32,060,000	3,670,870	35,730,870
Total	458,000,000	52,441,000	510,441,000

4- Vehicles and Furniture

Vehicles include a truck, a pick-up and a car.

According to December 31, 1987 prices, costs of
vehicles and furniture are LL 13,000,000 and
LL 2,000,000 respectively. Assuming that the
purchase of these assets will be financed by a
loan of LL 15,000,000 at 47% interest annually
at the beginning of July 1988, total cost will
be:

Item	Cost without Interest	Interest	Total Cost
Vehicles	13,000,000	3,055,000	16,055,000
Furniture	2,000,000	470,000	2,470,000

5- Training of Personnel:

This includes the training of 30 employees in
other cooperatives in Beirut knowing that their
expected salaries will be LL 1,400,000.[6]

B- Annual Operating Cost

These costs will be divided into fixed and variable
costs:

1- Annual operating fixed costs

a. Annual depreciation:

Using the "Straight Line Method" and

---

[6] Interviews with Mr. Hussein Musawi Supervising Executive engineer, on December 1987.

assuming that no salvage value will exist
at the end of the life span of the capital
assets, annual depreciation will be as
shown in Table 4.1

Table 4.1

Annual Depreciation on Capital Assets

Asset	Cost	Expected Life Span	Annual Depreciation Percentage	Annaul Deprecia- tion
Engineering studies	560,000	50	2	11,200
Construction cost	53,355,000	50	2	1,067,100
Decorations	76,566,150	8	12.5	9,570,768
Shelves	102,088,200	15	6.67	6,809,282
Calculators & Typewriters	13,819,800	8	12.5	1,727,475
Refrigerators	200,565,420	12	8.33	16,707,099
Air-condition- ers	51,044,100	10	10	5,104,410
Elevator	30,626,460	20	5	1,531,323
Electric Generator	35,730,870	10	10	3,573,087
Vehicles	16,055,000	10	10	1,605,500
Furniture	2,470,000	12	8.33	205,751
Total				LL: 47,912,995

b. Annual Amortization: Assuming training
    of personnel will be amortized during
    five years, annual amortization will be
    LL 280,000.

c. Maintenance: It covers all assets of the
    Project and is expected to be about
    LL 5,000,000.

d. Salaries: They include those of twenty
    employees as administratives, accountants
    and foremen each working one of two shifts
    where the whole amount will be about
    LL 5,280,000 annually based on an average
    monthly salary of LL 22000.

c. Insurance: It is expected to be about
    LL 2,400,000 annually.

2- Annual Operating Variable Costs:

    a- Cost of goods sold: It will be calculated
        as follows based on these two assumptions
        and according to Mr. Hussein Awada, Sabra
        Cooperative Manager.

    -   The weighted average mark-up for the Project
        on food and home appliances will be 5% where
        this weighted average for the same goods in
        other cooperatives is about 6%.

    -   The weighted average mark-up for the Project
        on electrical appliances and furniture will be
        21% where this weighted average for the same
        goods in other cooperatives is about 23%[7]

---

[7] Interview with Mr. Hussein Awada, Sabra Cooperative Manager on March 1988.

The general weighted mark-up average =

0.05x86.6%+0.21x13.4% = 7%.

Annual cost of goods sold:

$$\frac{5,090,772,175}{1.07} = LL\ 4,757,731,005$$

Where this amount includes transportation cost.

b- Salaries: Their annual amount will be about
LL 20,160,000 based on one hundred twenty workers
each working one of two shifts and getting about
LL 14,000 monthly.

c- Fuel: Its whole amount will be about LL 3,000,000
annually.

d- Water, Electrical & Telephone expenses: These
expenses will amount to LL 2, 400,000 annually.

e- Miscellaneous expenses: These expenses will
amount to LL 2,400,000 annually.

C. Working Capital: It will consist of the following
elements:

- Purchasing goods: It is with no doubt that
merchants, companies and agencies will be
interested in such a cooperative where all or
part of them will give facilities to it.
Therefore, the Cooperative will not need more
than LL 150,000,000 as cash for purchasing
goods at the beginning of work.

- Salaries for the first three months:

    Fixed: $20 \times 22000 \times 3$ = LL 1320,000

    Variable: $\dfrac{120 \times 14000 \times 450,000,00}{424,231,014}$ =LL 1,782,047

- Insurance for three months   LL   600,000

- Maintenance for three months   LL 1,250,000

- Fuel, water, electricity,   LL   689,482

  telephone and miscellaneous

  for three months

    Working Capital Total: LL 150,000,000+1,320,000+

                    1,782,047+600,000+1,250,000+

                    689,482 = LL 155,641,529

Chapter V

Financing the Project

The economic feasibility for any project does not depend only on the rate of return but also on the expected cost of capital. Therefore, it is necessary to determine this cost before taking any decision concerning the investment proposal. By using the Net Present Value criterion we have to use the cost of capital to discount cash flows, whereas by using the Internal Rate of Return criterion the Project will be economically feasible if the expected rate of return will exceed the cost of capital. Even if we use the Average Rate of Return Criterion, the Project will be feasible if this average exceeds the cost of capital which is defined as the weighted average of the cost of debt and the cost of equity to the business firm undertaking the project.

The sources and costs of funds available for financing the Project:

1- **Loans**: These will be either short-term maturing in one year, mid-term maturing in ten years or long-term maturing in more than ten years. The cost of these loans will be the interest paid to creditors.

2- **Equity**: These are the money that the owners of the Project invest in order to realize the Project goals. The cost of equity is the opportunity

cost if those owners used their money in other projects with the same or comparable risk. However, the estimation of cost of equity is not always exact because it depends mainly on forecasting. Therefore we classify the method of financing the Project as follows:

- Issuing stocks during 1986 with a par value of LL 10 for each stock where the whole amount of the issue was LL8,850,000.

- Issuing stocks during 1987 with a par value of LL 10 for each stock where the whole amount of the issue was LL 40,160,000.

- Raising a mid-term loan of LL 9,000,000 from the construction and Development Council at the beginning of July 1987 at 10% interest annually. This loan will be paid back in twelve installments, each one every three months beginning April 1, 1989 including the face value of installment plus the interest on the declining balance of the loan.

The financing of equipment, during 1988, will be raised by a loan of $ 1,000,000 at a low interest rate. The Project Management is trying to raise this loan from a non-commercial source through the help of the Construction and

Development Council and the guarantee of
the Cooperative Credit Department in Lebanon.
Therefore we will assume that the Project
Management will be able to raise this loan at
the beginning of July 1988 with a 5% interest
annually so that it will be paid back in eight
installments at the beginning of July of every
year including the face value plus the interest
on the declining balance of the loan.

However, concerning the remaining part of
capital cost and the whole working capital we
will assume the following:

- The Project Management will raise a
  LL 15,000,000 loan at the beginning of
  July 1988 from Lebanese banks at 47%
  interest annually (prevailing interest
  rate at the end of 1987) so that it will
  be paid back in annual installments for
  three years including face value plus the
  interest on the declining balance of the
  loan.

- The Project Management will raise a
  LL 140,000,000 loan at the end of
  December 1988 from Lebanese banks at
  47% interest annually (prevailing interest
  rate at the end of 1987) so that it will

be paid back in annual installments for

four years including face value plus the

interest on the declining balance of the

loan.

- The remaining part of financing the Project

will beraised by issuing stocks.

The opportunity Cost of stockholders is in the

proximity of 60%.

Then the cost of capital is as follows:

Capital Cost (without interest) + Working

Capital both adjusted according to December

31, 1987 prices = 579,162,574 + 155,641,529 =

LL 734,804,103

Cost of Capital =

$$\frac{9,000,000(0.1)+458,000,000(0.05)+155,000,000(0.47)+112,804,103(0.6)^{*}}{734,804,103} = 22\%$$

---

*Stockholders Equity = Capital Cost + Working Capital - Debt.

Chapter VI

Profitability Indicators

As it was mentioned earlier in Chapters I and II, the economic evaluation of the Project will be based on two major profitability indicators:

The Net Present Value criterion (NPV) and the Internal Rate of Return Criterion (IRR).

A. Specific Assumptions Used in Computations

1- Life of the Project: The life span of the Project is assumed to be 15 years for discounting purposes. The base year is 1988.

2- Price Level: Revenues and cost are estimated according to December 31, 1987 prices during the life span of the Project.

3- Sales: All sales will be on cash basis.

4- Accounts Payable: At the end of each year the balance of accounts payable will be zero.

5- Income Taxes: No income taxes will be paid because cooperatives are exempted.

B. Repayments of Loans and Interests

Tables 6.1, 6.2, 6.3 and 6.4 present the debt repayment schedules and interest of the four loans raised to finance the Project.

Table 6.1

Repayments of the LL9mm

Loan and Interests (000LL)

Date	Loan Oustanding	Repayment	Interest Will be Paid	Total Repayment	Interest Expense of the Year
1/4/89	9,000	750	1,575	2,325	
1/7/89	8,250	750	206	956	
1/10/89	7,500	750	187	937	
31/12/89					787
1/1/90	6,750	750	169	919	
1/4/90	6,000	750	150	900	
1/7/90	5,250	750	131	881	
1/10/90	4,500	750	112	862	
31/12/90					487
1/1/91	3,750	750	94	844	
1/4/91	3,000	750	75	825	
1/7/91	2,250	750	56	806	
1/10/91	1,500	750	37	787	
31/12/91					187
1/1/92	750	750	19	769	

Table 6.2

Repayments of the LL15mm

and Interests (000LL)

Date	Loan Oustanding	Repayment	Interest Will be Paid	Total Repayment	Interest Expense of the Year
1/7/89	15,000	5,000	7,050	12,050	
31/12/89					5,875
1/7/90	10,000	5,000	4,700	9,700	
31/12/90					3,525
1/7/91	5,000	5,000	2,350	7,350	
31/12/91					1,175

Table 6.3

Repayments of LL 458 mm
and Interests (000LL)

Date	Loan Oustanding	Repayment	Interest Will be Paid	Total Repayment	Interest Expense of the Year
1/7/89	458,000	57,250	22,900	80,150	
31/12/89					21,469
1/7/90	400,750	57,250	20,037	77,287	
31/12/90					18,606
1/7/91	343,500	57,250	17,175	74,425	
31/12/91					15,744
1/7/92	286,250	57,250	14,312	71,562	
31/12/92					12,881
1/7/93	229,000	57,250	11,450	68,700	
31/12/93					10,019
1/7/94	171,750	57,250	8,587	65,837	
31/12/94					7,156
1/7/95	114,500	57,250	5,725	62,975	
31/12/95					4,294
1/7/96	57,250	57,250	2,862	60,112	
31/12/96					1,431

Table 6.4

Repayments of the LL140mm

and Interests (000LL)

Date	Loan Oustanding	Repayment	Interest Will be Paid	Total Repayment	Interest Expense of the Year
31/12/89	140,000	35,000	65,800	100,800	65,800
31/12/90	105,000	35,000	49,350	84,350	49,350
31/12/91	70,000	35,000	32,900	67,900	32,900
31/12/92	35,000	35,000	16,450	51,450	16,450

C. Profit or Loss Statement and Cash Flow Statement

The stated information on revenues and costs of the
Cooperative are presented in the form of a Profit or Loss
Statement for ten years, a Cash Flow Statement for ten years
and an Undiscounted Revenues and Costs Stream shown in Tables
6.5, 6.6 and 6.7 respectively.

The Profit or Loss Statement shows the net result of
operations which form a part of the cash stream of the Project.
The Cash Flow Statement shows outflowing cash (uses of fund)
which are matched against inflowing cash (sources of funds) and
the resultant deficit or surplus for each year. The accumulated
deficit and/or surplus is carried forward to the following years
so that at the end of the ten-years period the accumulated
surplus or deficit will be recorded. The Undiscounted Revenues
and Costs Stream shows the flow of undiscounted capital costs,
operating costs, working capital and the expected revenues of
the Cooperative as well as the undiscounted net revenues, the
present worth factor of 22% and the NPV of the Project.[8]

According to the data presented in these statements the Net
Present Value of the Project is LL 338,447,000 and the Internal
Rate of Return is 33.8%.

---

[8]
Crash Training Program - Document 4. Evaluation of Real
Estate Projects. Dar Al Handasah Consultants Shair &
Partners, Beirut pp. 36.

Table 6.6

Cash Flow Statement - Constant Prices (000LL)

Year	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Cash Outflow										
Capital Cost	* 528,485									
Working Capital	155,642									
Replacement Cost								81,100		90,860
Debt Servicing										
Interest	97,718	74,649	52,687	30,781	11,450	8,587	5,725	2,862		
Repayment	99,500	100,250	100,250	93,000	57,250	57,250	57,250	57,250		
Total Cash Outflow	881,345	174,899	152,937	123,781	68,700	65,837	62,975	141,212		90,860
Cash Inflow										
Draw Down on Equity	62,127									
Draw Down on Loans	622,000									
Net Cash from Operations	235,653	292,401	292,401	292,401	292,401	292,401	292,401	292,401	292,401	292,401
Total Cash Inflow	919,780	292,401	292,401	292,401	292,401	292,401	292,401	292,401	292,401	292,401
Cash Surplus or (Deficit)	38,435	117,502	139,464	168,620	223,701	226,564	229,426	151,189	292,401	201,541
Cumulative Cash Surplus or (Deficit)	38,435	155,937	295,401	464,021	687,722	914,286	1,143,712	1,294,901	1,587,302	1,788,843

* Rolled over from 1986 to 1989 without interest

51.

Table 6.7

Undiscounted Revenues and Costs Stream (000LE)

Year	Capital Costs	Working Capital	Operating Costs	Total Costs	Revenues	Net Revenues	PWF(22%)	PV
1987	* 76,725	0	0	76,725	0	(76,725)	1	(76,725)
1988	502,888	155,642	0	658,530	0	(658,530)	0.820	(539,995)
1989			3,908,195	3,908,195	4,143,848	235,653	0.672	158,359
1990			4,798,371	4,798,371	5,090,772	292,401	0.551	161,113
1991			4,798,371	4,798,371	5,090,772	292,401	0.451	131,873
1992			4,798,371	4,798,371	5,090,772	292,401	0.370	108,188
1993			4,798,371	4,798,371	5,090,772	292,401	0.303	88,598
1994			4,798,371	4,798,371	5,090,772	292,401	0.249	72,808
1995			4,798,371	4,798,371	5,090,772	292,401	0.204	59,650
1996	** 81,100		4,798,371	4,879,471	5,090,772	211,301	0.167	35,287
1997			4,798,371	4,798,371	5,090,772	292,401	0.137	40,059
1998	** 90,860		4,798,371	4,889,231	5090,772	201,541	0.112	22,573
1999			4,798,371	4,798,371	5,090,772	292,401	0.092	26,901
2000	** 181,960		4,798,371	4,980,331	5,090,772	110,441	0.075	8,283
2001			4,798,371	4,798,371	5,090,772	292,401	0.062	18,129
2002			4,798,371	4,798,371	5,090,772	292,401	0.051	14,912
2003	** 91,600		4,798,371	4,889,971	5,090,772	200,801	0.042	5,434

NPV = 338,447

* Adjusted to December 31,1987 prices + interest

** Replacement Costs

Operating Costs = Cost of Goods Sold + Salaries + Maintenance + Insurance + Fuel + Water , Electricity and Telephone Expenses + Miscellaneous Expenses

D. Sensitivity Analysis

For the Sensitivity Analysis purposes we will assume the following states of nature:

1- A rise of the weighted average mark-up to 7.5% instead of 7% without any effect on sales.

2- A borrowing of $1 million at 9% instead of 5% interest rate annually.

3- A borrowing of LL 458,000,000 from Lebanese banks at 47% interest rate annually instead of $1,000,000 at 5% omterest rate annually.

We can summarize the results of the Sensitivity Analysis as shown in Table 6.8

Table 6.8

Sensitivity Analysis Results

Assumption	Cost of Capital	NPV	IRR
1	22%	LL413,974,000	37.5%
2	25%	LL231,812,000	33.8%
3	49%	(LL151,831,000)	33.8%

E. Concluding Remarks

This study shows that the Cooperative is economically feasible if the Management is able to rise the $1,000,000 loan even at market interest rate. Assuming it can raise this loan at 5% interest rate annually, this will give a cost of capital equal to 22%. The Net Present Value and the Internal Rate of Return are LL 338,447,000 and 33.8% respectively. Assuming the Management can raise the $ 1,000,000 loan at 9% interest rate annually, the cost of capital is 25%. The Net Present Value and the Internal Rate of Return are LL 231,812,000 and 33.8% respectively.

On the other hand, if Project Management was only able to raise necessary loans in Lebanese currency with prevailing interest rate in addition to owners equity, the Project will be economically unfeasible because the Net Present Value and the Internal Rate of Return will be (LL 151,831,000) and 33.8% respectively. The correspondent cost of capital is 49%.

All this shows that an important factor in determining the feasibility of the Project beside the demand, costs and the mark-up is the method of financing. For, raising loans in foreign currencies will increase the profitability of the proposal (with respect to the risk of rising foreign currencies rates the assumption here is that revenues will rise in parallel line with the foreign currencies rates), whereas raising funds in Lebanese currency with market interest rate will decrease the profitability.

Therefore, the Management must strongly try to benefit from the non-commercial sources namely from the Construction and Development Council and the Cooperative Credit Department in Lebanon.

Bibliography

1. Augustus, Benoit, Howard, Miller, Economics for our times, Third Edition, McGraw-Hill Book Company, Inc., 1959.

2. Bierman Jr. Harold, Smidt Seymour, The Captal Budgeting Decision, Fifth Edition, MacMillan Publishing Co., Inc., New York, 1980.

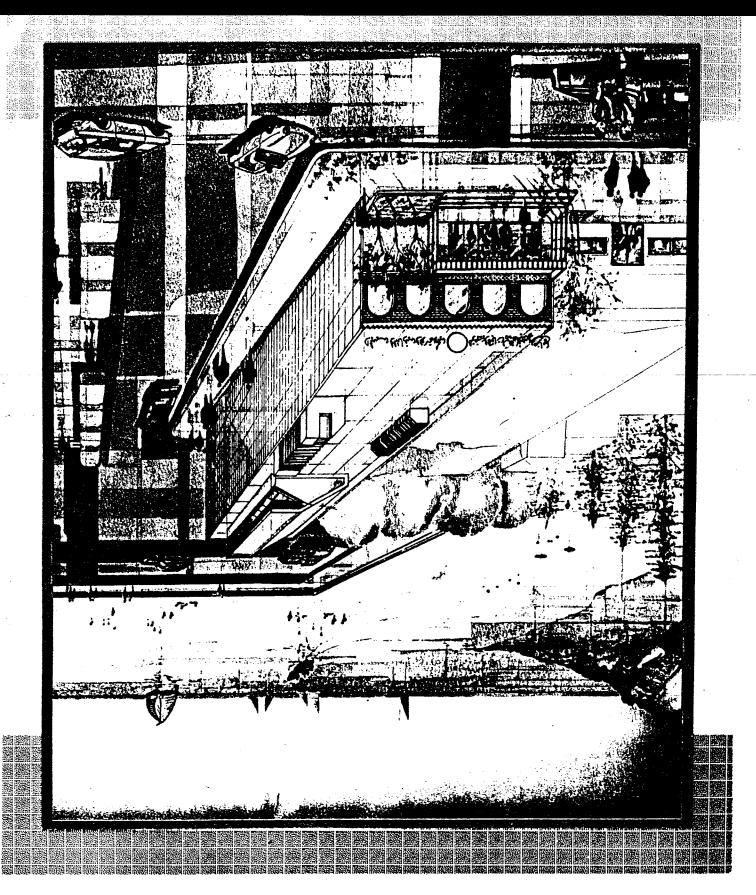3. _____, Crash Training Program, Documents 1 and 4, Dar Al Handasah Consultant Shair and Partners, Beirut.

4. Duncan, Allen, The Economics of Modern Business, Basil Blackwell, Oxford, 1983.

5. Edwards, Hermanson, Salmonson, Financial Accounting, Richard D.Irwin Inc., Fourth Edition, 1978.

6. Smith, Williams, Statistical Analysis for Business: A Conceptual Approach, Wadsworth Publishing Company, Inc., Belmont, California, 1971.

7. Van Horne, James C., Financial Management and Policy, Sixth Edition, Prentice Hall Inc., Englewood Cliffs, New Jersey, 1983.

8. Wert James E., Henderson, Jr. Glenn V., Financing Business Firms, Sixth Edition, Richard D. Irwin, Inc. 1979

٩ ــ دكتور جميل توفيق ، دكتور علي شريف ، الادارة المالية ،دار النهضة العربية ،بيروت ،
١٩٨٠ •

١٠ ــ دكتور خيرت ضيف ،المحاسبة الضريبية ،دار النهضة العربية ،بيروت ،
١٩٨٢ •