



THE UNIVERSITY *of* EDINBURGH

Title	Modelling the operations of Egyptian joint venture banks
Author	El-Ansary, Osama Abdel-Khalik.
Qualification	PhD
Year	1985

This thesis scanned from best copy available: may contain faint or blurred text, and/or cropped or missing pages.

Digitisation notes:

- Page number 135 missing from the original

To The Beloved Ones

Wafaa And Baher

DECLARATION

This thesis has been composed entirely by myself and the work presented is my own.

Osama A. EL-Ansary

ACKNOWLEDGEMENTS

I am deeply indebted to numerous people for their kind help and assistance during the course of this study.

I am very grateful to my supervisor Dr. Ian Hirst for his inspiring supervision and constructive criticism.

I would like to thank Mr. Robin Day for his assistance during operating the computer programmes. I am equally grateful for the advice and comments given to me by Dr. J. Kwiatkowski when constructing the model.

I also take the opportunity to thank Professor Atef Ebeid for his advice and encouragement throughout my academic study.

The joint venture banks' managers in Egypt were very cooperative and helpful indeed. I can not mention them all by name, but to all of them I owe a great deal.

My thanks also go to the Egyptian Government for funding the research.

Without the excellent and careful efforts deployed by Mrs Shiona Mackay and Miss Shirley Hastings in typing the thesis, this work would not have been completed in time. To both of them I would like to express my gratitude and thanks.

Finally, special appreciation goes to my wife and my son for making many sacrifices and for their support to help me complete this thesis.

ABSTRACT

The object of this study was to explain Egyptian joint venture banks' decision behaviour. These banks were introduced either as investment or commercial banks to the Egyptian financial system after the application of the "Open Door Policy". They mobilized Egyptian savings in foreign currency and placed them in the international markets rather than local markets. Most of their lending policies were devoted to short term loans and financing international trade.

The accounting data analysis for commercial banks revealed that these banks fell in two different groups reflecting two different policies. The first group, deposit oriented banks, depended on deposits as their main source of funds and allocated a high proportion of their funds as placings with other banks abroad. The second group is loan oriented banks which depended mainly on "due to banks" in foreign currency as the most important source of funds and allocated a high proportion of funds as loans. A simultaneous equation model was developed using principal components and multiple linear regression analysis. The analysis suggested that through the study period there was no major difference in the profitability level of these two types of banks , but when the credit ceiling was introduced , the deposit oriented banks had the advantage.

With respect to investment banks , it was found that there was no similar pattern for their decision behaviour during the study period.

The comparison study between commercial and investment banks' samples aggregate data showed that commercial banks achieved higher growth rates and profitability than investment banks.

The in-depth interviews showed that large commercial banks were

more successful than small banks. They concentrated on growth in total size and number of branches, and achieved an average return on equity higher than the other sample banks.

A linear programming explanatory model was constructed to explain, justify and to simulate banks' decision behaviour. The model succeeded in explaining their behaviour regarding placing foreign currency funds with overseas banks. It was found that allocating funds as loans in local currency was more profitable than financing foreign currency loans. Also, the model showed that commercial banks which deal in both local and foreign currencies were more profitable than investment banks which deal in foreign currency only.

The foreign exchange risk was the main reason which prevented banks from financing foreign currency loans and investors from demanding these loans.

The study suggested a number of solutions and recommendations to change the regulations which govern banks' operations, to enable the Egyptian government to encourage banks to provide additional benefits to the economy and to improve the joint venture banks' operations in the local market.

TABLE OF CONTENTS

List of Tables	xii
List of Figures	xiv
List Of Abbreviations	xv
INTRODUCTION	1
PART ONE :	
BACKGROUND	6
1 THE EGYPTIAN ECONOMY	7
Introduction	8
1.1 Economic Policy Development (1952-1982)	8
1.1.1 Stage One: Government Intervention (1952-1960)	8
1.1.2 Stage Two: Central Planning (1961-1973)	9
1.1.3 Stage Three: The Open Door Economic Policy (1974-1982)	10
1.2 Gross Domestic Product (GDP)	12
1.3 Foreign Exchange Sources	12
1.3.1 Petroleum Exports	14
1.3.2 Remittances of Egyptians Working Abroad	17
1.3.3 Suez Canal Dues	19
1.3.4 Tourism Revenues	20
1.4 Balance of Payments, Foreign Trade, and External Debt	21
1.4.1 Balance of Payments	21
1.4.2 Foreign Trade (1970-1982)	24
1.4.3 Egyptian External Debt	24
1.5 Egyptian Economy; Problems and Prospects	28
References	32
2 Egyptian Financial System	34
Introduction	35
2.1 The Banking System Development	35
2.1.1 Stage One: Foreign Banks Dominance (1856-1957)	35
2.1.2 Stage Two: Egyptianising The Banking system (1958 - 1963)	36
2.1.3 State Three: Sectoral and Functional Specialization (1964-1973)	36
2.1.4 Stage Four: The Open Door Policy And The Emergence of Private, Joint Venture and Foreign Banks	36
2.2 The Present Structure of the Egyptian Banking System	38
2.2.1 The Central Bank of Egypt (CBE)	38
2.2.2 Commercial Banks	39
2.2.3 Investment and Foreign Banks	39
2.2.4 Commercial, Investment and Foreign Branches Banks .	
General Performance	40
2.2.5 Public Sector Specialized Banks [PSSB]	46
2.3 Islamic Banks	49
2.3.1 The Concepts of The Islamic Banks	49
2.3.2 Egyptian Islamic Banks	53
2.4 Securities Market	56
2.4.1 Debt Market (Bonds)	60
2.4.2 Capital Market Authority (CMA)	60
2.5 Insurance Sector	60
2.5.1 Insurance Companies	61
2.5.2 Social Insurance Authorities	61
2.6 Summary	63
References	65

3 The Regulatory Framework Of The Banking System	68
Introduction	69
3.1 Foreign Exchange System (FES)	69
3.1.1 Central Bank Pool	71
3.1.2 The Parallel Market And Commercial Banks Pool	73
3.1.3 The Own Exchange Pool	74
3.1.4 The Black Market Pool	75
3.2 Interest Rate Structure	77
3.3 The Control Instruments of The Central Bank of Egypt:	80
3.3.1 Credit Control Regulations	80
3.3.2 Liquidity Ratio	82
3.3.3 Cash Reserves For LC Deposits	83
3.3.4 Required Deposits With CBE In FC	83
3.3.5 Securities And Equity Investments Restrictions	83
3.4 Summary	84
References	85

PART TWO :

LITERATURE REVIEW AND RESEARCH METHODOLOGY	87
4 Review of Literature on the Theory of the Banking Firm	88
Introduction	89
4.1 Baltensperger's Study	90
4.2 Models of Bank Portfolio Management	96
4.2.1 Models of Optimal Asset Choice	96
4.2.2 Models of Liability Management	98
4.3 Complete Models of the Banking Firm	100 X
4.3.1 Monopoly Models	100
4.3.2 Portfolio Theory Approach	103
4.3.3 Real Resources Models (Production Aspect)	106
4.4 The Linear Programming Approach	111 X
4.5 Recent Approaches to the Theory of the Banking Firm	114
4.6 Summary and Concluding Remarks	117
4.6.1 Summary	117
4.6.2 Concluding Remarks	118
References	120
5 Research Methodology	124
Introduction	125 X
5.1 Choice of Research Methods	125
5.2 Process and Problems of Gaining Access to Banking Institutions In Egypt	128
5.3 Data Collection	130
5.3.1 Data Collected from Primary Sources	130
5.3.2 Data Collected from Secondary Sources	132
5.4 The Study Analytical Framework	133
References	134

PART THREE :

THE ANALYSIS	136
6 Accounting Data Analysis	137
Introduction	138
6.1 Accounting Data Characteristics And Limitations	138
—6.1.1 The Sample And The Study Period	139
—6.1.2 Creating A Standard Data File	139
6.1.3 Balance Sheet Structure And The Analysis Variables	140
6.1.4 Data Limitations	145
6.2 Commercial Banks Analysis	145
6.2.1 Principal Components Analysis (PCA)	149
6.2.2 Development Of The Regression Model	155
6.2.3 Regression Model Residuals Analysis	156
6.3 Investment Banks Analysis	158
6.3.1 Liability Management	159
6.3.2 Asset Management	161
6.3.3 The Interaction Between Asset and Liability Management	162
6.4 Commercial And Investment Banks' Performance	164
6.4.1 Profitability	164
6.4.2 Annual Growth Rate	167
6.4.3 Asset And Liability Decisions	169
6.5 Summary And Findings	174
References	177
7 Joint Venture Banks' Operations Management	
Analysis of The Questionnaires	179
Introduction	180
7.1 The Sample Banks' Characteristics	183
7.1.1 Banks' Founders	184
7.1.2 Management Structure Between Egyptian And Foreign Partners	186
7.1.3 Banks' Branches	187
7.1.4 Banks' Employment	193
7.2 Interest Rates Management	194
7.3 Deposits Management	196
7.3.1 Deposit Accounts	197
7.3.2 Deposit Certificates	200
7.3.3 Banks' Depositors Categories	201
7.3.4 Banks' Policies To Attract Depositors	201
7.3.5 Depositors Motives To Deal With The JVB	203
7.3.6 Services The JVB Offer To Their Clients	203
7.4 Risk Management	207
7.5 Lending Operations	210
7.5.1 Short Term Loans Management	210
7.5.2 Medium and Long Term Lending Operations	215
7.5.3 Credit Operations Procedures And Decisions	221
7.6 Liquidity Management	224
7.7 Securities And Equity Investment Operations	227
7.8 Planning Banks' Operations	230
7.9 The Analysis Findings	232
7.9.1 Commercial Banks' Operations Findings	233
7.9.2 Investment Banks' Operations Remarks	238
—7.9.3 General Assessment	239
References	242

8 A Linear programming Model for Joint Venture Commercial Banks' Operations	244
Introduction	245 ✕
8.1 The Objectives of The Model	245
8.2 The Decision Variables	246
8.3 The Objective Function	248
8.4 The Model's Constraints	248
8.4.1 Regulatory Constraints	249
8.4.2 Internal Policy and Operational Constraints	252
8.4.3 Market Constraints	258
8.4.4 The Objective Function Coefficients	259
8.5 The Model Solution and Results	261
8.6 Relaxing and Tightening the Model Constraints	269
8.6.1 Relaxing and Tightening the Regulatory Constraints	270
8.6.2 Relaxing and Tightening The Equity And Market Constraints	274
8.6.3 Relaxing And Tightening The LC Operations Objective Function Coefficients	278
8.7 The Model Evaluation	279
8.7.1 A Comparison Between One Of The Commercial Banks Actual Portfolio And The Model Solution	280
8.7.2 A Comparison Between The Model Solution And Joint Venture And Private Commercial Banks Sector Actual Data	284
8.7.3 A Comparison Between JVCB Model And Investment Banks Operations	287
8.8 Concluding Remarks	294
References	297
9 Summary, Findings, And Recommendations	299
9.1 Summary	300
9.2 Major Findings	302 ✓
9.3 Recommendations	304 ✓
9.3.1 Recommendations Regarding The CBE Regulations	304 ✓
9.3.2 Recommendations For The Egyptian government	310
9.3.3 Recommendations For JVBs' Management	313
References	315

APPENDICES	316
APPENDIX "A" :	
Central Agency for Public Mobilization and Statistics [CAPMS]	
Decree (No.47 of 1983)	317
Appendix "B" :	
The Sample Banks	321
Appendix "C" :	
Criteria Used to Compute The Principal Components Analysis	325
Appendix "D" :	
The Questionnaires	328
Bibliography	348

List of Tables

Table		
1.1	Sectoral Shares in GDP at Constant Factor Costs (1973-1982)	13
1.2	Petroleum Sector Exports and Imports (1973-1982)	16
1.3	Transfers of Egyptians Working Abroad (1973-1982)	18
1.4	Suez Canal Dues (1975-1982)	20
1.5	Tourism Industry Indicators (1973-1982)	21
1.6	Balance of Payments (1970-1982)	22
1.7	Total Exports And Imports By Degree of Processing And Use (1970-1982)	25
1.8	Egyptian External Debt (1972-1982)	27
1.9	Current Budget (1981-1984)	29
2.1	Banking Sectors Total Assets (1978-1981)	41
2.2	Banking Sectors Breakdown of Deposits (1978-1981)	43
2.3	Banking Sectors Total Deposits (1978-1981)	43
2.4	Banking Sectors Deposits Breakdown By Currency (1978-1981)	44
2.5	Banking Sectors Total Loans (1978-1981)	45
2.6	Banking Sectors Loans Breakdown by Maturity (1978-1981)	45
2.7	Loans Extended By Banking Sectors to Public and Private Business (1978-1981)	47
2.8	Banking Sectors Loans Breakdown by Currency (1978-1981)	47
2.9	Faisal Islamic Bank of Egypt Balance Sheet (1979-1982)	55
2.10	Cairo Stock Exchange, Historical Market Value of Bond And Share Trading (1956-1982)	57
2.11	Estimated Market Value of Listed Shares (1982)	58
2.12	Investments of Public Sector Insurance Companies (1978-1981)	62
3.1	Foreign Exchange Rates Development (1947-1984)	72
3.2	Local Currency Interest Rates Structure (1975-1982)	78
3.3	Euro-Dollar Deposits In London (1975-1982)	79
6.1	Balance Sheet of JVPCB (1978-1981)	141
6.2	Balance Sheet of Business and Investment Banks (1978-1981)	142
6.3	Simple Correlation Between The Analysis Variables	146
6.4	The Proportion of Investments to Total Assets (1977-1982)	147
6.5	Commercial Banks Unrotated Components Analysis (Factor Matrix Loadings)	150
6.6	Commercial Banks Financial Ratios And Factor Scores	152
6.7	Principal Component Two Pc_2 "Bank's Policy" Average Factor Scores (Fc_2) (1977-1982)	154
6.8	Regression Analysis Standardized Residuals	158
6.9	Investment Banks Financial Ratios	160

6.10	Commercial And Investment Banks' Profitability	164
6.11	Commercial And Investment Banks Annual Growth Rate (AGR)	167
6.12	Commercial And Investment Banks Important Financial Ratios (1976-1982)	170
7.1	Joint Venture Commercial Banks Branches (1982)	188
7.2	Joint Venture Commercial Banks Number of Branches Each Year (1975-1982)	188
7.3	Joint Venture Investment Banks Branches	192
7.4	Joint Venture Investment Banks Number of Branches Each Year (1975-1982)	192
7.5	The Minimum Required Value For Deposits Accounts	198
7.6	Banks' Deposits Policies	202
7.7	Depositors Motives to Deal With The JVCB	203
7.8	The JVPCB Loans Portfolio (1978-1981)	216
7.9	Commercial Banks Sample Important Indicators	234
8.1	Asset Decision Variables.	247
8.2	Liability Decision Variables	247
8.3	Local Currency Interest Rates Spread (1977-1982)	262
8.4	Commercial Banks' Model Optimal Solution	265
8.5	Time And Saving Deposits To Demand Deposits Ratio (1978-1981)	275
8.6	Local Currency Operations Objective Ranging	278
8.7	A Comparison Between One of The Commercial Banks' Actual Portfolio And The Model Optimal Solution	281
8.8	A Comparison Between JVCB Model Portfolio And JVPCB Actual Portfolio	286
8.9	Investment Banks' Decision Variables	288
8.10	Investment Banks Model Optimal Solution	292

List of Figures

Figure

1.1	Egypt's Main Sources Of Foreign Exchange (1973-1982)	15
1.2	Total Exports And Imports Trend (1970-1982)	26
2.1	Egyptian Banking System Structure	37
3.1	The Present Foreign Exchange Rates	70
4.1	Models Of The Banking Firm	92
4.2	The Production Process In Sealy And Lindely's Model	108
6.1	The Analysis Variables	144
6.2	Commercial Banks Accounting Data Analysis Diagram	148
6.3	A Plot Of Cumulative Standardized Residuals On Normal Probability Distribution	157
6.4	A Plot of Residuals Against Predicted Values	157
6.5	Investment Banks' Policies	163
6.6	Commercial And Investment Banks ROA	165
6.7	Commercial And Investment Banks ROE	166
6.8	Commercial And Investment Banks Annual Growth Rate	168
6.9	Commercial And Investment Banks (Loans/T. Assets) Ratio	171
6.10	Commercial And Investment Banks (Cash And Due From Banks/ T. Assets) Ratio	171
6.11	Commercial And Investment Banks (Deposits/T. Assets) Ratio	173
6.12	Commercial And Investment Banks (Due To Banks/T. Assets) Ratio	173
7.1	The Questionnaires Analysis Analytical Framework	182
8.1	The Model Decision Variables, Objective Function Coefficients And Constraints Matrix	263

List Of Abbreviations

BFB	- Branches of Foreign Banks.
CAPMS	- Central Agency for Public Mobilization and Statistics.
CBE	- Central Bank of Egypt.
CMA	- Capital Market Authority.
DOD	- Total Debt Outstanding Disbursed.
EJVB	- Egyptian Joint Venture Banks.
FES	- Foreign Exchange System.
GDP	- Gross Domestic Product.
GNP	- Gross National Product.
H	- Hegra (Islamic Calendar Year).
IBRD	- International Bank for Reconstruction And Development.
IMF	- International Monetary Fund.
JVB	- Joint Venture Banks.
JVCB	- Joint Venture Commercial Banks.
JVIB	- Joint Venture Investment Banks.
JVPCB	- Joint Venture and Private Commercial Banks.
LIBOR	- London InterBank Offer Rate.
NBE	- National Bank of Egypt.
ODP	- Open Door Policy.
PLS	- Profit-and-Loss-Sharing.
PSCB	- Public Sector Commercial Banks.
PSSB	- Public Sector Specialized Banks.
ROA	- Return On Assets.
ROE	- Return On Equity.
TDS	- Total Debt Service.
USAID	- United States Agency For International Development.
XGS	- Exports of Goods and Services.

Mathematical And Statistical Abbreviations

F_{c1}	- Factor Scores For Principal Component One.
F_{c2}	- Factor Scores For Principal Component Two.
LP	- Linear Programming.
MRA	- Multiple Regression Analysis.
P_{c1}	- Principal Component One.
P_{c2}	- Principal Component Two.
PCA	- Principal Components Analysis.
RHS	- Right Hand Side.

Currency

FC	- Foreign Currency.
LC	- Local Currency.
LE	- Egyptian Pound = 100 piasters.
\$	- United States Dollar.

INTRODUCTION

The Egyptian financial system suffers from serious financial problems which prevent Egypt from achieving a reasonable development rate. These problems have created a great gap between local resources and development needs. It has been necessary to borrow from the external world to cover this gap and to finance the deficit in the national balance of payments.

Before 1973 the public sector and the government dominated all economic sectors. It was difficult for local and foreign investors to establish corporations or limited companies because of fears of nationalization.

During 1974 Egypt started to change its economic structure and the most significant change was that referred to as the "Open Door Policy" (ODP). This policy was created to overcome the gap in the Egyptian financial position by attracting local, Arab and foreign investment through the establishment of investment and joint venture projects.

Until 1974 there were only four public sector commercial banks covering all sectors of the economy, but the "Open Door Policy" legalized the establishment of private, joint and foreign banks. The Egyptian banking system now comprises of 70 banks including commercial banks, business and investment banks, public sector specialized banks and one multinational bank.

The joint venture banks were introduced either as business and investment banks, or commercial banks dealing in foreign currency or both local and foreign currency provided that the share of the Egyptian capital is not less than 51%.

Joint venture banks are expected to attract foreign and Arab funds, to provide foreign finance for economic development projects, to participate in the establishment of productive projects and credit facilities for international trade transactions (especially imports). Also, they are expected to transfer modern

technology to the Egyptian banking system and to create competition between these banks and the public sector banks.

Statement Of The Problem And The Study Objectives

This study is an investigation to explain the Egyptian joint venture banks' decision behaviour within the local financial system.

In spite of the facilities provided by the state for foreign banks to establish joint venture banks in concert with Egyptian capital, they appear to be failing in terms of attracting foreign funds from outside Egypt and in developing the Egyptian economy.

Most of the joint venture banks operating in Egypt mobilize Egyptian savings in foreign currency and place them with foreign banks abroad. These funds are invested in international markets rather than local markets. Most of their lending policies are devoted to short term loans and financing international trade.

Their behaviour reflects a lack of interest in financing local investment projects which would develop the Egyptian economy.

The Study Objectives

The research object is to model the Egyptian joint venture banks' decision behaviour. The analysis should suggest answers to the following questions:-

1. Why Egyptian joint venture banks place a high proportion of their funds in foreign currency outside Egypt instead of financing and supporting the local market?
2. Why most of their lending policies are devoted to providing short term loans and financing international trade?

3. What are the reasons behind their cautious policy regarding lending medium and long term loans?

4. Why they hold limited investments in equity and securities?

Finally, to point out what changes in the rules and regulations, which govern their operations, would be needed to cause a change in the practices listed above. In addition, to suggest solutions and recommendations for the Egyptian government and banks' management to make it possible for these banks to provide additional benefits to the Egyptian economy.

Importance Of The Research

Because Egypt has been suffering from a lack of foreign exchange to finance its development plans, it was expected that the joint venture banks along with the other financial institutions could help in attracting foreign funds and developing the Egyptian economy.

Unfortunately, instead of attracting the foreign investment to reduce the local resources gap the joint venture banks place high proportions of their funds in foreign currency abroad. The main source of these funds is Egyptian citizens deposits.

This research is very important to Egypt to explain and justify why these banks behaved in that way and to suggest possible changes and recommendations to increase the joint venture banks participation in the Egyptian financial system.

A study of the joint venture banks , as an area of interest in the Egyptian banking system , was chosen because the object of the former is profit maximization. This object is more suitable for analysis rather than other public sector commercial banks where many social and political factors affect

their decisions.

The Framework of The Study

This thesis is organized into three parts. Part one is divided into three chapters which describe the Egyptian economy and the financial system development. Part two reviews the theory of the banking firm literature(in chapter four) followed by the research design and methods in chapter five. Part three is concerned with the study analysis and is divided into three chapters. Chapter six analyses the joint venture banks accounting data. Chapter seven presents the in-depth interviews and the questionnaires analysis. Chapter eight discusses the linear programming explanatory model which explains the joint venture banks' decision behaviour. Finally, chapter nine highlights the study summary, findings and recommendations.

PART ONE :

BACKGROUND

CHAPTER I : THE EGYPTIAN ECONOMY

CHAPTER II : EGYPTIAN FINANCIAL SYSTEM

CHAPTER III : THE REGULATORY FRAMEWORK OF THE BANKING SYSTEM

CHAPTER 1
THE EGYPTIAN ECONOMY

Introduction

This chapter casts light on the main features of the Egyptian economy. The objective is to review economic policy development before and after the introduction of the economic liberalization policy in 1974 and to identify the current problems and obstacles which impede economic progress.

This chapter is divided into the following sections:

Section One: Economic Policy Development (1952 – 1982).

Section Two: Gross Domestic Product (GDP).

Section Three: Foreign Exchange Sources.

Section Four: Balance of Payments, Foreign Trade and External Debt.

Section Five: Egyptian Economy; Problems and Prospects.

1.1. Economic Policy Development (1952–1982)

The Egyptian economy witnessed several radical changes during the last thirty years. The development of the economic policy during this period can be divided into the following three stages which reflect the structural changes introduced since the revolution in 1952.

1.1.1 Stage One: Government Intervention (1952–1960)

1.1.2 Stage Two: Central Planning (1961–1973)

1.1.3 Stage Three: The Open Door Economic Policy (1974–1982)

1.1.1. Stage One: Government Intervention (1952–1960)

Before the 1952 the private sector dominated all economic sectors and the government role was confined to infrastructure and social services.

The land reform law was the first change introduced after the revolution. The law put a ceiling of 200 feddans¹ on personal ownership which changed in 1961 to 100 feddans per person and in 1969 to 50 feddans per person and 100 feddans for the family.² The excess land was distributed by the

the government to farmers in parcels of two to five feddans.³

During this period the government started to increase the role of the public sector and more effort was devoted to the industrial sector.⁴ The Suez Canal was nationalised in 1956 and the government liberated the economy from foreign domination by Egyptianising foreign interests, especially financial institutions.

Thus, by the end of this period the government intervention in the main economic sectors was clear and the country was ready for another radical change during the sixties.

1.1.2. Stage Two: Central Planning (1961–1973)

This period was characterized by a major structural transformation of the economy. The socialism and nationalisation laws were introduced. The government changed most economic sectors into public ownership.

Accordingly, the private sector concentrated on trade operations and small business companies. It was difficult for local and foreign investors to establish corporations or limited companies because of fears of nationalisation. Private sector savings and investments shrunk and the government was responsible for providing all the necessary investments through the state budget.

The first five year-national economic development plan (1960–1965) was implemented successfully. "The 1955–1965 decade witnessed fairly rapid and sustained economic growth as well as a major structural transformation of the economy".⁵

After the 1967 war and till 1973 the economy could no longer sustain the high economic performance and entered a period of stagnation, largely because of: (a) sustained growth in population, (b) diversion of resources into

defence, (c) high consumption rates, and (d) a drop in domestic savings and investments.⁶

1.1.3. Stage Three: The Open Door Economic Policy (1974–1982)

After the 1973 war important changes were introduced to the Egyptian economy. The most significant change was that related to the Open Door Economic Policy.

This policy was created to overcome the gaps in the Egyptian financial position by attracting and encouraging local, Arab and foreign investments through the establishment of investment and joint venture projects.

A number of laws and regulations have been issued since 1974 to provide guarantees against nationalisation and to ensure policy implementation. The Law number 43 of 1974 as amended by Law No. 32 of 1977, the Investment Law, was issued concerning the investment of Arab, foreign funds and the free zones. The Law provides a number of privileges for companies established under its provisions regarding customs, taxation, foreign exchange and imports.

In reference to the banking system, a new Law No. 120 of 1975 was issued to allow foreign, private and joint venture banks to operate in Egypt. The government also issued a new foreign exchange regulations which allowed Egyptians to hold and exchange foreign currency.

The Capital Market Authority (CMA) was established to activate the primary and the secondary markets.

In general, the structure of the financial system and the economy changed totally and new financial institutions have been introduced such as investment, regional and Islamic banks.

To overcome the ODP shortcomings, the period witnessed frequent

changes in economic laws, decision and regulations which govern different investment sectors. These frequent changes led to economic instability.

In spite of the facilities provided by the state to encourage private sector and foreign investments, economic instability had a serious impact on investors and the nature of their projects. Most of the funds were allocated to investments where profits were quick and secure:

The foreign investors who come to Egypt are cautious. They are aware of the obstacles they face and accordingly choose investment projects with the lowest risk factor and the greatest possibilities for profit. Unfortunately, most of these projects are not developmental. A good deal of foreign capital has gone for tourism, hotel facilities, and the construction of middle - and high-income apartments.⁷

Foreign trade transactions, especially imports, increased rapidly to cover the shortage of basic and essential goods and to meet the increasing demand created by the sustained increase in population and the shortage of local production.

The financial system suffered during this period from serious problems particularly the devaluation of the Egyptian pound as a result of the foreign exchange resources gap and the shortage of foreign currency required to finance imports . Importers were forced to exchange Egyptian pounds (LE) into foreign currency in the free market (black market) where the exchange rates are higher (sometimes by 40%) than the official fixed exchange rates. During the last five years (1978-1982) the LE was devalued at an annual rate of 10% approximately.

The following sections discuss in more detail the important economic indicators for the Egyptian economy.

1.2. Gross Domestic Product (GDP)

This section describes the important productive economic sectors. Agriculture sector used to be the most important source of production till 1974. The emergence of the petroleum sector production increased the importance of the petroleum sector share of GDP. From the following table (1.1), in 1973 agriculture sector share was 31.2% and declined to 19.2% in 1981/82. Meanwhile, the petroleum sector share increased from 1.0% in 1973 to 17.8% in 1981/82 and became the second most important sector after agriculture.

On the other hand, industry's sector share decreased from 18.7% in 1973 to 12.8% in 1981/82. The total commodity sectors share of GDP was nearly constant throughout the period.

As for the distribution sector, the Suez Canal contribution increased from 1.8% in 1976 to 4.5% in 1981/82. Also, trade, finance and insurance income share increased from 9.7% in 1973 to 16.2% in 1981/82. The total share of this sector in GDP increased sharply from 15% in 1973 to 26% in 1981/82. The total services sector's share declined from 29% in 1973 to 18.4% in 1981/82.

To sum up, the GDP real growth during the ODP can mainly be attributed to the petroleum sector production, Suez Canal, and trade, finance and insurance sectors.

1.3. Foreign Exchange Sources

The following are the most important sources of foreign exchange in Egypt especially after the application of the ODP:-

1.3.1 Petroleum exports.

1.3.2 Remittances of Egyptians working abroad.

TABLE (1.1)

Sectoral Shares in GDP at Constant Factor Costs (1973-1982)

(LE Millions) %										
Sectors	1973	1974	1975	1976	1977	1978	1979	1980	1980/ 1981	1981/ 1982
1 Commodity Sectors										
Agriculture	31.2	34.1	30.7	28.3	26.1	25.0	23.6	22.2	20.3	19.2
Industry	18.7	18.3	17.8	17.4	17.5	17.4	17.2	17.4	12.8	12.8
Petroleum	1.0	2.5	3.1	4.2	5.7	6.1	8.4	8.1	17.5	17.8
Construction	3.4	3.6	4.5	4.6	4.8	4.6	4.7	5.4	4.6	4.9
Electricity	1.6	1.3	1.5	1.5	1.5	1.4	1.5	1.5	0.9	0.9
1 Total Commodity Sectors:	55.9	59.8	57.6	56.0	55.6	54.5	55.4	54.6	56.1	55.6
2 Distribution Sectors:										
Transport and Communications	5.3	4.5	5.2	6.0	5.8	6.0	5.1	5.4	3.9	3.9
Suez Canal	-	-	-	1.8	2.6	2.8	3.3	3.8	3.9	4.5
Trade, Finance and Insurance	9.7	10.8	13.3	12.6	12.4	13.9	13.4	13.2	18.4	16.2
Hotels and Restaurants	-	-	-	-	-	-	-	-	-	1.4
2 Total Distribution Sectors:	15.0	15.3	18.5	20.4	20.8	22.7	21.8	22.4	26.2	26.0
3 Services Sectors:										
Housing	4.0	3.4	2.7	2.6	2.5	2.4	2.4	2.3	2.1	2.2
Public Utilities*	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.2	0.2
Other Services	24.6	21.1	20.8	20.6	20.7	20.0	20.0	20.3	15.4	16.0
3 Total Services Sectors:	29.1	24.9	23.9	23.6	23.6	22.8	22.8	23.0	17.7	18.4
4 GDP at Constant Factor Cost: (1 + 2 + 3)	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Computed from, NBE, Economic Bulletin, various issues, (1980-1983)

* Public utilities includes: education, health, social and religious services.

1.3.3 Suez Canal dues.

1.3.4 Tourism revenues.

These four sources are responsible for the recent upward surge in foreign exchange earnings after depending for a long time on raw cotton exports.

1.3.1. Petroleum Exports

Recently, the petroleum sector has become the most important source of foreign exchange to the Egyptian economy. This fact is clear from figure (1.1) which illustrates the main sources of foreign exchange during the period (1973/1982).

The petroleum sector balance of transactions till 1975 showed a deficit, but since 1976 local production increased as well as international oil prices and the sector has a large exportable surplus.

The following table (1.2) shows the petroleum sector exports and imports from 1973 to 1982.

FIGURE (1.1)
EGYPT'S MAIN SOURCES OF FOREIGN EXCHANGE
(1973-1982)

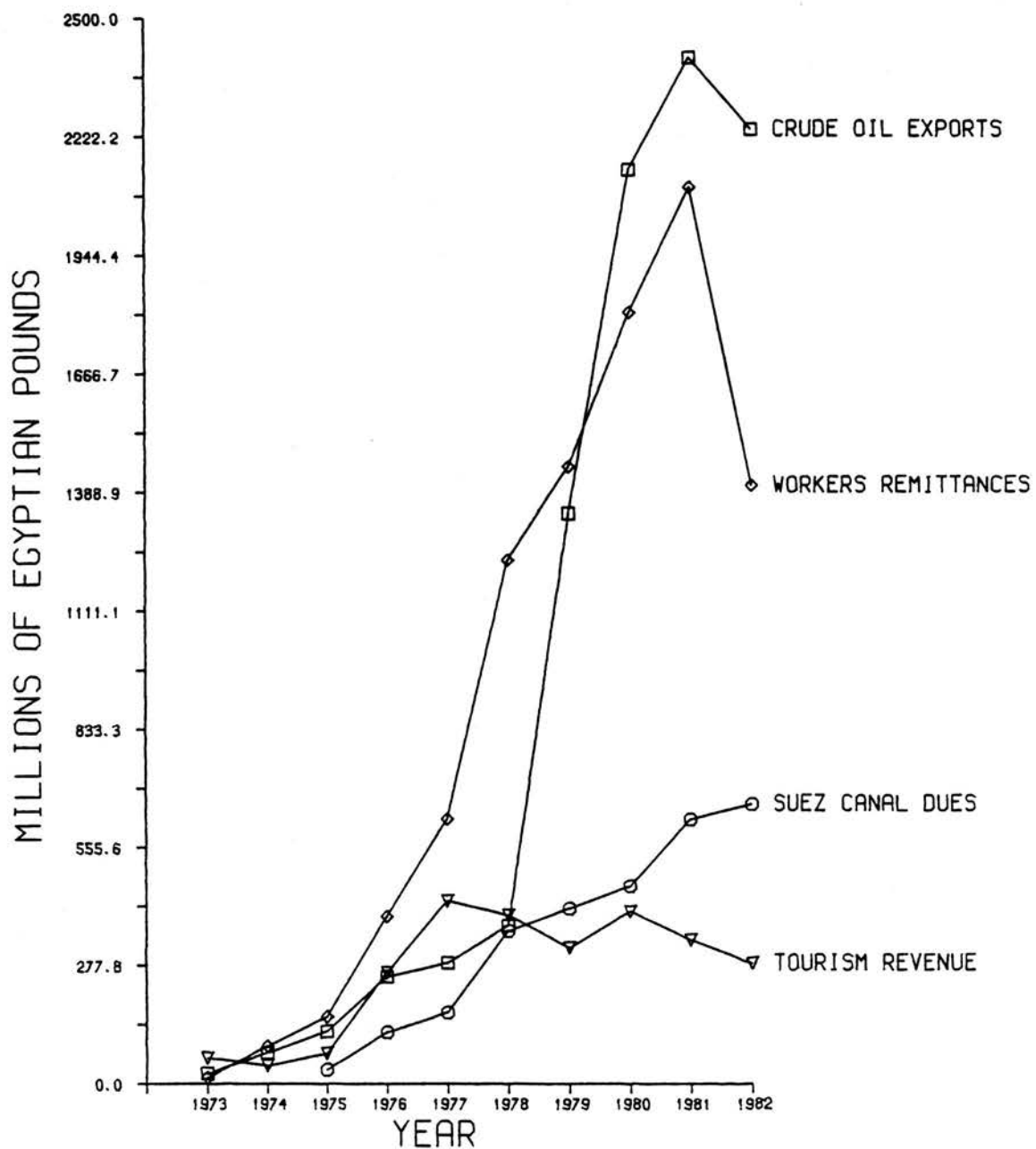


TABLE (1.2)

Petroleum Sector Exports And Imports

(LE MILLIONS)

Years	Exports		Imports		Balance of Petroleum Transactions (value)
	Value	Annual Growth Rate %	Value	Annual Growth Rate %	
1973	24.7	-	35.9	-	-11.2
1974	73.1	+196.0	164.8	+359.1	-91.7
1975	123.6	+69.1	149.7	-9.2	-26.1
1976	252.2	+104.0	129.9	-13.2	+122.3
1977	284.3	+12.7	70.8	-45.5	+312.5
1978	372.0	+30.8	70.7	-0.1	+301.3
1979	1,340.6	+260.4	179.4	+153.7	+1,161.2
1980	2,145.0	+60.0	291.0	+62.2	+1,854.0
1981	2,409.0	+12.3	453.0	+55.7	+1,956.0
1982	2,242.0	-6.9	528.0	+16.6	+1,714.0

Source:- (1973-1979), NBE, Economic Bulletin, various issues, quoting General Petroleum Corporation, Petroleum Bulletin, various issues.

- (1980-1982), CBE, Annual Report (1982/83), Cairo, 1984, p.54.

Petroleum exports have increased sharply since 1973 and in 1976 the balance of petroleum transactions achieved a surplus. In 1979, exports annual growth rate reached (260.4%) as a result of the increase of the international oil price. But in 1982 the export value decreased due to the fall of international oil prices coupled with an increase in payments for petroleum imports amounting to LE 75 millions which led to shrinkage in the petroleum surplus in 1982.

The increasing importance of the petroleum sector played an important role in changing the character of the Egyptian economy as pointed out by one of the World Bank reports:

The rise in petroleum production, coupled with the massive increase in world prices that occurred in the second half of 1979 has had a determining influence on the basic macroeconomic magnitude characterizing the Egyptian economy at the beginning

of the 1980's. All of a sudden the basic resource shortages with which Egypt has struggled throughout the 1970s seem less constraining. The rise in petroleum prices has meant unexpected additional flows of foreign exchange and fiscal revenue. The windfall nature of these additional revenues must be emphasised. They were not built into the 1980 budget so that in Spring of 1980, Egypt had more foreign exchange and more fiscal revenue than it was planning to spend.⁸

With the decrease of world oil prices in 1982, unless the petroleum production increases and the government pays more attention to the other productive sectors in the economy (especially industry and agriculture), it will be difficult to maintain the surge in foreign exchange earnings during the 1980s.

1.3.2. Remittances of Egyptians Working Abroad

Remittances and transfers are received either as cash transfers through the commercial banks pool or used to finance imports through the 'own-exchange' market for imports.⁹

As shown in the following table (1.3), the total remittances increased from LE 14.8 million in 1973 to reach LE 1406.7 millions in 1982. This source of foreign exchange emerges as a result of the increase in the number of Egyptians working abroad and the new foreign exchange rules which legalized the transfer of foreign currency.

TABLE (1.3)

Transfers of Egyptians Working Abroad*

(LE Millions)

Years	Cash Transfers		Own Exchange Imports **		Total Remittances	
	Value	Annual Growth Rate %	Value	Annual Growth Rate %	Value	Annual Growth Rate
1973	14.8	-	-	-	14.8	-
1974	83.2	+462.2	6.0	-	89.2	+502.7
1975	105.7	+27.0	51.8	+763.3	157.5	+76.6
1976	238.1	+125.3	155.7	+200.6	393.8	+150.0
1977	358.2	+50.4	265.2	+70.3	623.4	+58.3
1978	644.5	+79.9	587.2	+121.4	1231.7	+97.6
1979	610.5	-5.3	839.3	+42.9	1449.8	+17.7
1980	759.4	+24.4	1052.2	+25.4	1811.6	+25.0
1980/81	854.4	+12.5	1250.8	+18.9	2105.2	+16.2
1981/82	531.1	-37.8	875.6	-30.0	1406.7	-33.2

Source: CBE, Annual Report, various issues; and NBE, Economic Bulletin, various issues.

* Value is according to the foreign exchange official incentive rates.

** Excluding free zone imports

Total remittances achieved a moderate annual growth rate till 1978 then the growth rate declined. In 1981/82, the value of remittances decreased for two reasons. First, the political instability due to the President's assassination at the end of 1982. Second, the government announced new regulations to restrict private sector imports. These regulations discouraged the flow of transfers into the official banking system pool.

As pointed out earlier in section one, the existence of the free market exchange rates has the serious effect of transferring most Egyptian remittances outside the banking system, as emphasised by Allen(1982):

In the free or black market the dollar/pound rate floats and the pound is offered at a considerable discount compared to the

official exchange rate. Lately the free market exchange rate has averaged about \$1.00 equals LE 1.10 compared to the official exchange rate of \$1.00 equals 82 piasters. The Egyptian banks began offering 82 piasters per dollar last year to try to attract more hard currency. But this simply drove up the black market rate.¹⁰

Table (1.3) shows the negative annual growth rate for cash transfers in 1981/82.

Introducing an active exchange rate would help to channel foreign currency through the banking system and that might help increase the growth rate of Egyptian workers remittances.

1.3.3. Suez Canal Dues

The Suez Canal was opened in June 1975 after being closed since the 1967 war. The Canal dues increased from LE 121.7 millions in 1976 into LE 657.9 millions in 1982. Notice from the following table (1.4) that the annual growth rate for the Canal dues increased till 1981, while in 1982 it declined to 5.8 % only. Table (1.4) also shows that the 1978 high growth rate is mainly due to the increase in the official foreign exchange rates.

TABLE (1.4)

Suez Canal Dues

(LE Millions)

Years	Suez Canal Dues	
	Value	Annual Growth
1966	95.3	-
1975	33.2*	-
1976	121.7	-
1977	167.4	+37.6
1978	359.5	+114.8
1979	412.1	+14.6
1980	464.3	+12.7
1981	621.8	+33.9
1982	657.9	+5.8

Source: NBE, Economic Bulletin, various issues, quoting Suez Canal Authority.

* From June/December 1975.

Note: 1966 through 1977, \$1 = LE 0.39
1978 through 1982, \$1 = LE 0.70

The Suez Canal Authority has made significant investments during the last seven years for widening and deepening the Canal to accommodate large vessels. The second expansion programme will start after evaluation of the first stage profitability and world shipping trends.¹¹

1.3.4. Tourism Revenues

After the ODP the tourism industry witnessed a significant increase in investments allocated to establish new hotels and tourist facilities. Table (1.5) shows the most important indicators regarding Egyptian tourism industry. In spite of the increase in the total number of tourists from 1974 to 1982 and the number of tourist nights, the total tourism revenues experienced a negative growth rate from 1978 to 1982 except for a positive growth rate (26.5%) in 1980.

TABLE (1.5)

Tourism Industry Indicators

(LE Millions)

Years	Total Number of Tourists (000's)	Total Number of Tourists Nights (000's)	Average Period of Stay Night	Total Tourists Revenues	
				Value	Annual Growth Rate %
1973	534.8	6,394	11.9	60.9	-
1974	679.5	6,294	9.2	43.1	-29.2
1975	793.1	5,855	7.3	72.0	+67.1
1976	984.0	6,796	6.9	262.2	+264.2
1977	1,003.9	6,339	6.3	430.3	+64.1
1978	1,051.8	7,137	6.8	395.7	-8.0
1979	1,064.1	7,104	6.7	319.8	-19.2
1980	1,253.1	8,084	6.5	404.6	+26.5
1981	1,376.0	9,806	7.1	337.8	-16.5
1982	1,423.3	9,301	6.5	282.4	-16.4

Source: NBE, Economic Bulletin, Vol.36, No. 1, 1983, p.118, quoting Ministry of Tourism.

In 1977, tourism revenue reached LE 430.3 millions, while in 1982 it declined to LE 282.4. The only explanation for this negative growth rate is that the table data represents the foreign exchange value for tourism revenues channelled through the banking system at the official exchange rates. But, as explained by the Central Bank of Egypt, "The decline in these revenues may be due to leakages outside the banking channels".¹²

1.4. Balance of Payments, Foreign Trade, and External Debt

1.4.1. Balance of Payments

One of the important problems which impede Egyptian economic development is the continuous deficit in the balance of payments from 1970 to 1982.

Table (1.6) shows the balance of payments during the period 1970-1982. The balance of current transactions (balance of receipts and

TABLE (1.6)
Balance of Payments

Items	(LE Millions)												
	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982
Current Transaction Receipts:													
Proceeds of exports	355.4	369.7	353.7	396.3	653.9	612.8	629.7	779.6	1,388.5	1,758.4	2,697.1	2,798.8	2,811.0
Insurance*	0.2	0.4	0.2	0.3	0.2	0.4	0.1	0.2	2.7	3.6	6.8	2.4	4.3
Shipping	4.2	5.3	5.5	5.7	7.9	22.6	37.9	59.8	86.8	117.2	287.7	343.6	393.8
Suez Canal dues	-	-	-	-	-	33.2	121.7	167.4	359.5	412.1	464.3	621.8	657.8
Interest, dividends and other revenues	14.1	12.6	46.3	47.5	107.9	176.9	323.4	394.9	1,334.0	1,763.4	2,205.4	1,863.3	1,797.8
Tourism and other receipts	57.9	60.9	82.1	112.9	161.6	189.4	290.3	376.2	629.0	559.7	774.0	1,752.3	841.9
Total Current Receipts	431.8	448.9	487.8	562.7	931.5	1,035.3	1,403.1	1,778.1	3,800.5	4,614.4	6,435.3	6,382.2	6,506.6
Current Transaction Disbursements:													
Payment of imports	517.8	540.8	559.2	622.3	1,252.8	1,691.1	1,646.2	1,766.0	3,697.8	4,672.6	5,304.4	6,163.4	6,023.7
Films	0.5	0.4	0.6	0.2	0.1	0.9	0.2	0.3	1.6	0.9	2.4	0.7	1.0
Other commercial payments	11.2	13.4	13.3	19.8	36.0	65.3	45.2	49.4	89.2	76.6	92.4	99.2	108.4
Insurance*	2.4	3.4	1.6	1.5	3.5	5.3	3.5	1.7	6.6	5.0	3.4	8.5	9.3
Shipping	8.2	8.3	7.3	6.5	9.3	31.8	31.1	38.0	52.4	59.2	102.8	97.3	100.3
Interest, dividends and other revenues	29.4	32.5	30.4	50.5	61.1	74.5	107.0	124.7	290.3	299.5	426.1	636.4	782.7
Travel and Maintenance	9.0	8.1	18.5	24.0	41.1	41.2	48.3	67.2	180.7	173.2	170.0	164.7	187.5
Government Expenditure	33.4	35.7	27.3	22.7	30.3	40.4	41.6	65.4	110.9	134.5	116.3	157.7	156.0
Other payments	20.6	17.4	32.1	38.5	30.0	53.4	73.0	158.5	262.6	316.8	603.9	583.8	717.9
Total Current Disbursements	632.5	660.0	690.3	786.0	1,464.2	2,003.9	1,996.1	2,271.2	4,692.1	5,738.3	6,821.7	7,911.7	8,086.8
A Balance of Current Transactions	-200.7	-211.1	-202.5	-223.3	-532.7	-968.6	-593.0	-493.1	-891.6	-1,123.9	-386.4	-1,529.5	-1,580.2
B Transfers	+134.0	+121.3	+128.2	+253.7	+405.2	+421.3	+278.1	+174.2	+241.5	+62.1	+68.1	+35.3	+29.5
Surplus (deficit) of current transactions and transfers A + B	-66.7	-89.8	-74.3	+30.4	-127.5	-547.3	-314.9	-318.9	-650.1	-1,061.8	-318.3	-1,494.2	-1,550.7
C Net Capital Transactions	+36.3	+19.8	+66.2	+85.7	+157.7	+695.3	+346.0	+338.0	+737.0	+1,431.7	+907.3	+1,412.6	+1,446.7
D SDRs	+11.0	+8.7	+9.4	-	-	-	-	-	-	+21.1	+21.5	+19.5	-
Overall surplus or deficit A+B+C+D	-19.4	-61.3	+1.3	+116.1	+30.2	+148.0	+31.1	+19.1	+86.9	+391.0	+610.5	-62.1	-104.0

Source: (1970-1980), NBE, Economic Bulletin, various issues.
(1981-1982), CBE, Economic Review, various issues.

* Other than imports and exports.

Note:
1970-1972 US \$1 = LE 0.43
1973-1977 US \$1 = LE 0.39
1978-1982 US \$1 = LE 0.70

disbursements) revealed a deficit of LE 200.7 millions in 1970, and the deficit grew slowly till it reached a level of LE 223.3 millions in 1973.

After the 1973 war, and as a result of the rapid increase of total disbursements, especially imports, the deficit increased rapidly till 1980, a year which showed a little improvement. But, again in 1981 and 1982 the deficit growth rate increased.

The lack of foreign exchange especially to finance imports forced the government to seek external assistance and Arab aid.

The transfers, which mainly relate to Arab support fund, grants and other aid¹³, increased from LE 134 millions in 1970, to LE 421.3 millions in 1975. After the Arab boycott, as a result of the peace treaty, the transfers declined sharply and reached LE 29.5 millions in 1982.

The balance of transfers and current transactions also showed a deficit during the period except in 1973.

The net capital transactions represent the balance between the capital inflow (foreign loans and other transfers) and capital outflow (loans payments). The government depends on the capital inflow to finance the balance of payment deficit.

The period from 1975 to 1982 witnessed a rapid increase in foreign inflows and the net capital transactions revealed a surplus.

The overall balance of payments showed a surplus during this period except in 1981 and 1982, which showed deficits of LE 62.1 millions and LE 104.0 millions respectively. The overall deficit was a result of the decline in oil prices and the increase in imports payments.

1.4.2. Foreign Trade (1970–1982)

Table (1.7) shows the main exports and imports groups during the period from 1970 to 1982.

As for exports, raw cotton used to be the most important source of exports receipts. In 1970, cotton exports share of total exports was 44.7 % and declined to 26.0 % in 1976. Since 1976 petroleum exports have increased and petroleum's share of total exports increased from 25.0 % to 66.2 % in 1982.

Exports of semifinished goods increased from 13.5 % in 1970 to 21.7 % in 1979, but declined again to 7.7 % in 1982.

As regards imports, total imports increased rapidly during the period, especially after 1974. Between 1970 and 1973 there was a very narrow gap between imports and exports, but after 1974 imports increased at rates higher than exports and the trade deficit gap increased as displayed in figure (1.2).

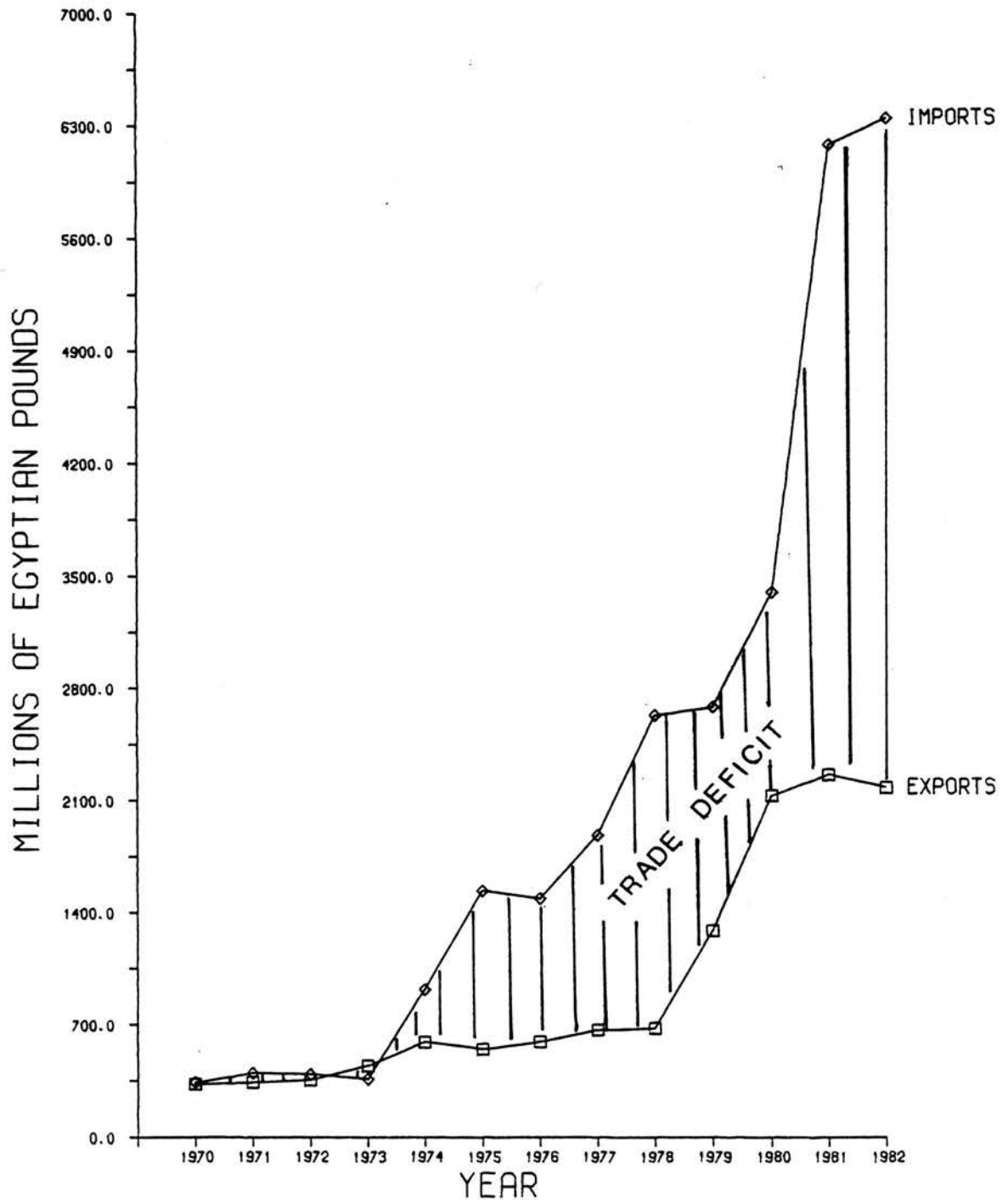
The exports coverage of imports ratio declined during the period and reached to (34.4%) in 1982.

The increase in imports and trade deficit during the period is due to: the increase of imports volume since 1974 (especially intermediate and capital goods), the increase in world prices (especially of foodstuffs) and the application of " own exchange imports" system.¹⁴ Egyptian exports and production for local consumption did not keep up with population growth and that led to an increase in the level of imports.¹⁵

1.4.3. Egyptian External Debt

As a result of the continuous deficit in foreign trade transactions and the balance of payments, the Egyptian external debt increased rapidly during the last ten years, particularly after the 1973 war.

FIGURE (1.2)
EGYPT'S TOTAL EXPORTS AND IMPORTS TREND
(1970-1982)



The total debt outstanding disbursed (DOD) annual growth rate increased sharply from 12.2 % in 1973 to 40.1% in 1977 followed by a less steep growth rate from 1979 till 1982 as shown in table (1.8). This was due to the increase in Egyptian foreign exchange from petroleum exports. In spite of that, the DOD to GNP ratio was 54.2 %. Outstanding loans represent more than 50.0 % of the GNP.

Also , the DOD to exports ratio was 156.5 % in 1981 reflecting the weakness of Egyptian exports power. Egypt paid between 16 % to 24.4 % of its receipts from goods and services exports as debt service (TDS) between 1975 and 1981. On the other hand, the TDS to GNP ratio remained moderate during the period and reached 6.6 % in 1982.

TABLE (1.8)

Egyptian External Debt

(US \$ Millions)

Years	DOD*		GNPE		%	%	%	%
	Value	Growth Rate %	Value	Growth Rate %	DOD / GNP	DOD / XGS	TDS / XGS	TDS / GNP
1972	1,982.4	-	7,774	-	25.5	176.8	31.1	4.5
1973	2,223.6	12.2	9,655	24.2	23.0	156.5	40.2	5.9
1974	2,828.9	27.2	9,086	-5.9	31.1	118.9	21.7	5.7
1975	4,850.2	71.5	11,563	27.3	41.9	183.3	22.5	5.1
1976	5,767.0	18.9	14,050	21.5	41.0	160.9	18.5	4.7
1977	8,084.1	40.1	15,439	9.9	52.4	178.0	24.4	7.2
1978	9,942.9	23.0	16,311	5.6	61.0	183.1	22.4	7.4
1979	11,461.5	15.3	19,293	18.3	59.4	173.7	16.0	5.5
1980	12,785.5	11.6	24,355	26.2	52.5	138.8	15.3	5.8
1981	14,271.2	11.6	25,344	4.1	56.3	156.5	20.9	7.5
1982	15,468.0	8.4	28,517	12.5	54.2	N.A.	N.A.	6.6

Source: World Bank, World Debt Tables, (Washington, D. C.:

World Bank, various issues, (1979-1984).

N.A. = not available.

* Total Debt Outstanding Disbursed (DOD).

£ Gross National Product (GNP).

** Exports of Goods and Services (XGS).

*** Total Debt Service (TDS).

1.5. Egyptian Economy; Problems and Prospects

The previous sections described the development of the important features and indicators of the Egyptian economy. This section presents other constraints and problems which are facing Egypt, and the expected future for the economy.

The subsidy system is one of the critical issues which costs the Egyptian government budget substantial funds to alleviate the burdens of living for low income citizens. This system involves many types of subsidies, but the most important ones are those related to food and basic commodities such as wheat, flour, rice and other basic goods.¹⁶

According to the state budget, { see table (1.9)}, the subsidy item accounts for 25.4% in 1981/82 and 23.3% in 1982/83 of the total budget uses. The government proposed to reduce the subsidy funds to only 16.9% in the draft budget for 1983/84. Subsidy funds are the second item after wages in the state budget.

In addition to these funds , there are also indirect subsidies through fixing the prices of some strategic products prices lower than the international prices and sometimes lower than local cost (for example, energy prices for electricity and petroleum).¹⁷

It is also worthwhile mentioning that, for a long time Egypt has been a fixed price economy. Till mid-1970 domestic prices never adjusted to international price changes.¹⁸ The market mechanism used to have no affect on the prices, but after the ODP the market mechanism played a part in the uncontrolled sectors of the economy and prices and wages did surge upward. However, major changes in the controlled sectors could not be achieved.¹⁹

What are the possibilities of changing the subsidy and price system to

reflect the market mechanism?. In the past the government found it very difficult and costly to change prices for basic and subsidised goods for social and political reasons. "When attempts were made in 1977, the social reaction was immediate and threatening"²⁰.

So obviously, it is clear that social and political factors will have a serious impact by forcing the maintenance of controlled prices for basic and subsidised goods. Further, it will be difficult to make any significant changes in the current subsidy system as long as the majority of the working force are working for the government and the public sector companies at very low wages.

Another important problem is the industry and agriculture sectors' share in GDP. It was shown that the petroleum sector was responsible for increasing GDP, exports receipts and foreign exchange. Petroleum is a natural resource that has provided "windfall" benefits to the economy. Industrial and agricultural production have not been enough to meet the local consumption, thus imports increased rapidly.

One of the Open Door Policy's obvious disadvantages is that less effort has been devoted to increase the domestic production within the agriculture and industry sectors. Is this inevitable? As long as the majority of the industrial sector companies belong in public ownership, the public sector is responsible for production deterioration. ". . . it is undeniable that large segments of the public industrial sector suffer from technical inefficiency and serious management problems".²¹ This fact is also shown in table (1.9). In the government's current revenue the surplus of Suez Canal Authority represents (in 1982/83) 3.6% of the total revenues, while the government's share in companies profits accounts for 3.0% only, in spite of the fact that almost all the productive sectors are owned by the public sector.

The government should seek better ways to increase public sector efficiency and productivity.

The Egyptian economy will face many challenges in the future to create new productive sources to generate foreign exchange, to increase local production to meet the local demand needs, to reduce the gap in the balance of foreign trade transactions and finally to reduce the balance of payments deficit.

Introducing a realistic exchange rate would help in channelling foreign exchange earnings from workers remittances and tourism revenues through the banking system. Also, it would help to get rid of the free (black) market for foreign exchange which distorted the allocation of resources within the Egyptian economy.

References

1. One Feddan = 1.038 acres = 4,200.8 square meters.
2. Ali E. Hillal Dessouki, "The Politics of Income Distribution in Egypt", in The Political Economy of Income Distribution in Egypt, Gouda Abdel-Khalek and Robert Tignor, eds., (New York: Holmes and Meier, 1982), pp. 63-64.
3. Ibid., p. 64.
4. Central Bank of Egypt (CBE), "Structural Changes In the Egyptian Economy Since 1952/1953, Economic Review, Vol. 18, No. 3 & 4, 1978, p. 209.
5. International Bank For Reconstruction and Development (IBRD), Egypt, Economic Management In A Period of Transition, by Khalid Ikram, Co-ordinating Author, (Baltimore: The Johns Hopkins University Press, 1980, p. 4.
6. National Bank of Egypt (NBE), "Guaranteed Floating Rate Serial Notes 1987", Placement Memorandum, June 1983, p. 33.
7. Dessouki, p. 81.
8. World Bank, Arab Republic of Egypt: Domestic Resources Mobilization and Growth Prospects for the 1980's, Unpublished Report, December 1980, p. 34.
9. The Government allowed Egyptians working abroad to import goods using their savings in foreign currency directly without banks' transfer of currency.
10. Muriel Allen, "New Import Regulations Introduced", Cairo Today, Vol. 3, No. 5, May 1982, p. 21.
11. NBE, "Guaranteed Floating Rate Serial Notes 1987", p. 38.
12. CBE, Annual Report (1982/83), p. 46.
13. CBE, "Balance of Payments Developments (1952-1978)", Economic Review, Vol. 21, No. 1, 1981, p. 13.
14. CBE, "Development of Egypt's Foreign Trade During the Period 1952-1978", Economic Review, Vol. 19, Nos. 3 & 4, 1979, p. 243.
15. NBE, "Guaranteed Floating Rate Serial Note 1987", p. 44.
16. Gouda Abdel-Khalek and Robert Tignor, eds., The Political Economy Of Income Distribution in Egypt, (New York: Holmes and Meier, 1982) pp. 12-13.
17. CBE, "US\$ 200,000,000 Stand By Revolving Credit", Placement Memorandum, Cairo, March 1982, p. 13.
18. World Bank, Arab Republic of Egypt: Domestic Resources Mobilization

And Growth Prospects for the 1980's, p. 5.

19. Ibid.

20. Ibid.

21. Ibid.,p. 86.

CHAPTER 2
EGYPTIAN FINANCIAL SYSTEM

Introduction

The purpose of this chapter is to describe the Egyptian financial system. Special attention will be given to the banking system institutions.

This chapter is divided into the following sections:

Section One: The banking system development.

Section Two: The present structure of the Egyptian banking system.

Section Three: Islamic banks.

Section Four: Securities market.

Section Five: Insurance sector.

Section Six: Summary.

2.1. The Banking System Development

The banking system development can be divided into the following four stages:

Stage One: Foreign banks dominance (1856–1957).

Stage Two: Egyptianising the banking system (1958–1963).

Stage Three: Sectoral and functional specialization (1964–1973).

Stage Four: The Open Door Policy and the emergence of private joint venture and foreign banks.

2.1.1. Stage One: Foreign Banks Dominance (1856–1957)

The Egyptian banking industry was started in 1856 by establishing the Egyptian (Misri) Bank, after which followed the establishment of a number of foreign-owned banks.¹ The main object of these banks was to finance the foreign communities' interests in Egypt.

The first Egyptian bank (Banque Misr) was established in 1920 and financed by Egyptian savings. This bank played a major role in financing and creating new industrial companies, acting as an investment and development

bank and established more than 19 projects.²

During the 1950's a number of Egyptian banks were established such as: Banque du Cairo in 1952, Gomhouria (Republic) Bank in 1955 and the total number of banks had increased to 31.³ In 1951 the National Bank of Egypt was authorized to act as the Central Bank.⁴

2.1.2. Stage Two: Egyptianising The Banking system (1958 – 1963)

In 1957 the government Egyptianised all the foreign banks to liberate the banking system from foreign control. By the end of 1961 the government nationalized all the financial institutions and the central Bank of Egypt was established. In 1962, the government started a series of mergers which reduced the number of banks to five commercial banks, three mortgage banks and one agricultural credit bank.⁵

2.1.3. State Three: Sectoral and Functional Specialization (1964–1973)

During this period the state confined to each bank a special public sector to serve. The private sector was free to deal with any bank.

In 1972, another scheme was introduced shifting the sectorial policy into functional specialization. Each bank was confined to a specific function; foreign trade, local trade and agriculture, industry and service.⁶ The number of public sector commercial banks were reduced to only four.

Figure (2.1) displays the banking system structure at the end of 1973.

2.1.4. Stage Four: The Open Door Policy And The Emergence of Private, Joint Venture and Foreign Banks

The investment law number 43 of 1974 as amended by law number 32 of 1977 legalized the establishment of private and joint venture banks. A new law number 120 of 1975 was issued organizing the Central Bank of Egypt and the banking system. By the end of 1975, the government ended the functional

FIGURE (2.1)

Egyptian Banking System Structure

Banks Operating in Egypt as of December 1973	Banks Number	Banks Operating in Egypt as of December 1982	Banks Number
- Central Bank of Egypt (CBE)	1	- Central Bank of Egypt	1
- Public Sector Commercial Banks (PSCB)	4	- <u>Commercial Banks</u>	(35)
- Public Sector Specialised Banks (PSSB)	3	- Public Sector (PSCB)	4
- Multinational Offshore Banks	2	- Joint Ventures (JVCB)	11
		- Private, Egyptian owned	9
		- Regional Banks	11
		- Investment Banks	8
		- Public Sector Specialised Banks (PSSB)	4
		- Foreign Banks Branches	19
		- Free Zone Banks	1
		- Multinational Offshore Banks	2
		- Representative Offices of Foreign Banks	38

specialization policy.

Since 1975 the banking system witnessed a rapid growth in the number of banks. Figure (2.1) shows the present structure of the banking system by the end of 1982. This shows that the number of banks increased from 10 at the end of 1973 , to 70 at the end of 1982 in addition to 38 representative offices of foreign banks.

The new banks are expected to achieve the following goals:

- To attract and provide foreign funds required to finance productive projects.
- To provide credit facilities for international trade transactions (especially imports).
- To transfer modern technology to the Egyptian banking system and to create competition between these banks and the public sector banks.
- To help in developing the Egyptian securities and money markets.

2.2. The Present Structure of the Egyptian Banking System

2.2.1. The Central Bank of Egypt (CBE)

The CBE is owned by the government and is responsible for supervising all the banks operating in Egypt. The main functions of the bank are: a) issuing notes, b) serving the government transactions and debts, c) managing the state's foreign currency reserves and assets, d) extend loans to the government, and, e) achieving economic monetary equilibrium and stability.⁷

The banking system law number 120 of 1975 gave CBE more independence and increased its power on the banking system. The CBE regulates the credit and banking policy and supervises its development according to the government plans.⁸

2.2.2. Commercial Banks

At present there are four public sector banks, nine private banks (wholly owned by Egyptians), and 11 joint venture commercial banks (JVCB). In addition, there are 11 new regional commercial banks started recently in 1981.

The banking law number 125 of 1975 defines the commercial banks as follows:

The term "Commercial banks" shall be held to mean banks that usually accept deposits payable on demand or within fixed periods; carry out internal and external financing and the servicing thereof in such a manner as to achieve the objectives of the development plan and the State's policy as well as the fostering of the national economy, effect operations for the promotion of savings and for the financial investment locally and abroad, including participation in the establishment of projects as well as the banking, commercial and financial operations pertaining thereto, in accordance with the conditions laid down by the Central Bank.⁹

All commercial banks operating in Egypt deal in both local and foreign currencies. The Egyptian partner in JVCB must possess at least 51% of the total Capital.

2.2.3. Investment and Foreign Banks

This sector consists of:

- Six joint venture investment banks (JVIB).
- Two Egyptian owned investment banks.
- Nineteen branches of foreign banks (BFB).

The JVIB deal in foreign currency and are allowed to deal in local currency with the CBE permission provided that the Egyptian partner should possess 51% of the capital. Meanwhile, BFB are considered as offshore banks and deal only in foreign currency. The law defines investment banks as follows:

The term "investment and business banks" shall be held to mean banks that carry out operations related to the pooling and promotion of savings for the purpose of the investment in accordance with the economic development plans and the policies envisaging the fostering of the national economy. In this respect such banks may establish investment companies or other companies exercising various types of economic activity. They may also undertake financing of Egypt's foreign trade operations.¹⁰

2.2.4. Commercial, Investment and Foreign Branches Banks General

Performance¹¹

-Banking Sectors Growth¹²

The public sector commercial banks (PSCB) are still considered as the most important sector in relation to other banking sectors. Table (2.1) shows that the PSCB share of the banking sectors' total assets declined from 82.9% in 1978 to 61.8% in 1981. The PSCB total assets average annual growth rate is lower than the other banking sectors.

The joint venture and private commercial banks sector (JVPCB) achieved a higher growth rate than the other sectors. Their total assets value increased more than eight times the 1978 base with an average growth rate of 104.9 % during the period. Investment banks constitute 4.9% of the total assets in 1981 with an average growth rate of 49.7%, while branches of foreign banks sector (BFB) share is 9.3% of the banking sectors' total assets with an average annual growth rate of 32.2%.

TABLE (2.1)
Banking Sectors Total Assets (As of December 31)

Years	(LE Million)											
	1978		1979		1980		1981		1978-1981 Growth Rate %	Average Annual Growth Rate %		
	Value	%	Value	%	Value	%	Value	%				
Banking Sectors	6519	82.9	7494	78.3	10369	74.5	11148	61.8	71.0	20.3		
- Public Sector Commercial Banks	506	6.4	977	10.2	1941	13.9	4328	24.0	755.3	104.9		
- Joint Venture and Private Commercial Banks	266	3.4	385	4.0	576	4.1	892	4.9	235.3	49.7		
- Investment and Business Banks	576	7.3	714	7.5	1040	7.5	1684	9.3	192.4	43.9		
- Branches of Foreign Banks*	7867	100.0	9570	100.0	13926	100.0	18052	100.0	129.5	32.2		
Total Assets for Banking Sectors												

Source: Computed from CBE, quoted in Foda, Exhibits 11, 14, 17 and 20.

* Branches of Foreign Banks deal only in foreign currency and their data are the foreign currency equivalent in Egyptian pound.

-Deposits

The following table (2.2) shows the banking sectors' breakdown of deposits from 1978 to 1981. Notice that the private sector deposits are the most important source of funds for all the banking sectors. The private sector share of total deposits increased during the period (1978-1981) for all the banking sectors except investment banks. Conversely, the public sector deposits share decreased, especially for PSCB and JVPCB.

Government deposits do not represent a significant share of total deposits for any sector except for the PSCB where the government deposits equal on average 5.5% during the period from 1978 to 1981.

As for the total deposits growth rate, table (2.3) shows that the JVPCB sector deposits achieved the highest growth rate during the period (1978-1981) and the average annual growth rate was 98.6%.

Table (2.4) shows the breakdown of deposits by currency. By the end of 1981 the PSCB sector was mainly supplied with local currency (LC) deposits which represent 73% of the total deposits. Meanwhile, the JVPCB LC deposits increased from 46% in 1978 to 52% in 1981 exceeding the foreign currency (FC) counterpart. By the end of 1981, 79% of the investment banks deposits were in FC and 21% in LC as some banks obtained permission to deal in LC.

-Loans

Table (2.5) shows the banking sectors' total loans. The JVPCB sector total loans registered a total growth of 1314.9% during the period (1978-1981), with average annual growth rate 145.1%. This sector's total loans share increased from 4.9% to 21.6% by the end of 1981.

The majority of the banking sectors loans are short term (less than

TABLE (2.2)

Banking Sectors Breakdown of Deposits (As of December 31)

Years	1978				1979				1980				1981			
	Government	* Public Sector	** Private Sector	Others	Government	* Public Sector	** Private Sector	Others	Government	* Public Sector	** Private Sector	Others	Government	* Public Sector	** Private Sector	Others
Banking Sectors																
- Public Sector Commercial Banks	5.6	40.5	48.3	5.6	5.2	42.3	49.4	3.1	5.9	40.1	52.3	1.7	5.1	37.2	56.6	1.1
- Joint Venture and Private Commercial Banks	0.0	30.3	59.6	10.1	0.4	30.9	60.8	7.8	0.7	26.0	68.6	4.8	0.9	19.6	77.3	2.2
- Investment and Business Banks	0.0	15.4	84.6	00.0	0.0	19.0	81.0	0.0	0.0	15.3	84.7	0.0	0.3	18.6	81.1	0.0
- Branches of Foreign Banks	0.1	1.1	77.7	21.1	0.1	2.3	77.0	20.6	0.1	1.2	82.7	16.0	0.0	1.1	85.7	13.2

Source: Computed from CBE, quoted in Foda, Exhibits 12, 15, 18 and 21.

* Public sector includes public business sector and financial intermediaries.

** Private Sector includes private business sector and household sector (individuals, non-profit organisations and foreign institutions operating in Egypt).

TABLE (2.3)

Banking Sectors Total Deposits (As of December 31)

(LE Million)

Years	1978		1979		1980		1981		1978-1981 Growth Rate %	Average Annual Growth Rate %
	Value	%	Value	%	Value	%	Value	%		
Banking Sectors										
- Public Sector Commercial Banks	3464	83.0	4523	80.4	5754	76.0	7161	67.6	106.7	27.4
- Joint Venture and Private Commercial Banks	328	7.9	598	10.6	1151	15.2	2544	24.0	675.6	98.6
- Investment and Business Banks	91	2.2	142	2.5	249	3.3	328	3.1	260.4	54.4
- Branches of Foreign Banks	290	6.9	367	6.5	421	5.5	557	5.3	92.1	24.5
Total Deposits for Banking Sectors	4173	100.0	5630	100.0	7575	100.0	10590	100.0	153.8	36.4

Source: Computed from CBE, quoted in Foda, Exhibits 12, 15, 18 and 21.

TABLE (2.4)
Banking Sectors Deposits Breakdown by Currency (As of December 31)

Banking Sectors	1978		1979		1980		1981	
	LC	FC	LC	FC	LC	FC	LC	FC
- Public Sector Commercial Banks	72	28	72	28	71	29	73	27
- Joint Venture and Private Commercial Banks	46	54	45	55	51	49	52	48
- Investment and Business Banks	9	91	9	91	8	92	21	79
- Branches of Foreign Banks	-	100	-	100	-	100	-	100

Source: Computed from CBE, quoted in Foda, Exhibits 12, 15, 18 and 21.

NB: LC means Local Currency (Egyptian Pound) - FC means Foreign Currency equivalent in Egyptian pound.

TABLE (2.5)
Banking Sectors Total Loans (As of December 31)

Years	1978		1979		1980		1981		1978-1981 Growth Rate %	Average Annual Growth Rate %
	Value	%	Value	%	Value	%	Value	%		
	Banking Sectors	2090	89.3	2390	81.0	3451	77.7	5209		
- Public Sector Commercial Banks	114	4.9	324	11.0	623	14.0	1613	21.6	1314.9	145.1
- Joint Venture and Private Commercial Banks	34	1.5	79	2.7	142	3.2	286	3.8	741.2	104.5
- Investment and Business Banks	102	4.3	157	5.3	226	5.1	382	5.1	274.5	55.6
- Branches of Foreign Banks										
- Total Loans for Banking Sector	2340	100.0	2950	100.0	4442	100.0	7490	100.0	220.1	48.4

Source: Computed from CBE, quoted in Foda, Exhibits 13, 16, 19 and 22.

TABLE (2.6)
Banking Sectors Loans Breakdown by Maturity (As of December 31)

Years	1978		1979		1980		1981	
	One Year	More Than One Year	One Year	More Than One Year	One Year	More Than One Year	One Year	More Than One Year
	Banking Sectors	99	1	98	2	98	2	98
- Public Sector Commercial Banks	86	14	90	10	92	8	94	6
- Joint Venture and Private Commercial Banks	73	27	71	29	78	22	60	40
- Investment and Business Banks	91	9	90	10	89	11	86	14
- Branches of Foreign Banks								

Source: Computed from CBE, quoted in Foda, Exhibits 13, 16, 19 and 22.

one year). The PSCB loans of more than one year were only 2.0% in 1981. As for JVPCB, term loans (more than one year) decreased from 14% to 6% in 1981.

On the other hand, the investment banks term loans increased from 27% to 40% and BFB sector term loans increased from 9% to 14% in 1981.

The PSCB mainly allocated loans to the public sector but with an increasing trend towards lending to the private business sector. This is shown in table (2.7) , where the private business sector loans as a percentage of total loans increased from 16% to 32%. The other banking sectors mainly lend to the private business sector.

Finally, as for the loans breakdown by currency, table (2.8) shows that PSCB mainly allocated loans in LC (95% of total loans in 1981). The JVPCB FC loans increased from 34% to 43% in 1981. Also investment banks LC loans increased from 2% to 36% in 1981.

2.2.5. Public Sector Specialized Banks [PSSB]

At present there are four PSSB owned by the government.

- A. One industrial bank.
- B. Two Real Estate banks.
- C. Agricultural banks.

A. The Industrial Development Bank

The bank was established in 1975 as a public sector bank with a capital of LE 5 million subscribed by the CBE which increased to LE 25 million by the end of 1981.¹³

The objective of the bank is to finance the industrial sector by extending long term credit, especially to private sector projects. The bank has a special department to conduct feasibility and technical studies. Its basic

TABLE (2.7)
Loans Extended By Banking Sectors to Public and Private Business* (As of December 31)

Years	1978		1979		1980		1981	
	Public	Private	Public	Private	Public	Private	Public	Private
Banking Sectors	84	16	79	21	75	25	68	32
- Public Sector Commercial Banks	18	82	10	90	12	88	9	91
- Joint Venture and Private Commercial Banks	0	100	0	100	1	99	26	74
- Investment and Business Banks	6	94	13	87	7	93	6	94
- Branches of Foreign Banks								

Source: Computed from CBE, quoted in Foda, Exhibits 13, 16, 19 and 22.

* Includes non-public sector Joint Stock Companies, Limited Liabilities, Partnerships, Cooperatives and Proprietorships.

TABLE (2.8)
Banking Sectors Loans Breakdown by Currency (As of December 31)

Years	1978		1979		1980		1981	
	LC	FC	LC	FC	LC	FC	LC	FC
Banking Sectors	98	2	98	2	96	4	95	5
- Public Sector Commercial Banks	66	34	61	39	58	42	57	43
- Joint Venture and Private Commercial Banks	2	98	11	89	14	86	36	64
- Investment and Business Banks	-	100	-	100	-	100	-	100
- Branches of Foreign Banks*								

Source: Computed from CBE, quoted in Foda, Exhibits 13, 16, 19 and 22.

* Deal only in foreign currency.

sources of funds are loans from CBE and international organization. By the end of June 1982 the bank total assets reached to LE 254 million.¹⁴

B. Real-Estate Banks (Mortgage Banks)

There are two public sector mortgage banks. These banks grant long term loans to finance the building of houses, purchase of land and reconstruction projects.¹⁵ Loans maturity range is between five and 30 years.

Mortgage banks main sources of funds are

1. Long term loans from financial institutions such as insurance companies and CBE.
2. Issuing long term bonds as the Egyptian Real-Estate Bank had issued bonds in 1951 which still traded in the stock exchange.¹⁶

Recently, the government established a new Reconstruction and Housing Bank to help in solving the housing problems in Egypt.

The real-estate banks total assets are LE 674.5 million on June 30, 1982.¹⁷

C. Agriculture Banks

There are 18 agriculture banks in Egypt. The Principal Bank for Development and Agricultural Credit headquarter is in Cairo and has 17 regional Development and Agricultural Credit Banks branches throughout the country.¹⁸ Each regional branch has its sub-branches at the local council and villages level (Village Bank).

Agricultural banks provide agricultural credit required to finance: a) Land reclamation and cultivation, b) medium term loans required for agricultural

equipment and livestock, c) digging of canals, d) short term credit to finance harvest expenses and e) long term loans for land reclamation companies.¹⁹

The agricultural banks obtain their funds from farmers' and co-operative associations' deposits in addition to borrowing from the banking system. By the end of June 1982, the total assets for the Principal Bank and its branches reached to LE 1148.7 million.²⁰

2.3. Islamic Banks

This section discusses the Islamic banks' concepts²¹ and describes the Egyptian Islamic institutions.

It is important to refer to these banks because they constitute a part of the financial system that has grown extremely rapidly. One of the the Islamic banks in its first four years of operation has grown to approximately twice the size of the largest joint venture bank in this study.

2.3.1. The Concepts of The Islamic Banks

Islamic banks are new financial institution which carry out a number of operations according to the Islamic principles (Shariaa).²²

Their system based on the profit-and-loss-sharing (PLS) principle as an alternative to the fixed interest rates which are considered as Riba (usury) and abolished in Islam.²³ All their operations have no predetermined fixed return. The reason is the risk and uncertainty involved in investment decisions. The Islamic bank and the bank's customer (partner) should share the risk together according to the actual profits or losses resulted from the investment.

To differentiate between Islamic banks' and other traditional banks' operations, the following is a summary of the model presented by Karsten (1982)²⁴ :

Interest rate bank:

Let, P_0 = amount of principal lent to the borrower in period t_0

P_1 = agreed amount of capital that has to be returned at t_1

If, $P_1 > P_0$ $r = P_1 - P_0$ (1)
 the difference between P_1 and P_0 is the
 additional amount (prefixed interest) the borrower
 has to pay with the principal at t_1 ,
 and considered as Usury in Islam.

Interest free bank: (PLS), As the expected return is uncertain the bank and the customer (partner) will participate in investment and will share an agreed proportion Φ of the actual net profits.

let, R = total revenue
 C = total costs
 E = expected value
 A = actual value

The expected profits for a participant in a joint venture are:

(Profits) $\Pi = \Phi E (R - C)$ at time t_0 (2)

At the end of the investment period the actual profit for each partner is

$\Pi = \Phi A (R - C)$ at time t_1 (3)

Equation three ensures that both the bank and the partner shared the actual net profits which is quite different from the expected one.

Islamic Banks Sources of Funds

The main sources of funds for Islamic banks are current accounts, savings deposits, investment deposits and ZaKat funds.

A. Current Account Deposits. It is an interest free account. The bank provide holders with a free-of-charge banking service such as: a) issuing of cheque-books, b) the payment and collection of cheques and money orders on behalf of their clients, and c) overdraft facilities which is allowed at a specific agreed limit between the bank and customer in advance.²⁵

Current account deposits funds are used to meet short term financial needs and are not to be used in investment operations.

B. Investment and Saving Deposits: This is the counterpart of fixed and time deposits. Clients deposit their savings in investment accounts for a specific period (six months or one year). The bank invests these funds in the basis of PLS principle.

Islamic banks also open investment accounts for specific projects and the return depends on the results of each project.

C. The ZaKat Funds: ZaKat is the social taxation system in Islam. The Islamic bank collects and allocates ZaKat funds from:

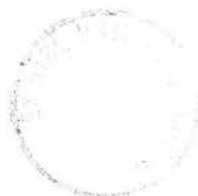
- ZaKat due on the Bank's funds.
- ZaKat offered by owners of investment accounts.
- ZaKat from shareholders.
- Donations offered to the ZaKat funds.

According to the Islamic Shariaa ZaKat is an annual levy of 2.5% on personal wealth. The Islamic bank distributes ZaKat funds for charitable purposes.

Islamic Banks Use of Funds

Islamic banks invest their funds according to PLS principle in the following basic types of Islamic contracts:

1. Mosharaka (Profit Sharing)
2. Modarabah (Trust)
3. Morabaha (Financing Trade)



4. Other services

A. Mosharaka (Profit Sharing): A joint venture agreement between the bank and the client. The two partners share in providing the required capital or the bank can finance the project to be managed by the client over a predetermined time span.²⁶ Profits are shared according to an agreed proportions which reflect capital and management participation. Losses are shared according to their contribution in capital.

B. Modarabah (Trust): Is a contract between the Islamic bank, which provide all the required capital of a partnership and the client which is responsible for management efforts. Profits and losses are shared between the client (management) and the bank (capital) according to predetermined agreed proportion. In the case of loss, the bank bears the financial loss entirely and the client receives no return for his effort. "However, should it proved that the expert was neglectful or incurred an infraction to the conditions of the Modarabah he would be responsible for the losses resulting from his neglect".²⁷

C. Morabaha (Financing Trade): In Morabaha the client asks the bank to purchase equipment or goods on his behalf and the bank resells it to him at cost plus an agreed margin (a certain percentage as profit) to be added to the total cost of the commodity to decide its selling price.

D. Other Services:

- Islamic banks participate in establishing companies either as partners by financing part of the capital required for medium and long term enterprises or by establishing the bank's own subsidies.

- Kard Hassan (interest-free-loan): Islamic banks offer interest free loans in certain cases for social assistance.
- Ijara (lease): The Islamic bank leases the equipment requested by a client against an agreed rental.²⁸ In some other cases the bank permits the client to purchase the equipment under special arrangements.

Since the mid-seventies, a number of Islamic banks have been founded in Egypt and the international markets. There are more than 30 Islamic financial institutions all over the world.²⁹

In 1977, an International Association of Islamic Banks was formed to coordinate and to promote for the co-operation between Islamic banks and to find out solutions to their common problems.³⁰

2.3.2. Egyptian Islamic Banks

There are three Islamic banks operating now in Egypt.

1. Nasser Social Bank.
2. Faisal Islamic Bank of Egypt.
3. Islamic International Bank for Investment and Development.

-Nasser Social Bank

The bank was established in 1971. The object of the bank was to render social services for low income groups, pensions and welfare benefits, to grant free interest loans for needy people and to manage a special fund for social insurance service.³¹

The bank receives its sources of funds from the Ministry of Finance and takes 2% of the net profit of public sector companies. The bank invests its

funds according to the partnership system and participates in joint venture projects with his clients.

-Faisal Islamic Bank of Egypt

The bank was the first Islamic commercial bank to be established in Egypt in 1979. Issued capital was fixed at US\$ 8 million and raised to US\$ 40 million to meet over subscription.³²

Faisal Islamic Bank is authorized to perform all commercial and investment banks activities. The objective of the bank is to promote and participate in financing industrial and urbanization development projects locally and abroad within the framework of Islamic Shariaa. The bank enjoys tax holiday for 15 years on all types of activities.³³

The bank has a religious supervisory board to observe and verify the conformance of its operations with the principles and rules of Islamic Shariaa.³⁴

During the first four years the bank opened ten new branches affiliated to it in Cairo and six regions in addition to eleven more branches under establishment.³⁵

Table (2.9) illustrates the bank's balance sheet from 1979 to 1982. From the table the following facts may be deduced :

1. The bank's total assets increased rapidly and in four years the bank grew more than 25 times (from US\$ 39 million in 1979 to US\$ 997 million in 1982).
2. The main source of the bank's funds is the investment, current and saving accounts which represent 79.5% of the total assets in 1982.

TABLE (2.9)
Faisal Islamic Bank of Egypt Balance Sheet (1399-1402)H* (\$ Thousands)

Assets	1399H (1979)		1400H (1980)		1401H (1981)		1402H (1982)		Liabilities	1399H (1979)		1400H (1980)		1401H (1981)		1402H (1982)	
	Value	%	Value	%	Value	%	Value	%		Value	%	Value	%	Value	%	Value	%
Cash, due from Banks and Correspondents	11,293	29.2	34,584	17.7	191,518	34.2	147,895	14.9	Investment, Current and Savings Accounts	23,626	61.0	140,137	71.6	469,206	83.8	792,592	79.5
Short Term Applications	-	-	25,714	13.1	64,215	11.5	42,085	4.2	Banks and Correspondents	-	-	22,058	11.3	28,819	5.1	29,713	3.0
Murabaha, Mudarabah, and Investment Operations	24,084	62.2	129,194	66.0	285,090	50.9	778,450	78.1	Sundry Credit Accounts	1,948	5.0	4,894	2.5	35,892	6.4	133,372	13.4
Sundry Debit Accounts	849	2.2	2,632	1.4	10,235	1.8	7,041	0.7	ZaKat Fund	-	-	284	0.1	270	-	191	-
Contribution in the Bank's Companies and other Companies	-	-	-	-	2,811	0.5	9,695	1.0	Provision for Commercial Operations, Musharakah, Murabaha and Investment Risks	-	-	247	0.1	546	0.1	910	0.1
Investment in Purchasing Land for Building	-	-	1,033	0.5	2,294	0.4	3,165	0.3	<u>Shareholders Equity</u>								
Other Assets	399	1.0	340	0.2	-	-	-	-	Paid-up Capital	10,000	25.8	18,961	9.7	19,724	3.5	29,627	3.0
Fixed Assets (after depreciation)	2,112	5.4	2,222	1.1	4,119	0.7	8,183	0.8	Capital Instalments paid in advance	1,796	4.7	658	0.3	1,501	0.3	269	-
									General Reserve	-	-	99	0.1	547	0.1	959	0.1
									Private Reserve	-	-	-	-	-	-	3,143	0.3
									<u>Net Profit</u>	1,367	3.5	9,816	5.0	32,372	5.8	69,381	7.0
									Distributed Revenue for Investment Accounts	-	-	1,435	0.7	28,595	5.1	63,643	6.4
									Net Distributable Profit	1,367	3.5	8,381	4.3	3,777	0.7	5,738	0.6
Total Assets	38,737	100.0	195,719	100.0	560,262	100.0	996,514	100.0	Total Liabilities	38,737	100.0	195,719	100.0	560,282	100.0	996,514	100.0

Source: Faisal Islamic Bank of Egypt, Annual Report, (1399, 1400, 1401, 1402 H).

* H = (Hegra) Islami calendar year.

3. The bank allocated his funds mainly as Morabaha, Modarabah, and investment operations which account for 78.1% of the total assets in 1982.

4. The return on total assets (Net Profits/Total assets) ratio increased from 3.5% in 1979 to 7.0% in 1982.

The bank's growth in size and branches reflects the importance of the Islamic institutions in local market and its future prospects.

-Islamic International Bank for Investment and Development

The bank was founded in 1980 as a private investment Islamic bank with a starting capital base of US\$ 12 million. It is more oriented towards financing and participating in investment projects, securities investment and replacement and renewals of the existing projects.³⁶

In addition to the above mentioned Islamic banks, it is worth while to mention that a number of other commercial banks have already opened special Islamic branches to satisfy their clients demand for Islamic banks operations.

2.4. Securities Market

There are two stock exchanges in Egypt. The first one was established in Alexandria in 1883 and is considered as one of the oldest markets in the world.³⁷ The Cairo Stock Exchange was established in 1890.

The Egyptian secondary market was very active during the 1950's. The number of shares listed in the official list were 228 out of 650 joint stock companies and the total value of the negotiated securities at Cairo and Alexandria Stock Exchange was LE 387 million in 1955.³⁸

Table (2.10) shows the market value of the Cairo stock exchange securities transactions from 1956 till 1982. In 1958 the total value of trading

reached LE 66.7 million, then deteriorated gradually, especially during the sixties, as a result of nationalization laws. Kerr (1983) remarked that:

The exchange have continued to exist but with virtually no securities, trading almost disappeared completely. In fact, most of the trading activity since that time has been either in government bonds or in shares of public sector controlled companies.³⁹

The number of joint stock companies before nationalization was 925 companies and the number of companies which survived the nationalization law was only 30 companies.⁴⁰ The number of companies established after nationalization during the sixties was four companies only.⁴¹

TABLE (2.10)

Cairo Stock Exchange

Historical Market Value of Bond and Share Trading

(LE Millions)

Years	Value	Years	Value
1956	57.3	1970	3.8
1957	32.7	1971	3.6
1958	66.7	1972	3.9
1959	43.9	1973	4.3
1960	38.4	1974	4.1
1961	23.4	1975	7.4
1962	12.2	1976	7.6
1963	5.1	1977	5.9
1964	4.3	1978	4.9
1965	2.8	1979	6.4
1966	4.0	1980	9.8
1967	6.5	1981	9.1
1968	2.8	1982	7.8
1969	6.3		

Source: Cairo Stock Exchange, quoted in Kerr, p.13.

After the ODP and the introduction of the investment law, the number of joint venture and private companies increased and some joint-stock companies

started to list their shares in the stock exchange. The market value of securities transactions increased slowly since 1975.

The following table (2.11) shows the estimated market value of the listed shares till 1982. In spite of the fact that the total value of shares (paid up capital) for all the listed companies in the stock exchange are LE 500 million, the market activities are very slow in relation to the total value of the listed shares.⁴²

TABLE (2.11)

Estimated Market Value of Listed Shares (1982)

Category	Paid in Value (Nominal Value) LE Million	Estimated Market Value LE Million
Mixed public sector companies	103	120
Private sector companies *	47	60
Investment law companies **	353	490
The value of listed shares	503	670

Source: Kerr, p.15.

* Companies established under the companies law.

** Companies established under the investment law.

Reasons for the low trade value of the listed shares

1. The mixed public sector companies shares are not attractive as the controlled part of these shares equal to 82% and the floating shares equal only 18% (LE 21.6 millions).⁴³
2. Most of the private sector companies are very small and their shares tend to be fairly closely held.

3. The majority of the investment law companies shares listed in the stock exchange are closed companies where the capital was fully subscribed by the founders.

The following are a summary of the important reasons for the securities market low activity as mentioned by Kerr (1983)⁴⁴ :

1. The private sector companies are relatively new in the market. Most of them established after the ODP. There is a limited earnings track record and investors have little information to take a decision to buy or to sell shares.
2. Lack of a network of securities dealers. Most of the new issues have been made by public subscription. The present brokerage community is very small and was not involved in the initial subscription. As a result, the shareholders tend simply to hold on to their shares because there is no market adviser such as a securities salesman that they can turn to for advice.
3. All the companies which offered shares for public subscription had done that at the time of establishment. Most of the shareholders are conditioned to hold on to their shares for several years till operations have commenced. In this case the shareholders along with the founders are supplying the company's initial capital rather than investing in securities in the normal sense.
4. The number of shares listed at the stock exchange is very limited. This indicates that companies' management have no interest to develop public market for their shares.

5. The Egyptian investors acquire shares primarily for anticipated dividend payments not for trading and capital gains.

2.4.1. Debt Market (Bonds)

At present there is no debt securities market in Egypt. The only source for private sector debt is through the banking system. The bonds listed at the stock exchange were issued by the Egyptian government. The important bonds were the development bonds in US\$ which were issued at fixed interest rate of 8% and its value is US\$ 636 million.⁴⁵

2.4.2. Capital Market Authority (CMA)

As for activating the primary market the government established the CMA in 1979. The objectives of CMA are: (a) to develop and create the required climate to activate the securities market in Egypt, (b) to regulate capital markets, (c) to ensure the disclosure of data, (d) to conduct studies for government agencies to update and introduce amendments to the regulations governing the capital markets, and, (e) to supervise the secondary market transactions in accordance with stock exchange law.⁴⁶

Lately, in 1981 the authority succeeded in issuing three main laws to give investors and the private sector a number of incentives to activate the securities market. The new laws are concerning the income tax, the companies law and the general regulations for the stock exchange.

2.5. Insurance Sector

Insurance companies and social insurance establishments are the only important insurance institutions in the Egyptian financial market.

2.5.1. Insurance Companies

At present there are four public sector insurance companies operating in Egypt. They are engaged in life and casualty insurance and reinsurance activities.⁴⁷ In addition, three new private insurance companies were established under the investment law.

The public sector insurance companies main source of funds are the accumulated periodical instalments due on holders of insurance policies. They used to allocate high proportion of their funds in the field of real estate business, building and leasing blocks and granting loans to insurance policy holders guaranteed by the value of the policy.⁴⁸

Because of the increase of housing problems and construction costs along with the government control on rent, it is not profitable to invest in the field of real estate.⁴⁹

The following table (2.12) displays the public sector insurance companies investments from 1978 to 1981. The table reveals that:

A. Investments in securities and sharing in new companies represent the most important item in their investment portfolio.

B. Insurance companies' bank deposits equal to 36.7% of total investments in 1981. These liquid assets could be allocated as medium and long term loans for public and private sectors.

2.5.2. Social Insurance Authorities

There are two governmental authorities responsible for the social insurance activities in Egypt. The first is responsible for serving the employees of the government and official organizations. The second authority serves employees of the public and private sector companies.⁵⁰ These two authorities raise their funds from the required compulsory social insurance instalments.

TABLE (2.12)

Investments of Public Sector Insurance Companies** 1978-1981

(LE Thousands)

Investment	1978		1979		1980*		1981*	
	Value	%	Value	%	Value	%	Value	%
Real Estate (land, buildings)	45,938	21.0	53,077	20.5	55,867	19.7	56,872	16.6
Securities and Shares in new Companies	89,112	40.7	106,299	41.2	116,493	41.0	143,499	41.7
Loans	6,908	3.2	9,640	3.7	11,316	4.0	17,204	5.0
Bank Deposits	76,817	35.1	89,435	34.6	100,141	35.3	126,267	36.7
Total Investments	218,775	100.0	258,451	100.0	283,817	100.0	343,842	100.0
Annual Growth Rate (%)	-	-	18.1%	-	9.8%	-	21.1%	-

Source: Foda, Exhibits B1 and B2.

* Figures for 1980 and 1981 are as of June 30.

** Limited to the four public sector insurance companies.

This scheme entitles the workers to obtain a monthly pension after retirement.

The social insurance authorities funds provide the required finance to the state budget projects.

2.6. Summary

This chapter reviewed the important institutions operating in the Egyptian financial system.

It was evident that since the ODP the number of banks increased rapidly from 10 by the end of 1973 to 70 by the end of 1982. The PSCB was the most important sector and mainly finance the public sector companies. The JVPCB achieved the highest growth rates, in their size and operations during the period 1978-1981, as compared with the other banking sectors. Their total assets as a proportion of the banking sectors' total assets increased from 6.4% to 24% in 1981.

The majority of the new banks established after the ODP are mainly serving private sector businesses.

The Islamic banks are new financial institution introduced during the seventies. They are banks without interest using PLS principle as a concept of their operations. Their rapid growth in the local market reflects the importance of their operations in the future.

As regards the securities market, the nationalization laws and public sector dominance were the important reasons beyond the securities trading value deterioration. It is expected that, the securities market development will depend on the private sector progress and the government success in creating the required climate to activate the securities market in Egypt.

To sum up, most of the development in the Egyptian financial market

since the ODP is attributed to the banking system growth.

References

1. Mohamed Nabil Ibrahim, "The Potentials of Egypt as a Financial Centre For the Middle East and Africa", paper presented at the International Conference on Capital Market Development, Cairo, May 1983, p. 3.
2. Ibrahim Mokhtar, Investment Banks, (Cairo: Dar Wahdan, 1982) p. 173, (In Arabic).
3. Talaat Isaid Abdel-Hamaid, Banking Management, (Cairo: Rose El-Yousif, 1981), pp. 31-32 (In Arabic).
4. Ibid., p. 32.
5. Clara Caselli, "The Development Of The Banking System And Monetary Policy In Egypt In The Context On the Open Door Policy", Finafrica Quarterly Review, No. 4, 1980, p. 323.
6. Abdel-Hamaid, p. 34.
7. See Banker Research Unit, ed., Banking Structure And Sources of Finance In The Middle East, 2nd ed., (London: Financial Times Business Publishing, 1980), pp. 157-159; and Capital Market Authority (CMA), "Structure Of The Financial Market In Egypt", paper presented at the International Conference On Capital Market Development, Cairo, May 1983, pp. 3-5.
8. The following chapter (Chapter III) describes in more detail the CBE regulations which govern the banking system.
9. Egyptian Government, Law No. 120 of 1975 Relating To The Central Bank of Egypt And The Banking System, Chapter 2, Article 15, 1975, (In Arabic).
10. Ibid., Chapter 2, Article 17.
11. Note that most of the data presented in this subsection computed from: Ahmed S. Foda, Banking Sector Survey, unpublished study, Cairo, June 1982. The CBE supplied Foda with a special aggregate data regarding the different banking system sectors to conduct a special survey for the Egyptian Government and the United States Agency for International Development (USAID). This study was the only available source for detailed data concerning the banking sectors in Egypt.
12. It is important to note that the classification of the banking system into the four sectors presented here is our own classification. Meanwhile, the banking system also includes the CBE and specialized banks.
13. Foda, p. 46.
14. Capital Market Authority, Structure Of The Financial Market in Egypt, p. 15.
15. Ibid., p. 11.

16. Ibid., pp. 11-12.
17. Ibid., p. 12.
18. Ibid., p. 13.
19. See Ibid., p. 13; and Banker Research Unit, p. 174.
20. Capital Market Authority, Structure Of The Financial Market In Egypt, p. 14.
21. The description given in this section for Islamic banks operations is an introduction to a comprehensive subject. For more details see: Afzalur Rahman, Economic Doctrines Of Islam: Banking And Insurance, Vol. 4, (London: The Muslim Schools Trust, 1979); Muhammad Nejatullah Siddiqi, Issues In Islamic Banking, (Leicester: The Islamic Foundation, 1983); and Muhammad Nejatullah Siddiqi, Banking without interest, (Leicester, The Islamic Foundation, 1983).
22. Shariaa is the Islamic Legislation derived from the Koran and Sunna.
23. Ingo Karsten, "Islam And Financial Intermediation", International Monetary Fund (IMF), Staff Papers, Vol. 29, No. 1, March 1982, p. 108.
24. Ibid.,p. 113.
25. Moustafa F. Abdel-Magid, "The Theory Of Islamic Banking: Accounting Implications", The International Journal Of Accounting, Vol. 17, No. 1, Full 1981, p. 84.
26. See Dar Al-Maal Al-Islami Trust, Annual Report, 1982,p. 43; and Foda, p. 87.
27. Faisal Islamic Bank of Egypt, Annual Report, 1401 H. (1981),p. 31.
28. Dar Al-Maal Al-Islami Trust, p. 43.
29. For a list and profiles of Islamic financial institutions see: Traute Wohlers-Scharf, Arab And Islamic Banks, (Paris: Organization for Economic Co-operations and Development (OECD), 1983), Annex 12, pp. 164-166.
30. Ann Elizabeth Myer, "Islamic Law And Banking In The Middle East Today", Middle East Executive Report, Vol. 2, 1979, p. 2.
31. See Wohlers-Scharf, p. 80; and Banker Research Unit, p. 177.
32. Foda, p. 88.
33. Ibid.
34. Faisal Islamic Bank of Egypt, Annual Report, 1401 H (1981), p. 30.
35. Faisal Islamic Bank Of Egypt, Annual Report, 1402 H (1982), p. 26.
36. Banker Research Unit, p. 181.

37. Ibrahim, p. 14.
38. Ibid., p. 5.
39. David W. Kerr, "Survey Of The Securities Market In Egypt", paper presented at the International Conference On Capital Market Development, Cairo, May 1983, p. 1.
40. Capital Market Authority, "Highlights Of The New Corporate Law, In Comparison With The Provisions Of The Investment Law", paper presented at the International Conference On Capital Market Development, Cairo, May 1983, p. 4.
41. Ibid.
42. Kerr, p. 2.
43. Ibid.
44. Ibid., pp. 6-7.
45. Capital Market Authority, "Structure Of The Financial Market in Egypt", p. 33.
46. Capital Market Authority, "A Brief Note On The Capital Market Authority In Egypt", paper presented at the International Conference on Capital Market Development, Cairo, May 1983, p. 3.
47. Foda, p. B4.
48. Capital Market Authority, "Structure of the Financial Market in Egypt", p. 20.
49. Ibid.
50. Ibid.

CHAPTER 3

THE REGULATORY FRAMEWORK OF THE BANKING SYSTEM

Introduction

The purpose of this chapter is to describe the important regulations and restrictions which govern the activities of the banking system.

In the early stages of the ODP, the government tried hard to attract and to encourage foreign capital to establish new banks without many restrictions in order to channel foreign capital into the country.

Moreover, new banks obtained some concessions, such as enjoying a tax holiday for five years on all their activities, which enabled them to achieve high profitability levels.

The government attitude towards new banks changed especially after the increase of the economic problems in 1980 and banks behaviour in placing a high proportion of their funds abroad. The government introduced new regulations to increase its control over banks' operations and to remedy the shortcomings of the existing regulations.

This chapter considers the important developments and changes introduced into the regulatory framework and their impact on the Egyptian economy.

Section one discusses the foreign exchange system development and structure. Section two describes the interest rate structure for LC operations. Section three demonstrates the control instruments of the CBE, and finally, section four presents the summary.

3.1. Foreign Exchange System (FES)

By the end of 1984, there were more than six different exchange rates for the Egyptian pound against the US dollar as illustrated in the following figure (3.1).

FIGURE (3.1)

The Present Foreign Exchange Rates

Exchange Rates	One US \$ =
1 Special rate (For bilateral payments agreements with non-IMF members)	LE 0.40
2 Central bank pool rate (For governmental revenue and payments for basic goods)	LE 0.70
3 Commercial banks pool rate (For public sector imports)	LE 0.84
4 Mobilizing FC savings rate (1984)	LE 1.12
5 Financing private sector imports rate (1984)	LE 1.18
6 Black market rate	LE (1.25 - 1.35)

Source: Financial Times, "Financial Times Survey: Arab Banking",
October 15, 1984, p.14.

The present multiple exchange rates system is a result of the frequent changes in the economic decisions which govern the FES. These changes were introduced to adjust to the continuous devaluation of the Egyptian pound against foreign currencies.

This system had a serious impact on all financial system activities. This section examines the FES structure and development to understand the existing multiple rate system. In addition, it discusses the impact of FES and the interest rate structure for LC operations on public savings.

Egyptian Foreign Exchange System Development

Egypt applied an exchange control system in 1947 after leaving the sterling area and joining the International Monetary Fund (IMF) in 1946.¹ The first

monetary law was issued in 1947 prohibiting the holding, dealing, or disposing of foreign exchange except through the authorized banks.²

Following this law, for many years Egypt has been applying a system of multiple exchange rates. Since the early seventies, there has been a trend towards unifying these rates.

Table (3.1) displays the foreign exchange rates and pools development from 1947 to 1984. The table includes the black market rates, which usually are not published, as estimated by a number of different sources as indicated in the table.

The following four foreign exchange pools will be considered :

3.1.1.The central bank pool.

3.1.2.The parallel market and the commercial banks pool.

3.1.3.The own exchange pool.

3.1.4.The black market pool.

3.1.1. Central Bank Pool

This pool receives all the FC from exports of petroleum, cotton, rice, receipts of Suez Canal dues, revenue from operating the Sumed pipeline and receipts related to the general state obligations.

Before the end of 1978, there used to be one exchange rate, the special rate. It was applied to the central bank pool and all the government transactions. In 1979, this special rate (currently \$1 = LE 0.40) was confined only to bilateral payments agreements with non IMF members while the central bank pool rate increased to \$1 = LE 0.707 and remained fixed till 1984.

TABLE (3.1)
Foreign Exchange Rates Development (1947-1984)

Years	Special Rate (1)	Central Bank Pool Rate (1)	Parallel Market Pool Rate (2)	Commercial Bank Pool Rate (2)	Black Market Rate	Equivalent to US\$ 1 in LE	
						Mobilising FC Saving Rate	Financing Private Sector Imports Rate
1947-1957	0.348						
1958-1961	0.348						
1962-1973	0.438						
1973	0.392		Sep., 0.587				
1974	0.395		0.587				
1975	0.395		0.586		NA (3)		
1976	0.395		0.714		0.71-0.75 (3)		
1977	0.395		0.714		0.71-0.75 (3)		
1978	0.395		0.707		NA (4)		
1979	0.395	0.707		Jan., 0.707	0.80-0.85 (4)		
1980	0.395	0.707		0.707	0.80-0.85 (4)		
1981	0.395	0.707		Aug., 0.830	0.93-1.00 (5)		
1982	0.395	0.707		0.840	1.11-1.15 (6)		
1983	0.395	0.707		0.840	1.15-1.20 (7)		
1984	0.395	0.707		0.840	1.25-1.35 (8)	1.12 (8)	1.18 (8)

Sources:

- (1) CBE, Economic Review, various issues; and NBE, Economic Bulletin, various issues.
 (2) NBE, "Evolution of Exchange Control In Egypt With Special Reference to Law No. 97/1976", Economic Bulletin, vol. 30, No. 1, 1977, pp. 5-27; and IMF, Annual Report on Exchange Arrangements and Exchange Restrictions, various issues.
 (3) Salah El-Sayed, Egypt Strategies for Investment, (Cairo: Academy for International Business (Middle East), 1977), p. 83.
 (4) Peter Field and Alan Moore, Arab Financial Markets, eds., (London, Euromoney Publications, 1981), p. 136.
 (5) Cairo Today, September 1981, p. 20; and Anthony McDermott, "Changing Relationships in Egypt", The Banker, December 1981, p. 111.
 (6) Allen, p. 21.
 (7) Emad Goniem, "The Egyptian Pound in the Money Market", AL-Ahram Iktisadi, No. 746, May 2, 1983, pp. 24-27 (In Arabic).
 (8) Financial Times, October 26, 1984, p. 4.

Notes: The above rates are selling rates and the spread between buying and selling rates till 1978 was 2 percent and reduced after that to 1 percent.

NA = Not Available.

3.1.2. The Parallel Market And Commercial Banks Pool

In September 1973, the CBE created the parallel market to attract the remittances of Egyptians working abroad.³ A percentage premium was added to the special rate declared by the CBE.

The parallel market funds were mainly used to finance the private sector imports according to the product list specified by the government. Also, public sector companies were allowed to have access to the market.

The application of this system, alongside the own exchange system, led to the devaluation of the Egyptian pound against foreign currencies and created the black market where the exchange rates are higher than the official rates.⁴ The pool could not finance the importers needs of FC and they were forced to go to the black market.

In order to overcome the FES drawbacks, to get rid of the restrictions on foreign currency operations and to attract the Egyptian remittances, the law number 97 for 1976 was issued to organize the foreign exchange dealings.

The law allows private and public sector as well as individuals to hold and use FC in any transactions through banks and agencies authorized to deal in foreign exchange.⁵

In January 1979, the parallel market became the commercial banks pool which receives FC from exports, tourism revenues and workers remittances.⁶ The official rate (central bank pool) and the commercial banks pool rate were integrated and a new unified exchange rate, \$1 = LE 0.70, were applied to all the FC transactions.⁷ The special official rate was applied only for bilateral payments agreements.

Later, in August 1981 the commercial banks pool incentive rate increased to \$1 = LE 0.83, as another 20% devaluation of the Egyptian pound.

Meanwhile, the central bank rate remained fixed till 1984 (\$1 = LE 0.70).⁸

3.1.3. The Own Exchange Pool

The own exchange pool was established in 1974. It allowed Egyptian holders of FC inside or outside the country to use their funds to finance imports directly without converting their currency.⁹

The pool sources includes a large share of workers remittances and some of tourism receipts. Transactions in this pool take place at an exchange rate much closer to the free market rate than to the official rate.

This system encouraged Egyptian workers remittances to be channelled outside the banking system and stimulated the black market transactions.¹⁰

The Own Exchange System and Imports Regulations

In order to limit the own exchange market transactions and to increase the flow of FC to commercial banks pool, the Decree No. 15 of 1980 was issued. It required from importers advanced payment in FC in respect to imports financed within the own exchange system.¹¹ This advanced payment should be deposited with the CBE through the authorized banks. It was fixed at 25% for certain food items, 40% for production inputs and 100% for other imports.¹² Then in August 1981, the required deposit with the CBE for the first two groups of goods was required to be made in domestic rather than in foreign currency.¹³

Surprisingly, again in March 1982 the imports regulation changed stipulating the following:¹⁴

1. The importer has to place a cash deposit in FC with the CBE (through the authorized banks) in respect to opening letters of credit. This cash

is a non-interest-bearing deposit to be maintained with the CBE for not less than one month.

2. The required cash deposit is fixed as a percentage of the imported goods value as classified into four groups (25%, 40%, 75% and 100%).

It could be predicted that this recent change would force importers to raise more money from the black market instead of achieving the required rationalization of imports system.¹⁵

The frequent changes in imports regulations reflect the economic decisions instability and had a serious impact on the black market exchange rates as it will be explained in the following pages.

3.1.4. The Black Market Pool

This is an illegal foreign exchange market where the private sector raises its FC needs. The market rates used to be 10% over the official rates till 1981 and stood around 40 % in 1983.¹⁶

It is important to note that this market is well organized and considered as the only efficient money market in Egypt. Although the government has been trying very hard to eliminate this market transactions, with every change in the FES the black market rates go up and the economy suffers from the lack of FC funds.

Recently, it has been announced by one of the Egyptian newspapers (El-Akhbar) that the lack of FC has forced the public sector companies and public sector banks to deal with the black market dealers.¹⁷ They also announced that the NBE purchased in one day \$87 million from one of the black market dealers.¹⁸

It is worth noting that, during 1984 and 1985 two significant changes

have been introduced to rectify the imbalance between the official rate and the black market rate.

In April 1984, the government increased the incentive rate from \$1 = LE 0.84 to \$1 = LE 1.12 mainly to attract workers remittances through the commercial banks pool. A new official rate was introduced for private sector imports \$1 = LE 1.18. As a result, the black market rate increased and reached in some weeks \$1 = LE 1.35.¹⁹

Thus, the new official rates failed to attract FC savings and by the end of 1984 there was a foreign exchange shortage and importers found it very difficult to finance their operations.²⁰

Subsequently, in January 1985 the government introduced a new floating exchange rate. The new system allowed importers, with an import licence, to use Egyptian pound to finance their needs through the authorized banks which provide the required FC funds at a floating rate around \$1 = LE 1.25.²¹ The object was to eliminate black market transactions and chiefly to rationalize imports. Mobilizing FC savings rate increased to around \$1 = LE 1.20.²²

One of the new system shortcomings is that the foreign banks branches, which deal only in FC, can not finance letters of credit because they are not allowed to deal in LC.

The new floating rate failed to mobilize FC savings, in order to reduce black market transactions and it was cancelled after three months.²³ The tragedy ended with the resignation of the Economy Minister. The new system failed because the CBE could not provide the foreign exchange required to finance imports.

It is clear from the previous review that all the changes which have

been introduced to develop the FES did not succeed to achieve economic stability.

3.2. Interest Rate Structure

The interest rates for credit facilities and deposits in Egyptian pounds are determined by the CBE. The following table (3.2) shows the interest rates development from 1975 to July 1982. The deposits interest rates are broken down for various types according to maturity. The table shows the following facts:

1. The deposits interest rates increased slowly from 1975 to 1981 (approximately one percent each time). Then, in 1982 the interest rates increased in between 1% to 2%. For instance, saving deposits increased from 8.5% in 1981 to 10% in 1982.
2. Also, credit interest rates increased gradually during the period. The significant change was introduced in 1982 where the range between the minimum and the maximum levels increased and the new structure differentiate between sectors. The aim was to limit credit expansion to commercial sector and to reduce borrowing costs for industrial and agricultural sectors. These changes enabled banks, to some extent, to have flexibility in granting loans.

Despite the fact that the interest rates for LC were moving gradually from 1975 to 1982, they were never adjusted either to reflect the real value of the Egyptian pound against the FCs or to the changes in international interest rates. This was stressed in one of the World Bank's reports: "Deposit interest rates remain significantly below the rate of inflation and below rates available on foreign currency deposits. Similarly, lending rates remain relatively low by international standards".²⁴

TABLE (3.2)
Local Currency Interest Rates Structure (1975 - 1982)

Deposit Interest Rate*	January 1976		March 1977		June 1978	Jan 1979	March 1979	April 1980	June 1980	Jan 1981	Aug 1981	July 1982
	Instit- utions	Individ- uals	Instit- utions	Individ- uals								
1975												
7-15 days (min LE 100,000)	-	-	-	-	-	-	4.0	4.5	4.5	5.0	5.0	5.0
15-30 days**	2.0	2.0	2.0	3.0	4.0	5.0	5.0	5.5	5.5	6.0	6.0	6.0
1-3 months	2.0	3.0	3.0	4.0	4.5	5.5	5.5	6.0	6.5	7.5	7.5	7.5
3-6 months	3.0	4.0	4.0	5.0	5.5	6.0	6.0	7.0	7.5	8.5	8.5	8.5
6-12 months	3.0	4.5	4.5	5.5	6.0	6.5	6.5	7.5	8.0	9.0	9.5	9.5
1-2 years	4.0	5.0	5.0	6.0	6.0	7.0	7.0	8.0	9.0	9.5	10.0	11.0
2-3 years	4.0	5.0	5.0	6.0	7.0	7.5	7.5	8.5	9.5	10.5	10.5	12.0
3-5 years	4.0	5.0	5.0	6.0	7.0	8.0	8.0	9.0	10.0	11.0	11.0	12.5
5 years	4.0	5.0	5.0	6.0	7.0	8.5	8.5	9.5	10.5	11.5	11.5	13.0
Savings Deposits	4.0	4.0	4.0	5.0	5.0	6.0	6.0	7.0	8.0	8.5	8.5	10.0
Lending Interest Rates												
Minimum - Maximum	6-7	7-8	8-9		9-11	10-12	10-12	11-13	12-14	13-15	13-15	***
CBE Discount Rate	5.0	6.0	7.0		8.0	9.0	9.0	10.0	11.0	12.0	12.0	13.0

Source: CBE, Annual Report, various issues.

* Deposits interest rates were subject to income tax (40.0%) before 1977 and were exempt from taxes since 1977.

** 15-30 days deposits had a minimum amount required (LE 1000 from Jan 1976, LE 50000 from March 1979, and LE 100000 from Jan 1981 to date).

*** A new structure for lending interest rates since July 1982.

Industry and agriculture sectors No minimum : Maximum 13%
Services sector Minimum 13% : Maximum 15%
Commercial sector Minimum 16% : Maximum -

The following table (3.3) shows the \$ interest rates development from 1975 to 1982 as an example for the international interest rates trend. Clearly, from 1975 to 1981 the \$ deposits interest rate increased rapidly and reached in some months to 19.94% (March 1980). In 1982, the \$ deposits interest rate dropped from 16.51% (yearly average) in 1981 to 12.94% in 1982.

TABLE (3.3)

Euro-Dollar Deposits In London* (1975-1982)

Three Months Deposits

Years Months**	1975	1976	1977	1978	1979	1980	1981	1982
January	7.44	5.37	5.31	7.41	10.44	14.41	17.44	14.62
February	7.31	5.62	5.19	7.50	10.62	16.97	16.69	15.00
March	6.97	5.59	5.25	7.50	10.66	19.94	14.87	15.47
April	6.81	5.53	5.31	7.69	10.87	13.94	16.97	14.87
May	6.06	6.62	6.16	7.94	10.56	9.75	17.75	14.44
June	6.75	6.00	5.81	8.69	10.59	9.75	17.69	15.66
July	6.97	5.78	6.25	8.41	11.34	9.81	18.75	13.00
August	7.34	5.62	6.31	9.00	12.19	12.50	18.69	11.56
September	8.06	5.81	6.91	9.53	12.87	13.94	17.87	11.50
October	6.81	5.44	7.19	11.41	15.41	15.25	15.66	10.00
November	7.06	5.19	7.00	11.78	14.31	18.31	12.00	9.87
December	5.87	5.06	7.19	11.69	14.50	17.75	13.75	9.25
Yearly Average	6.95	5.64	6.16	9.05	12.03	14.36	16.51	12.94

Source: Bank of England, Quarterly Bulletin, several issues.

*Middle market rates as recorded by the Bank of England during the late afternoon.

**Interest rates at last working days each month.

-The Impact of The Interest Rate Structure and the FES on the Financial Market

The high interest rates paid for FC deposits and the low interest rates for LC deposits encouraged the Egyptian savers to shift their savings from Egyptian pound to \$ for the following reasons:

A. To benefit from the high interest rates paid for FC deposits.

B. Investors preferred to hold \$ because the value of the Egyptian pound depreciated steadily against the dollar in the black market.

C. Savers found that it is easy to convert their FC funds in the black market at good exchange rates at any time.

Additionally, the high interest rates on FC deposits discouraged workers remittances from being remitted to Egypt, but led to them being invested directly abroad.

3.3. The Control Instruments of The Central Bank of Egypt:

All commercial banks operating now in Egypt are subject to the following regulations and instructions laid down by the CBE.

3.3.1 Credit control regulations.

3.3.2 Liquidity ratio.

3.3.3 Cash reserve for LC deposits.

3.3.4 Required deposits with CBE in FC.

3.3.5 Securities and equity investment restrictions.

3.3.1. Credit Control Regulations²⁵

The credit control regulations witnessed several changes during the study period. The credit ceiling (65% of the bank's deposits) was first introduced in August 1975 to restrict bank's uses of funds (discounted commercial paper, loans and non-seasonal advances). Banks were free to use interbank deposits as loans.

During the period from 1977 to October 1981, the CBE changed the credit ceiling base. These changes can be summarized as follows:

A. January 1977 - June 1978: The credit expansion growth was confined to 40% of the growth in the deposit base from the levels of December 31, 1976.

B. July 1978 - December 1979: During this period four decisions were issued and the credit expansion was fixed as a percentage of the previous actual credit balances of March 31, 1978. This period characterized by a differentiation between credit expansion allowable to public sector commercial banks and other private banks. The starting operating date was used as a measure to decide the allowable credit expansion percentage.

C. January 1980 - October 1981: During this period the CBE used the balances of uses given as of December 31, 1979, as a base for the allowable credit expansion percentage. Also, the CBE restricted some banks from credit expansion till they achieve the required equilibrium between uses and deposits.

Finally, in October 1981 the CBE changed the credit expansion base back to be as a percentage of banks' deposits. The following is a summary of the latest credit control changes.²⁶

1. The credit ceiling: Commercial banks total loan portfolio to public and private sector companies (including investment in non-government securities) should not exceed 65% of the deposits base of the same sectors at the end of any month during the financial year 1981/1982. Interbank deposits and USAID funds were excluded from the deposits base.
2. Credit expansion restrictions: Loans to private commercial sector should not exceed the base figure at September 30, 1981 by more than 12% annually (3% per quarter). Moreover, the family sector loans should not exceed 10% annually (2.5% per quarter) of the base figure at September

30, 1981.

3.3.2. Liquidity Ratio

Liquidity ratio regulations were first introduced in 1958.²⁷ Since 1958, only minor additions took place at March 1981. All commercial banks are required to maintain a liquidity ratio not less than 30%.²⁸

The Liquidity ratio numerator consists of:

1. Cash in local and foreign currencies.
2. Balances with CBE.
3. Gold.
4. Cheques and drafts under collection.
5. Treasury bills.
6. Government financing.
7. Discounted ordinary commercial bills payable in Egypt or abroad within three months and bearing at least two authorized signatures.
8. Egyptian government securities and those granted by it.
9. Due from banks.

The denominator includes:

1. Cheques, transfers and revolving letters of credit due for payment.
2. Due to banks.
3. Total deposits in local and foreign currency.
4. Amounts of letters of guarantee issued which are not fully covered in

cash.

3.3.3. Cash Reserves For LC Deposits

The required cash reserve with CBE regarding LC deposits, has been frequently altered since it was introduced in 1959.²⁹

At present, all commercial banks are required to place not less than 25% of their average daily balances of deposits during the month in local currency with the CBE free of interest.³⁰ The base figure excludes deposits of two years maturity or more.

3.3.4. Required Deposits With CBE In FC

At present, all banks operating in Egypt are required to deposit, in \$ currency, with the CBE 15% of their total FC deposits and their FC cover in respect to documentary credits. "It was determined that such deposits with the Central Bank would earn rates offered on 3 months LIBOR".³¹

These regulations were issued for the first time in July 1980 to restrict banks from placing FC funds abroad. Two changes were introduced in September 1980 and August 1981. The object was to exclude some items from the FC deposits base.³²

This is the only regulation which governs the operations of Investment banks which deal in FC only.

3.3.5. Securities And Equity Investments Restrictions³³

According to CBE instructions commercial banks are not allowed to hold or own more than 25% of the paid up capital of any company. The nominal value of the shares held by the bank should not exceed its paid up capital and reserves.

In addition to the previous regulations, all the commercial and

investment banks must apply the CBE unified tariff regarding banking services (fees, commissions and charges).

3.4. Summary

By and large, the Egyptian banking system is heavily regulated. The period from 1975 to 1982 had witnessed frequent changes in the regulations which govern the banking system. These changes achieved economic instability and caused confusion in the banking community as investigated by McDermott (1981) : "They have often been confusing and even in some cases revoked within days of being issued".³⁴

It is evident that, both the interest rate structure and the foreign exchange system had a serious impact on shifting the deposit composition from Egyptian pound to dollar.

The existence of the black market for foreign exchange transactions led to channel the important sources of foreign exchange outside the banking system.

References

1. NBE, "Development of Exchange Rate System in Egypt 1947-1978", Economic Bulletin, Vol. 33, No. 1, 1980, pp. 6-7.
2. NBE, "Evolution of Exchange Control in Egypt With Special Reference To Law No. 97/1976", Economic Bulletin, Vol. 30, No. 1, 1977, p. 11.
3. Ibid., p. 14.
4. NBE, "Development of Exchange Rate System in Egypt 1947-1978", p. 24.
5. CBE, "Organization of Foreign Exchange Dealings", Economic Review, Vol. 16, No. 3 & 4, 1976, p. 164.
6. CBE, "US\$ 200,000,000 , Stand By Revolving Credit", p. 46.
7. CBE, "The Unification of Foreign Exchange Rates", Economic Review, Vol. 19, No. 1, 1979, pp. 12 - 13.
8. IMF, Annual Report On Exchange Arrangements And Exchange Restrictions, (Washington, D. C., IMF, 1982), p. 158.
9. Salah El-Sayed, Egypt Strategies For Investment, (Cairo: Academy for International Business (Middle East), 1977), p. 83.
10. Caselli, p. 331.
11. IMF, Annual Report on Exchange Arrangements and Exchange Restrictions, 1981, p. 147.
12. Ibid., p. 147.
13. NBE, "The Main Economic Laws and Legislation", Economic Bulletin, Vol. 34, No. 3, 1981, p. 185.
14. NBE, "Main Laws And Economic Legislation", Economic Bulletin, Vol. 35, No. 1, 1982, pp. 62-65.
15. Allen, p. 21.
16. Simon Ingram, "The Banks Role", Cairo Today, Vol. 4, No. 2, February 1983, p. 30.
17. El-Akhbar, September 24, 1984, p. 3 (In Arabic).
18. Ibid.
19. Financial Times, October 26, 1984, p. 4.
20. Ibid.
21. Financial Times, February 22, 1985, p. 3.
22. Ibid.

23. Guardian, April 1, 1985, p. 6.
24. World Bank, "Recent Economic Development: Egypt", unpublished report, May 1982, p. 39.
25. For more detailed discussion concerning the credit control regulations development, see Foda, Annex 'A', pp. A11 - A14.
26. CBE, Credit Ceiling Regulations, A letter sent to all commercial banks, October 1981, (In Arabic).
27. See, CBE, Liquidity Ratio, Circular No. 11, April 1958, (In Arabic).
28. For more detail see CBE, Liquidity Ratio, Circular No. 261, March 1981, (In Arabic).
29. For more detail regarding the required cash reserve in LC regulations development, see Foda, pp. A9 - A10.
30. See CBE, Required Cash Reserves, Circular No. 264, November 1981, (In Arabic); and NBE, "Guaranteed Floating Rate Serial Notes 1987", p. 15.
31. Foda, p. A15.
32. For more detail see CBE, Circular No. 251, July 1980, (In Arabic); CBE, Circular No. 252, September 1980, (In Arabic); and CBE, Circular No. 263, August 1981, (In Arabic).
33. CBE, Circular No. 240, November 1978, (In Arabic).
34. Anthony McDermott, "Changing Relationships In Egypt", The Banker, December 1981, p. 113.

PART TWO :

LITERATURE REVIEW AND RESEARCH METHODOLOGY

CHAPTER IV : REVIEW OF LITERATURE ON THE THEORY OF THE BANKING FIRM

CHAPTER V : RESEARCH METHODOLOGY

CHAPTER 4
REVIEW OF LITERATURE ON THE THEORY OF THE BANKING FIRM

Introduction

Commercial banks¹ as financial intermediaries play an important role in financing the economic development plans of most countries.

All financial intermediaries including commercial banks perform important functions: a) they reduce market imperfections caused by economics of scale in transactions in financial markets, b) they provide insurance services and issue liabilities of a kind preferred by lenders at relatively low yields, and c) invest a proportion of the funds in higher-yielding earning assets.²

Because of these important functions, a great deal of effort has been devoted to study and explain their existence and their behavioural decision.

Some studies have tried to justify their existence, (e.g. Leland and Pyle (1977); Draper and Hoag (1978); and Campbell and Kracaw (1980))

LeLand and Pyle (1977) suggested that informational asymmetries may be a primary reason for intermediaries existence.³

Draper and Hoag (1978) tried to justify the intermediaries existence and to provide an implicit definition of their functions. They mentioned that there are three activities involved in financial intermediaries operations especially banks and mutual funds: "(1) acquiring information about economic entities; (2) processing information about economic entities; and (3) packaging and repackaging the financial claims of these economic entities".⁴

Also, Campbell and Kracaw (1980) stated that intermediaries emerged as information producers, because production of information, protection of confidentiality, provision of transactions services and other intermediary services.⁵

On the other hand, a great deal of effort has been devoted to

construct and introduce models and approaches which tried to explain the bank firm decision behaviour.

The main object of this chapter is to review the previous work done concerning the theory of the banking firm by demonstrating the principal models and approaches which were introduced to explain the individual bank behaviour. More attention will be given to the recent important approaches which contributed and added new aspects to the subject.

This chapter is organized as follows. The introduction will be followed by Baltensperger's (1980) study⁶ (section one) which is considered as the most important study in the literature. Section two demonstrates the models of bank portfolio management (optimal asset choice and liability management). Section three considers the complete models of the banking firm (monopoly models, portfolio theory approach and real resources models). Section four discusses the linear programming approach. Section five presents the recent approaches to the theory of the bank firm. Section six contains the summary and concluding remarks.

4.1. Baltensperger's Study

One of the most important recent studies which reviewed the major alternative approaches written to explain the bank firm behaviour was presented by Baltensperger (1980).

The author emphasised the main economic functions of the banking firm namely, to transform risks and to serve as dealers in credit markets. These are characterized by the existence of transaction and information costs. He constructed a theoretical framework for bank decisions which gives a complete explanation and understanding of the theory of the banking firm.

The bank firm decisions are concerned with asset structure, liability

structure, and the firm size. The determination of these decisions have to take into account some important elements such as uncertainty, informational problem and adjustment costs. Baltensperger stated that "A complete theory of the banking firm, however, should not only provide an integrated view of the firm's asset and liability choice, but also allow an endogenous determination of the total scale of operation of the firm".⁷

Baltensperger found that the previous literature did not give a complete and satisfactory theory of the bank firm behaviour. According to him:

This literature, . . . , is still unsettled and rather heterogenous. There exists a number of rival models and approaches which have not yet been forged together to form a coherent, unified and generally accepted theory of bank behaviour. Of course, this reflects the difficult nature of the topic, as well as the different objectives pursued in different studies, and should not necessarily be viewed as an undesirable state of affairs.⁸

The author classified the previous approaches according to their major objectives into two sections. Figure (4.1) below, illustrates Baltensperger's classification of the banking firm models.

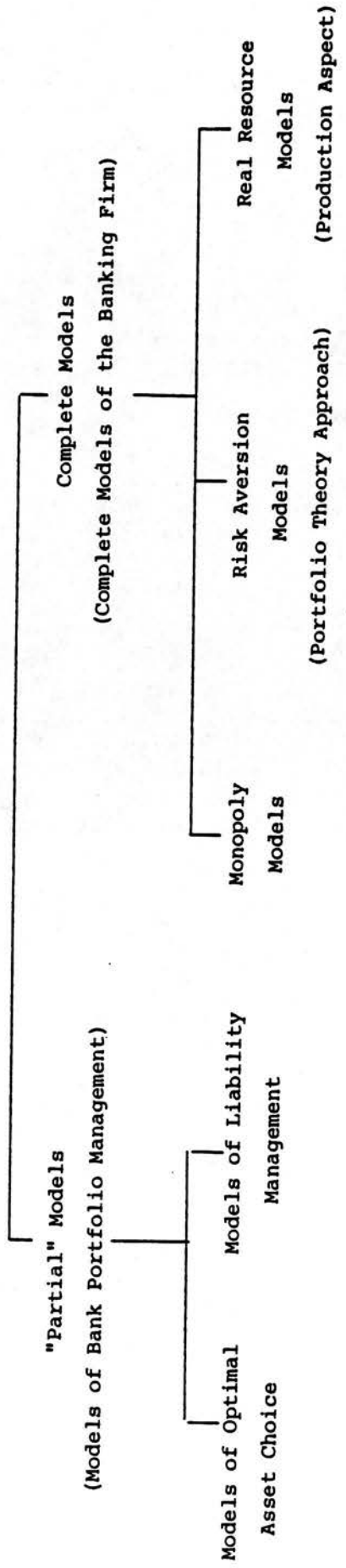
The first section is about the partial models which emphasize bank portfolio management. It is divided into two categories:

1. Models of optimal asset choice.
2. Models of liability management.

He found that a large proportion of the literature consists of these partial models, especially those related to optimal asset choice (particularly reserve and liquidity management), and little attention has been paid to liability management. Every approach dealt with one decision only and sometimes disregarded other important elements related to the bank's decisions.

FIGURE (4.1)

Models of the Banking Firm



The second section is concerned with the complete models of the banking firm. These models explained the interaction between the bank's asset and liability structure decisions in addition to the determination of the total size of the firm. He divided this section into the following three types of models:

1. Monopoly models.
2. Risk aversion models.
3. Real resources models.

Monopoly models are concerned with the role of the bank as price maker in deposit or credit markets. He found that this type of models neglected the resource cost aspect which is central to the bank firm activities.⁹

The second type places the emphasis on the risk aversion aspect and applies the general theory of portfolio behaviour. The author found that these models disregarded the question of liquidity costs, insolvency cost, and real resource costs. He commented that:

This required that somehow the nature of the services produced by the firm makes an appearance in the model, in one form or another. This is not the case in models which restrict themselves to a direct application of traditional portfolio theory to the financial firm, and it is hard to achieve in such a framework.¹⁰

The third type is the real resources approach. This type explains the decisions of asset and liability structure and the bank size in terms of the bank's production process. The author found that this approach omitted the other elements traditionally stressed in banking models, especially liquidity and solvency management aspects.¹¹

Baltensperger's approach is based on the assumption of expected

profit maximization and the role of the bank as price taker in all markets.¹²

The author illustrated three cases for the bank decisions:

1. Joint determination of asset structure and firm scale.
2. Joint determination of capital structure and firm scale.
3. Joint determination of asset-structure, liability-structure, and firm scale.

He illustrated the first two cases as incomplete models just for simplification, where in each case he disregarded some decisions and aspects.

The third case discussed a model which allows for a simultaneous analysis of the firm size, asset and liability structure. Also, the model takes into account liquidity costs, insolvency costs and real resources costs all at the same time.¹³

The following are the model equations structure:

1. The bank's balance sheet constraint: He assumed one type of asset (loans) and liability (deposits) and remarked that "Generalization to more assets and liabilities is formally quite straightforward, however".¹⁴

Balance sheet constraint is

$$R + E = D + W = A$$

where,

R = Reserves

E = Loans

D = Deposits

W = Equity capital

A = Total portfolio size

2. The objective function: the bank maximizes the expected profit:

$$E\Pi = rE - tD - C(D,E) - L - S - pw$$

where,

$E\Pi$ = Expected profit

r = Yield on loans

t = Expected rate of return paid to depositors

$C(D,E)$ = Cost function of deposits and loans

L = Liquidity cost of holding reserves

S = Expected cost of insolvency

pw = Opportunity cost of equity funds

Assuming that the firm choosing total portfolio size (A) and the structure of asset and liability side where,

(α) = Asset structure parameter of total portfolio $\alpha = \frac{E}{A}$

(δ) = Liability structure parameter $\delta = \frac{D}{A}$

where, $(1-\alpha = \frac{R}{A})$, and

$(1-\delta = \frac{W}{A})$

The expected profit then can be expressed as:

$$\begin{aligned} E(\Pi) &= r\alpha A - t\delta A - C(A,\alpha,\delta) - L(A,\alpha,\delta) - S(A,\alpha,\delta) - p(1-\delta)A \\ &= A[\alpha r - \delta t - (1-\delta)p] - C(A,\alpha,\delta) - L(A,\alpha,\delta) - S(A,\alpha,\delta) \end{aligned}$$

"The expression $[\alpha r - \delta t - (1 - \delta)p]$ measures the difference between the expected rate of return on assets r , weighted with the asset structure parameters α , and the weighted (with the liability structure parameter δ) sum of the two expected cost rates t and p ".¹⁵ Thus, the optimisation determines the optimal structure of the asset and liability composition and its optimal scale taking into account cost and return functions.¹⁶

Baltensperger concluded that "It is clear that in a model of this type, all of these decisions will be made in an interdependent way".¹⁷

Baltensperger's model succeeded to present a complete theoretical framework which tells us how to achieve optimality, but it is quite difficult to apply this model in practice. The model presented a very loose mathematical structure and it is too difficult to find the required data to test the model.

The following sections demonstrate the principal important models and approaches which developed and contributed new aspects to the explanation of the individual bank behaviour. More emphasis will be given to the complete models.

4.2. Models of Bank Portfolio Management

4.2.1. Models of Optimal Asset Choice

A substantial effort has been devoted in the literature of the banking firm to construct models which were related to asset portfolio choice and reserve and liquidity management, [e.g. Porter (1961); Anderson and Burger (1969); Pringle (1974); Hester and Pierce (1975); Sealey (1977); and Niehans (1978)]. In this part Pringle's study is reviewed.

Pringle presented a study to examine the normative models for financial management in commercial banks. The object of the study was to illustrate the importance of market imperfection as a central aspect to explain

the financial intermediary existence.

He stated that "Financial intermediaries, . . . , would have no reason to exist if financial markets were perfect. A basic function of financial intermediaries is to exploit market imperfections and, in so doing, to alter yield relationships between lenders and borrowers".¹⁸

The modeller pointed out the main features of the market today such as the existence of transaction costs, no perfect competition, and the existence of asymmetric information. Pringle tried to find out the consistency of these features with the previous approaches to the theory of commercial banks.

After reviewing the literature the author concluded: "Thus, Markowitz models and linear programming models, while useful in many other situations, are not well suited to situations in which market imperfections play a central role, as they do in the case of commercial banks and other depository financial intermediaries".¹⁹

The study presented an illustrative model for the bank's lending decision. The model examined only a single decision, the choice between loans and assets held for liquidity purposes. The object was to deal with the market imperfection aspect in a model which is consistent with the theory of finance as developed under the perfect-markets assumption.²⁰

The model assumptions were: "(1) the bank is a private wealth-maximizing economic unit, (2) future events are uncertain, (3) investors are risk averse, (4) financial markets are imperfect, and (5) optimality is defined in terms of the interest of shareholders rather than those of depositors and the monetary system".²¹

Although Pringle's study introduced and cast light on one of the important aspects of the bank's decisions (market imperfection aspect) which

was neglected by previous studies, his model is a partial one and deals with one single decision of commercial bank (asset portfolio). He neglected the liability and the firm size decisions in addition to production and resources cost which were considered later by other authors.

4.2.2. Models of Liability Management

The literature concerning the liability structure decision is very small compared with the work done for asset portfolio choice.

Only few models have been introduced to the literature [e.g. Baltensperger (1972); and Niehans (1978)]. Also, there exist some other studies which cast light on the impact of regulations on capital structure decisions [e.g. Mingo and Wolkowitz (1977); and Santomero and Watson (1977)]. Such studies concentrated on deposits and capital portfolio choice for the bank firm.

One of the recent studies in this category was proposed by Taggart and Greenbaum (1978).

The study emphasised the importance of the bank's capital as a source of funds which allows the bank firm to purchase earning assets, to act as a risk-bearing, and reduces the probability of insolvency and depositors expected losses.²²

According to their study, the bank issues two types of claims: deposits and equity.

The bank initial balance sheet is:

$$L = D(1-r) + E$$

where,

L = loans

D = Deposits

r = Required reserves ratio

E = Equity

Loans are repaid at the end of the period and the bank receives uncertain gross loan revenue. The study assumed that there is an imperfect competition in the local loan market.²³

On the other hand, they assumed that the bank receives with certainty the payment of transaction services from depositors and holds cash reserves (rD) which is risk free and earn no interest.²⁴ The revenue received from loans and transaction services used to meet the bank's obligations, to repay deposits and to pay the cost of producing transition services.²⁵

Thus, "If the bank's end-of-period resources exceed its obligations, the remainder is paid to shareholders. If not, the bank defaults, but it is assumed that depositors incur no real cost in taking control of the remaining assets".²⁶

According to their approach the bank must choose its levels of deposits and equity which determine the volume of loans.

The authors presented a single model for the bank capital structure decisions under three regulatory cases:

First, banks are subject to a reserve requirements but no other restrictions; second, banks are subject to both a reserve requirement and a prohibition of interest payment on deposit; finally, federal deposit insurance is added to the restrictions in the second setting.²⁷

The study indicates that the market determined capital position for banks can vary according to regulatory framework.²⁸ When deposit insurance is provided for a fee that does not reflect the bank's contributions to expected claims, the incentive to raise capital is weakened, and removing capital supervision further encourages banks to shift cost to the insurance fund.²⁹

4.3. Complete Models of the Banking Firm

4.3.1. Monopoly Models

This group of models emphasised the role of the banking firm as price maker in the financial markets in addition to other aspects in explaining the individual bank behaviour. Only a few authors introduced this role as a dominant role in their models [e.g. Klein (1971); and Monti (1972)].³⁰ This assumption exists in some other models but not as a dominant role.

This section presents Klein's model because it directed the literature from the traditional portfolio theory approach to the neoclassical microeconomic analysis and hence towards a new understanding of the bank firm behaviour.

Klein presented a model entitled "A Theory of the Banking Firm". The modeller was trying to introduce the neoclassical microeconomic analysis instead of the portfolio theory. According to Klein: ". . . , a bank has been treated, not primarily as a firm but as a rational investor in an environment characterized by risk or uncertainty".³¹

He tried to set a theory of the banking firm that allows for the role of market structure and competition through the structural relations the bank confronts.³²

The important features of the model were that it took into account market imperfection and dealt with both asset and liability decisions. Klein also introduced important aspects such as withdrawal risk, market risk, default risk, and the role of the bank as price maker in the market.

Below is a summary of the model's main characteristics and the theoretical framework:

Klein's model theoretical framework: the bank is maximizing the expected utility or the rate of return on equity. The liability decision variables are equity, demand and time deposits. The bank funds allocated to three types of assets: cash, government securities and loans.

A. The expected rate of return on equity (EW):

$$EW = \frac{EF}{1 - \sum_i \alpha_i} = \frac{\sum_j X_j E_j - \sum_i \alpha_i R_i}{1 - \sum_i \alpha_i}$$

where,

EF = Expected return on total funds.

α_i = The proportion of total funds obtained through issuing i th type of deposits.

X_j = The proportion of total funds allocated to the j th asset type.

E_j = The expected rate of return on that asset.

R_i = Rate of interest on deposit.

B. Bank assets returns: the modeller introduced the expected default risk on loans. Thus, the expected return on loans must be less than the loan contract rate of interest.

Klein assumed that the government securities are free of default risk and the rate of return for it is a random variable.

As for cash holding, he mentioned that the increase of cash holding reduces the probability of cash deficiency.

C. Demand supply function: the supply of demand and time deposits to the bank in the model is an increasing function of the yields which the bank offers on these accounts.

Based on the preceding discussion, more details about the structural equations and the model solution were given. The rest of the study considered the application and the interpretation of the model.

First, Klein discussed the impact of interest rate regulation for demand deposits and he concluded that:

If banks are prohibited by law from paying a positive price directly for a productive input, competition insures that individual banks will induce depositors through other forms of price concessions. Thus, depositors may be given preferential price or queuing treatment on loans, or they may be provided with "free" ancillary services, etc.³³

Second, the author considered the market structure and the competition in the model. The deposits interest rates the bank offers are a function of the profitability of bank lending and the deposit supply functions parameters. He mentioned that there are three types of variables which play an integral part in the analysis of the rate the bank offer on deposits, economic variables, market structures, and the degree of bank's competition.

-General comments on Klein's results and findings:³⁴

1. One of the most important results of Klein's model was that there is an independent relationship between the loans and deposit decisions. This result is clear from his statement : "Neither the cost of deposits nor the parameters of the deposits supply functions appear in the optimisation condition and therefore, cannot affect asset selection".³⁵ This result, however, is inconsistent with the complete understanding of the bank firm behaviour, because there is joint determination and interdependent relationship between asset and liability decisions.
2. One of the advantages of Klein's model was that it took into account market imperfection aspect in studying commercial banks behaviour. This aspect was neglected by the

portfolio theory approach.

3. According to Baltensperger (1980), Klein's model neglected the real resource cost aspect and the joint determination of asset and liability portfolios.

Although Klein's model did not give a full explanation of the banking firm behaviour, his model cast light on important issues and aspects which were discussed subsequently in the literature.

4.3.2. Portfolio Theory Approach

There exist in the literature a number of models and approaches which have been applying the portfolio theory approach to the banking firm based on Markowitz (1959) portfolio theory [e.g. Fried (1970); Michaelsen and Goshay (1967); Kane and Malkiel (1965); Hyman (1969;1972); Pyle (1971); and Hart and Jaffee (1974)].

A. General comments on the application of the portfolio theory approach to the banking firm theory³⁶

1. The perfect-market assumption has formed the basis for most of their models.
2. Incomplete application of the essential elements of the theory of the firm to financial institutions.
3. They neglected the technical aspects of production and real resource costs of financial firm.
4. The central aspects of these studies are risk aversion and uncertainty.³⁷
5. This approach ignored the determination of the scale size of

the bank and liquidity and solvency elements.

6. Portfolio theory approach assumed that the bank maximizes the expected utility function of profit.

B. Pyle's (1971) Model

Pyle's model (1971) is considered as one of the important models constructed by the portfolio theory approach authors.

The model's major contribution to the banking theory literature was to find out the nature of the relationship between asset and liability decisions. Pyle's model was based on the principle of hedging as a framework for the analysis of the financial firm behaviour.

The object of Pyle's study was to provide an answer to the following question: ". . . under what circumstances would a firm be willing to sell a given deposit liability (e.g. savings deposits) and use the proceeds to purchase a given type of financial asset (e.g. home mortgages)".³⁸

The modeller explained the bank firm decisions in terms of asset and liability relationship which results from the differences between liability and asset maturity.

The Study Framework

Firstly, Pyle presented a three security model of financial intermediation where the financial firm chooses between three securities. One is riskless and two are risky (loans and deposits) with uncertain yield over the decision horizon.³⁹ The principal issue was the conditions under which the firm is willing to sell deposits with an uncertain yield in order to buy loans with an uncertain yield.⁴⁰

The bank profit equation for the decision period is:⁴¹

$$\begin{aligned}\Pi &= r_0 \alpha_0 + r_1 \alpha_1 + r_2 \alpha_2 \\ &= \alpha_1 (r_1 - r_0) + \alpha_2 (r_2 - r_0)\end{aligned}$$

α_0, α_1 and α_2 denote the amounts of the three assets and r_0, r_1, r_2 are yields per decision period, and r_0 are certain and r_1 and r_2 are random variables with given expectation and joint distribution.

The objective of Pyle's model was the maximization of the bank's utility function of its profit. He introduced the expected default risk for the security value and income received (or paid).

The modeller showed that where there is a positive risk premium on loans and a negative risk premium on deposits, this is a sufficient condition for the bank to allow for a positive dependence between loan and deposit yields.⁴²

Secondly, the author presented a mean-variance model of financial intermediation as an example of the general analysis carried out in the first model.

Without getting much involved into the structural equations of Pyle's model, the model's results can be summarized as follows:

1. Pyle showed that the motive for intermediary to take place will be more likely:
 1. The smaller the risk premium on deposits and the larger the risk premium on loans,
 2. the greater the positive dependence between loan and deposit yields, and
 3. the larger the standard deviation of deposit yields and the smaller the standard deviation of loan yields.⁴³

2. The model major findings is that there is an interdependent relationship between asset and liability decisions. This result is central to the bank firm decision behaviour as pointed out by Pringle (1973). "Thus, Pyle's findings that asset and liability decisions of financial intermediaries in general are interdependent would seem to apply to the case of commercial banks".⁴⁴

Pyle's findings are considered as a very important contribution to the bank theory literature and have been introduced as an essential aspect for the joint determination of asset and liability decisions by other authors.

4.3.3. Real Resources Models (Production Aspect)

In spite of the importance of the bank resources and the production process for producing earning assets, only a little attention has been paid to introduce these aspects to the Literature. A few studies [e.g. Towey (1974); Stillson (1974); Adar, Agmon and Orgler (1975); Bension and Smith (1976); Saving (1977); and Sealey and Lindley (1977)] placed the emphasis on transaction, information and production costs as a central analysis for the bank decision behaviour. This section provides a review of Sealey and Lindley's study.

Sealey and Lindley's (1977) Study

The authors presented a model entitled, "Inputs, Outputs, And A Theory of Production and Cost At Depository Financial Institutions".

The main object of their study was to fit the theory of the firm requirements and to develop a model for financial institutions. The authors explained that: "The lack of success of previous studies in developing a positive theory of the financial firm can be attributed to the incomplete application of

essential elements of the theory of the firm to financial institutions".⁴⁵

Their approach focusses on the production process which starts with the demand for deposits from the bank and the supply from the public as illustrated in figure (4.2). Deposits in the model, are considered as inputs serving with capital, labour and material inputs. This function produces loanable funds which might be transferred to earning assets as an output.

Sealey and Lindley used the dollar volume of various types of earning assets as measure for the output mix. They assumed that there are separate and distinct production function for every department inputs and outputs and that there are three production departments for Loans, securities and deposits.⁴⁶

The model theoretical framework

The firm assumed to face the following balance sheet constraint:

$$R + \sum_i L_i + \sum_j S_j \leq \sum_g D_g \quad (1)$$

where,

R = Required reserves (reserves required production costs)

L = Loans

S = Securities

D = Deposits

(Both loans and securities are not subject to default risk)

and,

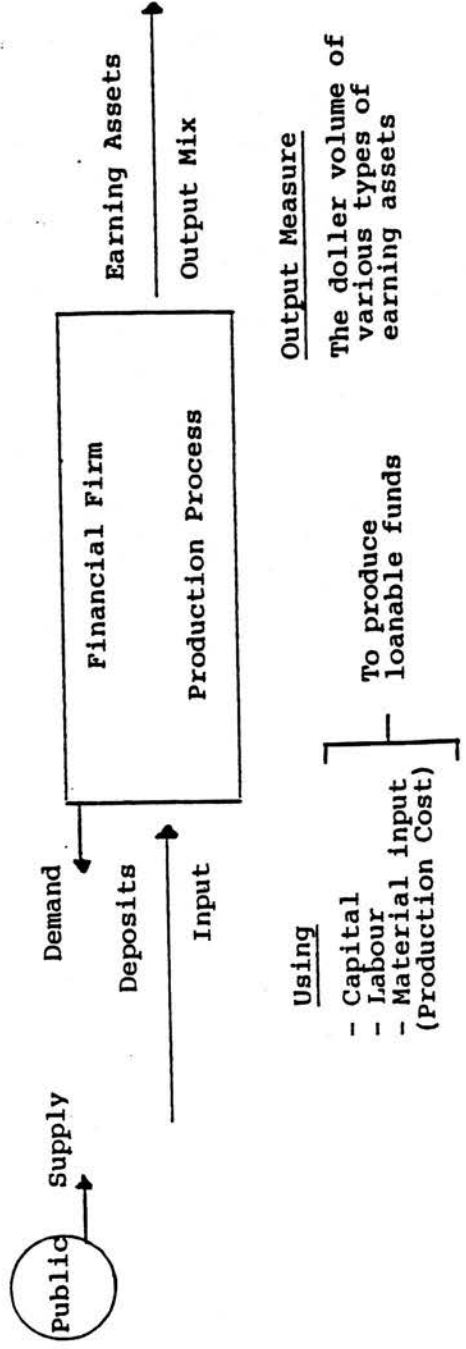
i = 1,2,3 m types of loans

j = 1,2,3 n types of securities

g = 1,2,3 p types of deposits

The reason for the balance sheet equation inequality is the possibility of excess

FIGURE (4.2)
The Production Process In Sealey and Lindley's Model



reserve holdings.

The deposit supply

$$D_g = \Omega_g(r_g) \quad ; \quad (\partial \Omega_g / \partial r_g) > 0 \quad (2)$$

r_g = the interest rate on the gth category of deposits

The production function for deposits services is assumed to be related to the quantity of deposits by the following production function

$$D_g = D_g(X^g_k) \quad K = 1,2, \dots, t \quad (3)$$

X^g_k = is the kth variable input used to service the gth type of deposits.

- Output Constraint

$$\sum_i L_i + \sum_j S_j \leq \sum_g (1 - d_g) D_g \quad (4)$$

where d_g = the legal reserve ratio on the gth category of deposits.

-The production function for loans and securities services

$$L_i = L_i(X^i_k) \quad (5)$$

$$S_j = S_j(X^j_k) \quad (6)$$

(X^i_k) = is the kth variable input used to directly process the ith category of loans.

(X^j_k) = is the kth variable input used to directly process the ith category of securities.

Thus, the production function for the earning assets is constrained by

$$\sum_i L_i + \sum_j S_j = \sum_i L_i(X^i_k) + \sum_j S_j(X^j_k) \quad (7)$$

By substituting equations 3,4,7 the production function can be expressed as:

$$\sum_i L_i + \sum_j S_j = \min [\sum_g (1 - d_g) D_g (X^g_k) ; \sum_i L_i (X^i_k) + \sum_j S_j (X^j_k)] \quad (8)$$

The modellers mentioned that minimizing the production function means that the total earning assets (output) is restricted by the required legal reserve (equation 4) and cost of producing earning assets (equation 7).⁴⁷

Without much involvement in the structural equations of the model, the following is their model's profit function (Π) :

$$\Pi = [\sum_i r_i L_i + \sum_j r_j S_j] - [\sum_i C_i (L_i) + \sum_j C_j (S_j) + C_D (\sum_i L_i + \sum_j S_j)]$$

where,

r_i = the market interest rate on the i th category of loans; and

r_j = the market interest rate on the j th category of securities.

Finally, their model results and the study findings can be summarized as follows:

1. This study developed a model which introduced the technical aspects of the financial firm production process.
2. The model showed the role which production and cost aspects play in deciding the size and the output mix of the bank firm.
3. Asset and liability decisions are not independent, but are related through the production function of the financial firm.

In spite of Sealey and Lindley's model results and the importance of resource costs and production process aspects in explaining the bank firm behaviour, they have failed to introduce the uncertainty elements to their model.

They reported that both loans and securities are not subject to default risk. They also stated that:

The model developed in this paper is a certainty model and portfolio considerations cannot be introduced without explicit consideration of stochastic elements. Even though the model may be slightly less general, the analysis is much simplified and the inclusion of these variables would add little to the analysis of the financial firm's production and cost conditions.⁴⁸

Their justification that the uncertainty elements are not important in the analysis of the financial firm production and cost aspects are not clear because:

A. Financial firm exists to reduce risk, and uncertainty elements are important aspects for bank's operations.

B. As long as the importance of risk is realized, it will affect the cost involved in producing each type of the financial commodities, especially loans, and should be taken into account in deciding asset and liability structure and the firm size.

C. Although the model presented a theoretical framework, in practice it is difficult to estimate the cost of producing each type of financial commodities. The reason is that there is no cost accounting system in the bank firm and there is interdependent relationship between the cost of serving the bank financial commodities.

4.4. The Linear Programming Approach

A considerable number of models have been constructed to explain the bank firm behaviour using the mathematical programming techniques and the linear programming approach [e.g. Chambers and Charnes (1961); Cohen and Hammer (1967;1972); Cohen and Thore (1970); Crane (1971); Cohen and Rutenberg (1971); Chen (1972); Thore (1968); Beazer (1975); Fortson and Dince (1977); Booth (1972); Robertson (1972); and Balbirer and Shaw (1981)].

Most of these models were designed to help bank management in

selecting optimal asset and liability portfolio in order to maximize profit over a specific time period.

Despite the fact that some of these models are deterministic and did not consider important aspects previously introduced in the literature such as market imperfection, it was the only empirical approach used in the literature by researchers or banks to model the bank decision behaviour.

The distinguishing feature of these models is that it was the only approach which addressed empirical evidence; while the previous approaches presented only theoretical frameworks.

The linear programming model build in each case depends on the data availability and the constraints which restrict the bank's operations. Some of these models are partial ones designed to select only one single decision, asset or liability portfolio. Others were complete models designed to select both asset and liability composition.

This section reviews two important studies. The first one is an academic study conducted by Beazer (1975). The second study is a model constructed for a specific bank by Balbirer and Shaw (1981).

A. Beazer Study (1975)

This study is considered as one of the few academic studies with empirical evidence regarding bank firm. Beazer constructed a linear programming model for bank asset portfolio. The object of the study was: ". . . to generate optimal portfolios that could be compared with the portfolios actually chosen by individual banks".⁴⁹

The model is a partial one designed to estimate asset portfolio using actual liability portfolio. It consists of a number of regulatory and operational

constraints such as: capital adequacy ratio, required reserves, real estate loans, liquidity, risk asset ratio and interbank balances.⁵⁰

The model objective function

$$Z = \sum_j C_j X_j$$

where,

Z = expected profits

C_j = expected annual net rate of return associated with each type of assets (equal gross interest rate less any direct costs of serving assets)

X_j = the proportion of each jth type of assets to total assets and $\sum_j X_j = 1$

The author tested the model for 14 banks and collected quarterly data observations covering the period from March 1957 to December 1963. The observations for each bank ranged between 15–27. Beazer used these historical data to test the model validity by comparing the actual portfolio to the model results. Also, the modeller used the dual values produced by the model for each constraint to rank the services offered by the sample banks.

Beazer's model succeeded only in giving a general explanation to the study sample banks' decision behaviour and did not explain the detailed decisions the bank manager makes.⁵¹

B. Balbirer and Shaw (1981) Model

In their most recent study Balbirer and Shaw designed a special complete model for Central Carolina Bank and Trust Company.

The objective of the model was to maximize profits over a one year

single period horizon.⁵²

The model object function is

$$\Pi = \sum_i \sum_j C_{ij} X_{ij} - \sum_i \sum_k C_{ik} Y_{ik}$$

where,

$$\sum_i \sum_j C_{ij} X_{ij} = \text{Net yield on total assets}$$

$$\sum_i \sum_k C_{ik} Y_{ik} = \text{Net total liabilities costs}$$

$$C_{ij} = \text{Net yield on each } i\text{th type of assets}$$

(interest received - administrative cost and expected loan losses)

$$C_{ik} = \text{Net cost for each } k\text{th type of liabilities}$$

(interest paid adjusted upward for administrative costs).

The Model involves five groups of constraints⁵³

1. Maximum activity level constraint.
2. Turnover constraints.
3. Policy constraints.
4. Legal/Regulatory constraints.
5. Funds flow constraints.

The model is very helpful for the bank management in choosing: a) the optimal portfolios, b) net yield and cost for each decision variables and c) the model produces the dual values associated with each constraints which enable the bank to rank its services.⁵⁴

4.5. Recent Approaches to the Theory of the Banking Firm

In addition to Baltensperger's study [(1980) : 4.1 above], there is a number of more recent important studies published in the field. The following is a selective review of such publications.

Sealey (1980) presented a complete model dealing mainly with the aspects and decisions introduced by the three types of the complete models in the preceding discussion. In contrast to previous studies, the study's major aim was to develop an uncertainty model to explain the intermediary behaviour that integrates the risk aspect of the portfolio theory with market conditions (particularly market imperfection), cost considerations and the role of the bank as price maker for deposit interest rates.⁵⁵ All these aspects were simultaneously incorporated into the model.

The general results and findings from Sealey's study can be summarized as follows:

1. Liquidity, cost, risk considerations jointly determine the bank firm decisions.⁵⁶
2. The effects of risk in the bank firm optimal decision are dependent on the liquidity and cost aspects facing the financial firm.⁵⁷

According to Baltensperger (1980) results, Sealey's model neglected the expected cost of insolvency and the opportunity cost of the equity funds. Moreover, Sealey stressed the optimal deposits rate-setting and optimal loan decisions and neglected the capital structure and the firm size decisions.

A more recent approach was presented by O'Hara (1983). His major objective was to construct a model which incorporates the following important three roles for the bank firm into a dynamic framework.⁵⁸

1. The role of the bank as intermediary which performs both a brokerage and a risk transformation function.
2. The role of the bank as a firm, doing business and must

achieve good return to shareholders.

3. The role of the bank as a regulated unit which must apply the regulation placed by regulatory authorities.

The study found that the bank firm decision behaviour depend on the uncertainty nature of the bank decisions, and other constraints imposed by shareholders and regulatory authorities.⁵⁹

Finally, the most recent survey to date, with respect to modelling the bank firm decision, was carried out by Santomero (1984).

The survey did not add much to the conceptual framework and theoretical analysis presented by Baltensperger(1980). The value of Santomero's work lies in the fact that it presented an up to date review of the literature and it pointed out the important aspects, ideas and areas of interest which could direct the future work concerning the bank modelling.

With respect to asset portfolio decision, Santomero suggested that more attention should be given to consider the imperfect information aspect, the interest rates risk management and credit risk analysis.⁶⁰

His conclusion regarding the liability side was that : "Liability and transaction product innovation requires considerably more attention than it is currently receiving in the banking literature".⁶¹ The author also emphasised the integration between the two sides of the balance sheet and the possibility of incorporating modern finance theory in the bank firm theory.⁶²

4.6. Summary and Concluding Remarks

4.6.1. Summary

A considerable effort has been devoted to develop the theory of the banking firm during the last two decades.

The literature concerning the individual bank behaviour was highly specialized and designed to serve different analytical purposes. Most of the studies were concerned with one single decision of the bank portfolio management, particularly with asset portfolio choice. Other studies, concentrated on the liability side management and the impact of regulation in deciding the optimal capital structure.

In spite of the specialized nature of the literature, a reasonable number of complete models have been constructed to develop and to explain the nature of the bank firm behaviour. Such models introduced important aspects regarding the banking firm decisions.

The portfolio theory approach cast light on the importance of uncertainty and risk elements to the bank decisions.

Klein's (1971) model directed the literature from the traditional portfolio theory approach to the neoclassical microeconomic analysis and shed the light on important issues which were discussed subsequently in the literature.

Pyle's (1971) model major result was the interdependent relationship between asset and liability decisions.

Pringle (1974), pointed out market imperfection as an important aspect in the central analysis of the bank firm decision behaviour.

Sealey and Lindley (1977) among others introduced the real resources

cost aspect and outlined the importance of the production process for producing earning assets and the optimal output mix for the financial firm.

Sealey (1980) developed an uncertainty model which integrates the risk aspect of portfolio theory approach with market imperfection, cost consideration and the role of the bank as price maker.

On the other hand, Baltensperger (1980) tried to fill the gaps in the previous models and approaches which were introduced to the literature, and in a very careful way he constructed a complete theoretical framework for the banking firm theory.

Baltensperger allowed in his model for the simultaneous analysis of the firm size and asset and liability structure. Also, the model took into account all the important aspects which were developed by previous studies to explain the bank firm decision behaviour.

4.6.2. Concluding Remarks

Most of the models and approaches which were introduced so far to the literature to develop the bank firm theory addressed a theoretical frameworks. In spite of the fact that they shed light on important aspects concerning the bank decision behaviour, they did not provide us with empirical evidence.

Goldfeld (1984) justified the absence of the empirical work from the bank firm models as follows:

One obvious problem is that much of the theoretical analysis is at the level of the individual bank, and appropriate micro data are simply not readily available. Even when micro data are available, they are often not up to testing some of the leading theories. For instance, the basic portfolio model requires observations on expected rates of return—strictly speaking net rates—and perhaps on variances and co-variances as well. Needless to say, these are not part of any standard data set.⁶³

Also, Cohen and Hammer (1972) pointed out to the difficulty of applying these theoretical models in practice. They stated that ". . . much of the sophisticated literature which has appeared has been presented at a level of abstraction that precludes practical application".⁶⁴

The mathematical programming techniques and the linear programming models were the only approaches which addressed practical applications either by researchers or banks to model the bank firm decision behaviour.

Despite the important aspects the previous models presented, they showed that the lack of empirical work is a major weakness of the existing models and approaches. It is hoped that an empirical model could be constructed to explain and to simulate banks' operations.

References

1. The terms, financial firm, financial institution, the intermediarier, financial intermediarier and depository financial intermediary have been used in the literature by many authors and they refer to commercial banks or the banking firm in our discussion.
2. C. A. E. Goodhart, Money, Information and Uncertainty, (London: Macmillan Press, 1975), p. 102.
3. Hayne E. LeLand, and David H. Pyle, "Informational Asymmetries, Financial structure, And Financial Intermediation", Journal of Finance, Vol. 32, No. 2, May 1977, p. 383.
4. Dennis W. Draper, and James W. Hoag, "Financial Intermediation And The Theory Of Agency", Journal of Financial and Quantitative Analysis, Vol. 13, No. 4, November 1978, p. 595.
5. Tim S. Campbell, and William A. Kracaw, "Information Production, Market Signalling, And the Theory of Financial Intermediation", Journal of Finance, Vol. 35, No 4. September 1980, p. 864.
6. Baltensperger's (1980) classification of the bank firm models and approaches will be used as a guide in this chapter.
7. Ernst Baltensperger, "Alternative Approaches To The Theory of The Banking Firm", Journal of Monetary Economics, Vol. 6, 1980, p. 3.
8. Ibid., p. 1.
9. Ibid., p. 19.
10. Ibid., p. 27.
11. Ibid., p. 31.
12. Ibid., p. 32.
13. Ibid., p. 35.
14. Ibid., See footnote number (25), p. 32.
15. Ibid., p. 35.
16. Ibid.
17. Ibid., p. 36.
18. John J. Pringle, "The Imperfect-Markets Model of Commercial Bank Financial Management", Journal of Financial and Quantitative Analysis, Vol. 9, January 1974, p. 69.
19. Ibid., p. 71.
20. Ibid., p. 70.

21. Ibid.
22. Robert A. Taggart, and Stuart I. Greenbaum, "Bank Capital and Public Regulation", Journal of Money, Credit, and Banking, Vol. 10, No. 2, May 1978, p. 158-159.
23. Ibid., p. 160.
24. Ibid.
25. Ibid.
26. Ibid.
27. Ibid., p. 159.
28. Ibid., p. 168.
29. Ibid.
30. See Sealey (1980), who also discussed the deposit rate setting behavioural mode for the bank decision. This model will be described at the end of this chapter (section 4.5).
31. Michael A. Klein, "A Theory of the Banking Firm", Journal of Money, Credit, and Banking, Vol. 3, May 1971, p. 205.
32. Ibid., p. 206.
33. Ibid., p. 215.
34. For a detailed discussion of Klein's model findings and results see John A. Broaddus, A Stochastic Model of Individual Bank Behaviour, Ph.D. Dissertation, Indiana University, 1972, pp. 52-59; John J. Pringle, "A Theory of the Banking Firm: Comment", Journal of Money, Credit, and Banking, Vol. 5, November 1973, pp. 990-996; Stephen A. Miller, "A Theory of the Banking Firm: Comment", Journal of Monetary Economics, Vol. 1, January 1975, pp. 123-128; and Baltensperger, "Alternative Approaches to the Theory of The Banking Firm", pp. 19-24.
35. Klein, p. 215.
36. For a detailed description and criticism of the portfolio theory approach to the banking firm theory see Klein, pp. 205-206; Pringle, "A Theory of the Banking Firm: Comment", pp. 994-995; C. W. Sealey, JR. and James T. Lindley, "Inputs, Outputs, and A Theory of Production and Cost At Depository Financial Institutions", Journal of Finance, Vol. 32, No. 4, September 1977, p. 1251; and Baltensperger, "Alternative Approaches to the Theory of the Banking Firm", pp. 24-29.
37. For a comprehensive review of literature on the financial institutions theories under uncertainty see David H. Pyle, "Descriptive Theories of Financial Institutions Under Uncertainty", Journal of Financial and Quantitative Analysis, Vol. 7, December 1972, pp. 2009-2029.
38. David H. Pyle, "On the Theory of Financial Intermediation", Journal of Finance, Vol. 26, June 1971, pp. 737-747.

39. Ibid., pp. 737–738.
40. Ibid., p. 738.
41. The equation and the explanation demonstrated and summarized by Baltensperger, "Alternative Approaches to the Theory of the Banking Firm", pp. 25–26, was used to simplify the discussion. [Equation No (22), p. 26].
42. Ibid., p. 26.
43. Pyle, "On the Theory of Financial Intermediation", pp. 745–746.
44. Pringle, "A Theory of the Banking Firm: Comment", p. 994.
45. Sealey and Lindley, p. 1251.
46. Ibid., p. 1256.
47. Ibid., p. 1257.
48. Ibid., Footnote No. (17), p. 1259.
49. William F. Beazer, Optimisation of Banking Portfolio, (Toronto: D. C. Heath, 1975), p. 53.
50. See Ibid., chapter 3 and 4 for a detailed discussion regarding the model constraints and the mathematical equations.
51. Ibid., p. 110.
52. Sheldon D. Balbirer and David Shaw, An Application of Linear Programming to Bank Financial Planning, Interfaces, Vol. 11, No. 5, October 1981, p. 79.
53. For more detail see Ibid., pp. 80–81.
54. Ibid., p. 8.
55. C. W. Sealey, Jr., "Deposit Rate – Setting, Risk Aversion, and the Theory of Depository Financial Intermediaries", Journal of Finance, Vol. 35, No. 5, December 1980, p. 1140.
56. Ibid.
57. Ibid.
58. Maureen O'Hara, "A Dynamic Theory of the Banking Firm", Journal of Finance, Vol. 38, No. 1, March 1983, pp. 127, 140.
59. Ibid., p. 140.
60. Anthony M. Santomero, "Modelling The Banking Firm: A Survey", Journal of Money, Credit, and Banking, Vol. 16, No. 4, November 1984, Part 2, pp. 597, 602.
61. Ibid., p. 602.

62. Ibid.
63. Stephen M. Goldfeld, "Comment on Modelling the Banking Firm: A Survey", Journal of Money, Credit, and Banking, Vol. 16, No. 4, November 1984, Part 2, p. 610.
64. Kalman J. Cohen, and Frederick S. Hammer, "Linear Programming Models for Optimal Bank Dynamic Balance Sheet Management", in Mathematical Methods in Investment and Finance, Giorgio P. Szegő and Karl Shell, eds., (Amsterdam: North-Holland Publishing Company, 1972) p. 387.

CHAPTER 5
RESEARCH METHODOLOGY

Introduction

The purpose of this chapter is to describe the research methods used to carry out the study's analysis and to model the Egyptian joint venture banks' (EJVB) operations.

Section one considers the choice of research methods. Section two explains the process and problems of gaining institutional access and the study sample. Section three discusses data collected from both secondary and primary sources. Section four describes the study analytical framework.

5.1. Choice of Research Methods

In the light of the previous work done on the theory of the banking firm and the nature of the EJVBs' operations, the linear programming approach was chosen to model their decision behaviour for the following reasons:

1. Most of the models addressed theoretical frameworks without any empirical evidence. It was found that it is impossible to get the data required to test these models fully.
2. A considerable number of authors used the linear programming (LP) approach to model and to assist banks' management in selecting their optimal portfolio.
3. The LP approach solution will help to identify the constraints which bind the bank operations and others which turn out to be none binding constraints.
4. This approach suits the Egyptian joint venture bank for the following reasons:
 - a. These banks are seeking profit maximization.

- b. As concluded in chapter three, there are a lot of regulations and restrictions governing their operations, particularly commercial banks.
- c. The questionnaire approach enabled the acquisition of internal policy constraints and operational and market constraints.

The Objectives of The Model

The purpose is to build an explanatory LP model which is:

1. A complete model in the Baltensperger's sense (i.e. reflects the interaction between the bank's asset and liability structure decisions).
2. Consistent with the EJVb policies and practices according to the replies given to the questionnaire.
3. Consistent with the decisions made by the banks in the past to the extent that these decisions are recorded in the banks' financial statements. The accounting data analysis enabled the identification of banks' decision variables, policies and profitability behaviour.
4. An LP model which simulates the way these banks chose their portfolios and justifies their decision behaviour.
5. Can be used to predict how banks would respond to changes in the economic and regulatory environment. The use of sensitivity analysis for the model constraints and the objective function coefficients, particularly for LC operations, enabled the prediction of the impact of possible changes in

regulations and LE interest rates on their operations and profitability.

Finally, the model solution is considered as the expected optimal behaviour from a rational bank given the model's constraints, the interest rate for bank's services and the market constraints. Also, the model results along with the analysis findings will enable answers to the study objective questions stated in the introduction¹.

The Model Constraints

There are many constraints which restrict a bank's ability to select the asset and liability portfolio composition.

1. Regulatory constraints : These are the regulations placed by the regulatory authorities.
2. Internal policy and operational constraints : These reflect the bank's targets for each decision variable and the bank's internal ratios which set the relationship between specific asset and liability items such as the vault cash as a proportion of demand and time deposits.
3. Market constraints on the availability of suitable assets or on the ability to secure deposits.

Before collecting data, a model and a general framework were built as a guide for the research design and for the field work. This framework was developed on the basis of the data collected from Egypt and the analysis carried out to investigate the model restrictions. The model validity was tested according to data availability.

5.2. Process and Problems of Gaining Access to Banking Institutions In Egypt

This section describes the process and the problems faced to obtain permission to conduct the field work and to gain access to banking institutions.

The Central Agency for Public Mobilization and Statistics [CAPMS] Permission

To carry out research and to collect data from both primary and secondary sources in Egypt the following steps were followed:

First, an application was submitted to CAPMS requesting written permission to carry out the empirical study. The letter sent contained the sample list and the data to be collected both from primary and secondary sources. The CAPMS had to approve the study sample and decide the data allowable.

In respect of data collection from secondary sources, the permission was confined to published data and subject to the institution's approval.

Second, the CAPMS(Data Security Department) had to review all the questionnaires to be used in conducting the in-depth interviews. The objective was to make sure that the research did not include data sensitive to national security.

Third, CAPMS chairman had to take a special decision for the researcher, including the approval to carry out the research, the method of data collection (questionnaire, interviews, mail questionnaire, etc...), the study sample, and number of interviewees. This decision had to be published in the Official Gazette before the survey was carried out.

The Approved Study Sample

There are 11 JVCB and 6 JVIB operating now in Egypt. It was planned to approach all of them, but the CAPMS approval was confined to 8 commercial

banks and 4 investments banks².

CAPMS explained that these restrictions were imposed for national security reasons.

As a result, it was decided to include in the sample only those banks with the longest period of operations (since 1976).

Problems of Achieving Institutional Access

Having obtained the required permission, the next stage was to have access to these institutions.

A cover letter signed by the Egyptian Ministry of Higher Education and enclosed by another letter from CAPMS was sent to the 'secondary source' institutions. This was sufficient to get the required published data.

A similar approach was used to achieve access to the banks included in the sample. Their response, however, was negative.

Analysis of the situation revealed that the nature of the banking industry, the political instability and both government and press attitudes towards the new banks were the main reasons for the negative response³.

Personal contact was therefore the only successful approach to achieve access to the banks included in the sample.

In some cases, it was easy to find the key person in each bank and have his cooperation in a short period of time. In a few other cases, access to the data was only possible after one month or more.

5.3. Data Collection

The empirical study and data collection required a period of six months (January–June 1983).

5.3.1. Data Collected from Primary Sources

Using four questionnaires to carry out in-depth interviews, data was collected from 4 managers in each of the banks included in the sample. These managers were:

- a) The general manager.
- b) The loan manager.
- c) The deposit manager.
- d) The investment manager.

The Pilot Study

Before conducting the in-depth interviews, a pilot study with one commercial bank and one investment bank was carried out. The purpose was to estimate the time required for each interview and to revise the questions.

It was found that some data could be obtained from banks' published annual reports and the relevant items were deleted. Moreover, it was found that more than one person in the loans department had to be interviewed as the loan manager questionnaire covers both short and long term lending policies.

Most of the interviewed banks did not have an investment department or even a policy⁴. Thus, it was difficult to carry out the investment manager interview and the investigation was confined to, why the investment function did not have an important role in their operations, especially for investment banks.



Also, a questionnaire was designed to conduct in-depth interviews with the users of JVB services. The object was to discover how well the JVB were serving Egyptian businesses. Permission was obtained from the CAPMS that each bank, if approved, could be asked to nominate five clients that could be approached.

Most of the sample banks refused to nominate their clients and the key person in each bank advised not to carry out these interviews because of the economic and political instability and to gain the bank's management cooperation.

The Questionnaire Design And The Interviews Assessment

Most of the questions were open ended especially those designed to obtain information about bank's operations, policies, targets and planning process. Others were closed questions to investigate the constraints which restrict their operations and to help in constructing the LP model.

All the interviews were face to face with the interviewees and the answers were recorded in writing during the interviews. Answers were reviewed after each bank visit to ensure that all the required information was covered.

Both Questionnaires and answers were in Arabic. All the answers were subsequently translated to English.

It was difficult to obtain answers for some questions which seek quantitative data regarding banks' decisions maximum levels, internal operating ratios, cost parameters and planning targets.

All the banks and the interviewees were assured total anonymity and were informed that code numbers would be used instead of names.

In general , the in-depth interviews were very successful and the managers were very cooperative. Only one investment bank refused to carry out the interviews. It is considered that the reason is that this particular bank was the only bank in Egypt which experienced losses in 1981.

5.3.2. Data Collected from Secondary Sources

Several sources were approached to collect the required published data. The reasons were many fold : a) in some cases there was more than one source for the same information and it was considered useful to run a check by cross validating the different sets of data , b) in other cases, some sources refused to provide the required data. Finally , the multiplicity of sources approached for data collection was brought about by a concern to ensure the collection of complementary sets of data⁵.

The Following Were The Sources Approached:

A. The Central Bank of Egypt: It was proposed to collect financial statistics gathered by the CBE on each individual JVB. However, this was found to be extremely difficult. Also, it was found that the published data were an aggregate for all the banking sectors without any breakdown even in terms of individual sectors.

Despite this difficulty, it was possible with personal contact to have access to an important recent survey which covered all the aggregate data for each of the banking system sectors. This study was carried out by Foda (1982) (a financial consultant). The survey was sponsored by the Egyptian government and USAID. Foda, was supplied with special aggregate data as explained in chapter two above. It was the only available source of detailed financial data concerning the banking system sectors in Egypt.

CBE supplied information regarding the regulations which govern the

JVB operations.

B. National Bank of Egypt: The research department for NBE⁶ provided all the recent studies and published data about the Egyptian economy and the banking system.

C. Egyptian Joint Venture Banks: In addition to the in-depth interviews, it was possible to collect all the published annual reports for all the sample banks which covered the period from 1976, from the date they started operating, until 1982. It was also possible to obtain detailed financial data from two banks despite the many difficulties encountered in the quest for this sort of data.

D. Capital Market Authority: This institution was very helpful in providing useful information about the Egyptian securities market, the stock exchange and legislation which governs investment decisions in Egypt.

In addition to the above mentioned secondary sources, a number of governmental agencies were visited to collect the required data, such as the Ministry of Planning, the Ministry of Finance and the Investment Authority.

5.4. The Study Analytical Framework

Recalling our research methods and the data collected from the field work, the next part (Part III) is devoted to the study analysis and is divided into three chapters. Chapter VI analyses the JVB published accounting data as recorded in their annual reports. The object is to develop an explanatory econometric model to find out the relationship between profitability and banks' decision behaviour. Chapter VII presents the questionnaires analysis important findings. Chapter VIII develops a LP model to simulate the Egyptian joint venture banks' operations.

References

1. See above the study objectives, pp. 3-4.
2. See appendix "A" for the CAMPS published decision.
3. The press were against these banks because of the high salaries they offered (sometimes ten times more than the government and public sector wages), their policy regarding placing a high proportion of their funds in FC abroad and the press claimed that these banks are not willing to finance productive projects.
4. Investment operations are concerned with allocating funds in purchasing securities and direct investment in projects' equity.
5. This approach is sometimes referred to as triangulation. For a detailed discussion of this method see for example, Todd D. Jick, "Mixing Qualitative and Quantitative Methods: Triangulation in Action", Administrative Science Quarterly, Vol.24, No.4, December 1979, pp.602-611.
6. One of the largest public sector banks.

PART THREE :

THE ANALYSIS

CHAPTER VI : ACCOUNTING DATA ANALYSIS

CHAPTER VII : JOINT VENTURE BANKS' OPERATIONS MANAGEMENT

CHAPTER VIII : A LINEAR PROGRAMMING MODEL FOR JVCB

CHAPTER 6
ACCOUNTING DATA ANALYSIS

Introduction

In this chapter the objective is to analyse the published accounting data for Egyptian joint venture banks.

The aims of the analysis are to develop an explanatory econometric model to explain these banks decision behaviour and to find out the relationship between profitability (as measured by net profit before taxes, return on equity and/or return on assets) and the bank's asset and liability composition.

This chapter is divided into the following sections. Section one considers the accounting data characteristics. Section two demonstrates the accounting data analysis for commercial banks, and contains principal components analysis, development of the regression model and regression residuals analysis. Section three displays the investment banks sample accounting data analysis. In section four a comparison study between the commercial and investment banks is conducted. The object is to compare between each group of banks performance during the study period. Section five contains the summary and findings.

6.1. Accounting Data Characteristics And Limitations

The analysis carried out in this chapter relies mainly on the published accounting data for the JVB. Banks usually publish an annual report which covers three major financial statements:

- The balance sheet.
- Profits and loss account.
- Profit allocation account.

Most of the published data are an aggregate and only a few banks publish a

breakdown of the balance sheet items. In addition , a content analysis was carried out for all the information included in banks' annual reports.¹ The aim was to adjust the published data and to create standard accounting data file for each group of banks. It was found that each bank published its financial statements according to its own internal accounting system which may be different from other banks.

6.1.1. The Sample And The Study Period

As explained before, the sample covered in the analysis consisted of 8 commercial banks and 4 investment banks. The sample included the oldest JVB which has been operating in Egypt since 1976.² The analysis covered the period from 1976, when they started operating, till 1982.

6.1.2. Creating A Standard Data File

Every effort has been made to break down the balance sheet items (assets and liabilities variables) using all the available data to create a standard data file for each group and to develop the model.

The commercial banks data are in Egyptian pounds as they deal in both LC and FC. Meanwhile, investment banks sample data are in \$ as they deal only in FC.³

All banks' financial statements for all years,⁴ except the first year, were used to create the data file and to construct the model. The first year data for each bank was not used for the following reasons:

1. Most of the sample banks were finishing their establishment arrangement during the first year of operating. Thus, the first year financial statements do not reflect their full capacity.
2. It was found that the first published annual report for each

bank sometimes covered more or less than 12 months.

6.1.3. Balance Sheet Structure And The Analysis Variables

The following is the standard balance sheet structure for the sample banks:

Assets

- Cash and due from banks.
- Securities and equity investments.
- Total loans.

Liabilities

- Paid up capital and reserves (Equity).
- Total deposits.
- Due to banks.

-Variables Definitions

It is important to introduce the definitions of the analysis variables as the nature of EJVB operations might be different from other countries.

- Cash and due from banks: This item includes the bank's vault cash, reserves in LC with CBE, required deposits with CBE for foreign currency deposits, other balances with CBE, and due from banks in Egypt and abroad. Placings with banks especially abroad (demand, time, and call deposits) are the largest items.

The published data does not give details about cash and due from banks items. Tables (6.1) and (6.2) show the aggregate balance sheet for JVPCB and business and investment banks sectors respectively. The tables reveal that due from banks represents a very large proportion of funds for both sectors. As for JVPCB, placings represents 35.3% and 49.7% for investment banks sector by the end of 1981. Also, the largest part of these placings are allocated abroad (22.9% for JVPCB and 31.9% for investment banks in 1981).

Investments in securities and equity: This item represents funds

TABLE (6.1)

Balance Sheet of Joint Venture and
Private Commercial Banks (JVPCB)

As of December 31 (1978-1981)

Item	Year	1978	1979	1980	1981
<u>Assets:</u>					
Vault Cash		0.2	0.5	0.6	0.5
Cheques for Collection		1.2	1.7	1.4	1.8
Security Portfolio		1.6	1.0	0.8	0.9
Bills Discounted		0.2	0.1	0.1	0.1
Deposits with CBE		8.1	9.6	10.1	15.5
Due from Specialised Banks		1.8	2.1	1.1	1.5
<u>Due from Other Banks:</u>		54.0	42.3	44.6	35.3
- in Egypt		17.4	14.9	14.5	12.4
- Abroad		36.6	27.4	30.1	22.9
Loans and Advances		29.8	39.1	37.4	40.3
Fixed Assets		1.2	1.4	1.3	1.1
Other Assets		1.9	2.2	2.6	3.0
Total Assets		100.0	100.0	100.0	100.0
<u>Liabilities:</u>					
Capital		7.1	6.4	5.2	3.4
Reserves		0.4	0.6	1.0	1.0
Provisions		0.2	0.7	1.3	1.5
Due to CBE		-	0.1	-	0.5
<u>Due to Other Banks:</u>		20.0	22.9	24.8	24.5
- in Egypt		11.7	16.7	15.2	16.8
- Abroad		8.3	6.2	9.6	7.7
Deposits		64.8	61.2	59.3	58.8
Cheques due for Payment		1.6	0.3	0.5	0.5
Other Liabilities		5.9	7.8	7.9	9.8
Total Liabilities		100.0	100.0	100.0	100.0

Source: Computed from CBE, quoted in Foda, Exhibit 14.

TABLE (6.2)
Balance Sheet of Business and Investment Banks
As of December 31 (1978-1981)

Item	Year			
	1978	1979	1980	1981
%				
<u>Assets:</u>				
Vault Cash	0.5	0.4	0.3	0.2
Security Portfolio	3.8	4.8	5.5	1.9
Bills Discounted	1.4	0.0	0.4	-
Deposits with CBE	-	0.1	1.4	6.2
Due from Specialised Banks	-	0.4	0.1	-
Due from Other Banks:	73.0	65.1	59.0	49.7
- in Egypt	8.8	16.9	22.3	17.8
- Abroad	64.2	48.2	36.7	31.9
Loans and Advances	18.1	25.8	30.4	37.4
Fixed Assets	0.6	0.5	0.5	0.7
Other Assets	2.6	2.9	2.4	3.9
Total Assets	100.0	100.0	100.0	100.0
<u>Liabilities:</u>				
Capital	15.3	12.9	11.7	9.4
Reserves	0.9	1.1	1.4	1.8
Provisions	0.6	0.7	1.1	1.3
Due to CBE	-	-	-	8.7
Due to Other Banks:	46.1	42.7	36.1	34.5
- in Egypt	27.2	20.0	22.6	19.1
- Abroad	18.9	22.7	13.5	15.4
Deposits	34.0	36.9	43.2	36.7
Other Liabilities	3.1	5.7	6.5	7.6
Total Liabilities	100.0	100.0	100.0	100.0

Source: Computed from CBE, quoted in Foda, Exhibit 17.

allocated as a securities portfolio, mainly Egyptian Government bonds and direct investment in projects' equity.

Total loans: Includes all the short term loans granted by banks to their clients.

Equity: This item represents the bank's shareholders funds and consists of paid up capital and reserves such as, legal reserve, general reserve, and retained profits for the year. The banks' equity accounts were adjusted where necessary to fit with this definition.

Deposits: Includes all deposit accounts: demand, time and savings deposits in addition to deposit certificates.

Due to banks: Represents short term borrowings and interbank accounts locally and abroad. Notice from the previous table that this item represents a more significant proportion of total liabilities for investment banks (34.5% in 1981) than it does for JVPCB (only 24.5% in 1981).

Before carrying out the econometric analysis a financial ratio analysis was carried out to establish :

- The major differences between the operations of different banks.
- To understand the changes in banks' behaviour during the study period.
- To create and to select variables which could be used in constructing the model.

Figure (6.1) displays the two sets of data which were used to construct the model. The first set of data represents the absolute values of the variables, while the second set represents the ratios variables (the first set of data values expressed as a proportion of total assets).

FIGURE (6.1)

The Analysis Variables- Data Set One : Absolute Value Variables*Independent Variables:

- Cash and Due from Banks
- Total Loans
- Equity
- Deposits
- Due to Banks
- Investments

Dependent Variable:

- Net Profits (measured by net profits before taxes)

* In thousands of Egyptian pounds for commercial banks and thousands of Dollars for Investment Banks.

- Data Set Two : Ratios VariablesIndependent Variables:

- (Cash&due from Banks/T. Assets)x100
- (Investments/T. Assets) x100
- (Total Loans/T. Assets) x100
- (Equity/T. Assets) x100
- (Deposits/T. Assets) x100
- (Due to Banks/T. Assets) x100

Dependent Variable:

- Profitability as measured by
- Return on Equity =
- $\frac{\text{Net Profits before taxes}}{\text{Shareholders Equity}} \times 100$
- OR
- Return on Assets =
- $\frac{\text{Net Profits before taxes}}{\text{Total Assets}} \times 100$

Note That: Total Assets = Total Liabilities

Profitability is measured by net profits before taxes in absolute value for the first set of data and by two ratios, return on assets (ROA) and return on equity (ROE), for the second set of data. Net profits before taxes were used because JVB are exempt from taxes during the first five years of operation.

6.1.4. Data Limitations

All the available data for all banks, in each group, for all years except the first year were used to carry out the analysis. The number of (annual reports) was very limited. There were 33 reports for commercial banks and 19 reports for investment banks. The first two years' data was omitted for one of the investment banks sample (bank no.1) as there were some missing variables from the published annual reports in 1977 and 1978.

The number of reports per bank (time series) also were very limited. For some banks, there were only two or three years available as they started their operations in 1979 and 1980.

It is difficult to generalize the analysis findings despite the fact that the sample banks represents most of the population. The none sample banks started their operations during the last three years (1980/1982) in a different regulatory framework and economic and political environment. They would not necessarily conform to the pattern set by the early entrants.

In this chapter, the analysis is confined to the published data. Other information on banks' policies and practices, obtained through the questionnaires is analysed in the following chapter (chapter seven).

6.2. Commercial Banks Analysis

To find out the relationship between profitability and the asset/liability portfolios, principal components analysis was used (PCA) as the appropriate technique. The use of PCA enabled a reduction in the large number of the

balance sheet variables. This technique also solved the problem of multicollinearity among the variables.⁵ "This multicollinearity is certain to cause trouble if we attempt to estimate the regressions with straightforward least-squares".⁶

Of course, it is only valid to use PCA technique if the summary variables produced have some clear economic interpretation. Stopher and Meyburg (1979) stated that, "In conducting factor analysis, one is clearly striving to obtain a simpler structure of the variables. It is not sufficient, however, to obtain just a mathematical solution. The factor-analysis solution should also be conceptually interpretable".⁷ It will be shown that this is the case in this analysis.

Table (6.3) shows the variables used in the analysis and person correlation matrix (using raw data absolute values).

TABLE (6.3)

Simple Correlation Between The Analysis Variables

Variables	X ₁	X ₂	X ₃	X ₄	X ₅
X ₁ Cash and due from banks	1.000				
X ₂ Loans	.751	1.000			
X ₃ Equity	.917	.730	1.000		
X ₄ Deposits	.943	.753	.844	1.000	
X ₅ Due to banks	.288	.640	.334	.086	1.000

Notes:- Two tailed-test of significance.

- Using variables absolute values.

The above table shows the intercorrelation between the analysis variables. High correlation coefficients between, (X₁,X₂) (.751), (X₁,X₃) (.917), (X₁,X₄) (.943), (X₂,X₃) (.730), (X₂,X₄) (.753), (X₂,X₅) (.640), and (X₃,X₄) (.844) can be observed.

- The investment variable was dropped from the analysis for the

following reasons:

1. The proportion of investments to total assets is very low [see below table (6.4)] and most of the study banks do not have an investment policy as found in the interviews.
2. Two banks [Bank (no.5) and Bank (no.6)] did not have investments in their asset portfolio during the study period and the rest did not have investments in some years. As a result, there were many missing data which could affect the analysis.

Figure (6.2) displays the steps in the analysis of commercial banks accounting data which will be discussed in the following sections.

TABLE (6.4)

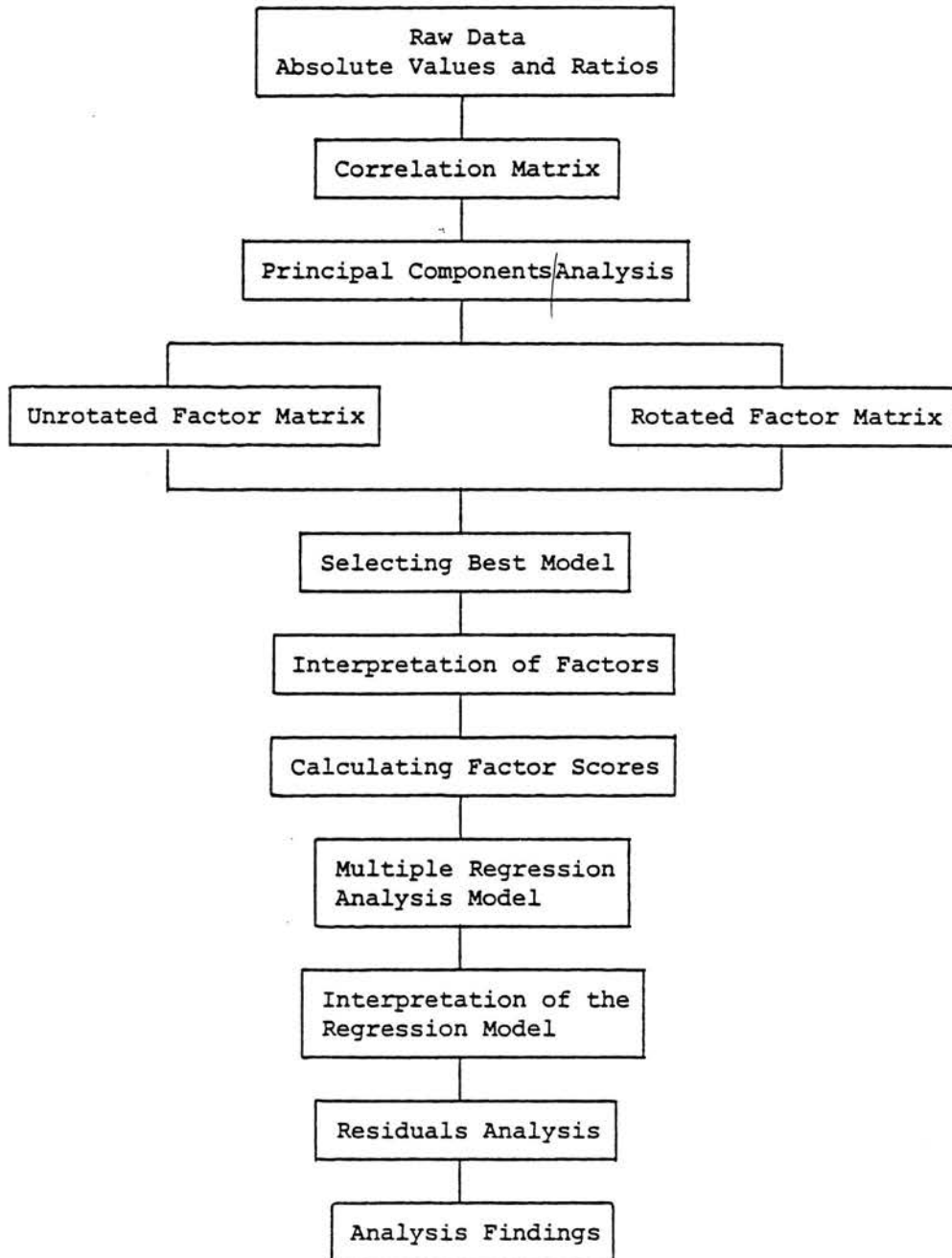
The Proportion Of Investments To Total Assets*

(1977-1982)

Years Bank Number	1977	1978	1979	1980	1981	1982
Bank 1	1.200	2.663	2.191	1.704	0.895	0.688
Bank 2	-	1.177	0.742	0.614	0.500	0.419
Bank 3	-	2.840	2.390	1.722	0.671	0.552
Bank 4	-	-	0.546	0.252	0.133	0.180
Bank 5	-	-	-	-	-	-
Bank 6	-	-	-	-	-	-
Bank 7	-	-	-	-	1.549	1.708
Bank 8	-	-	0.914	0.546	0.375	0.272
Year Average	1.200	2.227	1.357	0.968	0.687	0.637

* Investments (Securities + Equity Investments)/Total Assets X 100

FIGURE (6.2)

Commercial Banks Accounting Data Analysis Diagram

6.2.1. Principal Components Analysis (PCA)

The PCA was employed to obtain orthogonal variables which reflect the behaviour of the independent variables and to get rid of multicollinearity. Asset and liability composition variables ,except investments, were used to perform the principal components.

This method helps to identify and to explain the nature of banks decision behaviour during the study period. Also, the principal component factors scores will be used in constructing the explanatory model (regression analysis) and to examine the strength of association between profitability and x independent variables as measured with the orthogonal principal components.⁸

The two sets of data were used [figure (6.1)] to find out the best principal components model which explains banks' decision behaviour taking into consideration the initial knowledge about the banks' operations and the primary results which were obtained through financial ratio analysis. Also, the initial factor matrix and rotated factor matrix were developed to select the best meaningful model which would give a good interpretation.

The statistical package for social sciences⁹ (SPSSX) (subprogram factor) was used to carry out the analysis.

Applying the PCA technique and utilizing the eigenvalues¹⁰-one criterion¹¹, two principal components were extracted using the absolute values data set which account for 93.9% of the total variance.

The extracted factor matrix is unrotated. It was chosen as the best model because : a) it reflects the relationship between banks' operations (asset and liability composition), b) it ensures the primary results from the financial ratios analysis, c) a meaningful interpretation could not be obtained from the other models which were produced using ratios data set or rotated factor

matrix¹², and d) very successful results were obtained by applying the multiple regression analysis using the unrotated factor matrix as will be seen in the next section.

Table (6.5) shows the principal components factor matrix loadings¹³, each principal component eigenvalue, percentage of variance, and cumulative percentage. The table also includes each variable communalities.¹⁴

The following aspects were taken into account when naming each principal component (Pc) and interpreting the factor matrix :

1. The nature of EJVb operations.
2. The factor loadings signs and weights.

TABLE (6.5)

Commercial Banks Unrotated Components Analysis*

Factor Matrix Loadings

Variables	Factor One Pc ₁	Factor Two Pc ₂	Communality
Cash and due from banks	.955	-.211	.958
Total loans	.902	.291	.899
Equity	.931	-.137	.885
Total deposits	.912	-.377	.972
Due to banks	.470	.874	.984
Eigenvalue	3.643	1.054	
Percentage of variance	72.900	21.100	
Cumulative Percentage	72.900	93.900	
Factor Name	'Bank's Size'	'Bank's Policy'	

* Using absolute values data set.

The first principal component, can be interpreted as a measure of 'bank's size' (for assets and liabilities) during the study period. The factor matrix loadings

represent the weight or the importance of each variable.

All the analysis variables are highly correlated with Pc_1 . Table (6.6) shows the increase of Pc_1 factor scores [Fc_1] over time for each bank except banks (no.4, and no.6), whose total assets decreased in 1982.

The reason for the shrinkage in size for those two banks was the introduction of a credit ceiling percentage (65%) at the end of 1981 and 1982 which forced them to stop allocating funds as loans. They exceeded the credit ceiling percentage and could not attract more deposits to increase their funds.¹⁵

With regard to the asset portfolio, the growth in cash and due from banks size during the study period was more than the growth in total loans size. This fact indicates that in general JVCB were more oriented to placing their funds as deposits than allocating them as loans.

The majority of the JVCB increased the size of their deposits base rather than depending on due to banks to increase their sources of funds. Also, they developed their equity accounts during the study period.

In general, the first principal component represents the bank's size and is highly correlated with the total assets variable (the correlation coefficient is 0.995) which support the previous interpretation. The Fc_1 also, is highly correlated with net profits before taxes (the correlation coefficient is 0.949) which means that the more the bank grows in size the more the chance to increase the bank's net profits in absolute value. The Pc_1 accounts for 72.9% of the total variance.

The second principal component, is identified as 'bank's policy'. The Pc_2 factor matrix loadings suggested that there are two different policies for commercial banks.

TABLE (6.6)
Commercial Banks Financial Ratios and Factor Scores
(Using Variables Absolute Values No Rotation)

Bank No	Year	Total Assets LE Thousands	Net Profits Before Taxes LE Thousands	ROA %	ROE %	Use of Funds (Loans/ Deposits) Ratio %	Cash and Due from Banks/ T. Assets Ratio %	Loans/ T. Assets Ratio %	Equity/ T. Assets Ratio %	Deposits/ T. Assets Ratio %	Due to Banks/ T. Assets Ratio %	Pc ₁ Factor Scores "Bank's Size"	Pc ₂ Factor Scores "Bank's Policy"
1	77	116696	2776	2.379	50.454	37.407	67.849	27.956	4.715	74.734	16.505	-.56650	-.47516
1	78	131429	3783	2.878	43.886	39.677	65.098	29.737	6.559	74.948	13.375	-.40993	-.57697
1	79	159733	5029	3.148	39.849	43.141	59.891	32.819	7.901	76.073	9.045	-.16633	-.73689
1	80	205420	6395	3.113	30.782	48.078	55.925	37.095	10.113	77.157	8.718	.29937	-.97702
1	81	393747	16015	4.067	56.349	59.386	51.933	41.553	7.218	69.972	14.347	1.53943	-.58185
1	82	561116	21212	3.780	53.809	46.120	56.841	35.877	7.025	77.790	6.075	2.69787	-1.80618
2	78	119852	2600	2.169	63.819	34.116	68.083	28.629	3.399	83.918	5.964	-.59368	-.70641
2	79	200259	4107	2.051	45.960	84.709	43.973	53.248	4.462	62.859	27.230	.02212	.23455
2	80	300039	6646	2.215	45.901	86.757	49.591	47.941	4.826	55.259	33.866	.74287	.82556
2	81	425646	9225	2.167	36.980	87.016	45.526	50.266	5.861	57.767	27.676	1.68567	.85706
2	82	540646	19100	3.533	50.368	67.418	57.271	40.179	7.014	59.596	24.378	2.67495	.36690
3	78	80111	2327	2.905	39.454	67.330	52.126	42.481	7.362	63.094	22.470	-.76554	-.27690
3	79	117169	3498	2.985	47.683	58.731	50.045	42.581	6.261	72.502	15.443	-.52744	-.38958
3	80	162629	6284	3.864	60.880	63.107	46.701	46.464	6.347	73.627	11.044	-.20687	-.49029
3	81	312797	6918	2.212	53.032	78.508	36.483	59.622	4.170	75.944	8.810	.71523	-.39910
3	82	381731	10352	2.712	57.842	63.057	43.878	51.668	4.688	81.938	1.959	1.19673	-1.16024
4	79	64096	1057	1.649	25.793	384.453	34.216	64.545	6.394	16.789	70.752	-.87691	.43396
4	80	138829	4164	2.999	57.697	739.610	22.393	75.400	5.198	10.195	78.165	-.34475	1.70043
4	81	262329	5050	1.925	46.894	1124.499	19.867	78.861	4.105	7.013	81.671	.50020	3.81907
4	82	194206	6512	3.353	42.168	317.039	31.543	66.395	7.952	20.942	62.986	.18112	1.75156
5	79	47778	580	1.214	16.667	105.923	39.395	59.368	7.284	56.049	33.128	-.99456	-.16351
5	80	67873	1015	1.495	20.199	100.881	38.049	59.050	7.404	58.534	28.463	-.84349	-.13902
5	81	100926	1102	1.092	19.935	104.451	32.739	63.670	5.477	60.905	26.413	-.64405	-.01170
5	82	141115	933	.661	15.838	90.621	38.440	57.775	4.175	63.754	24.436	-.41007	.03852
6	80	88935	2733	3.073	28.164	179.981	50.978	46.785	10.911	25.994	59.172	-.58881	.37638
6	81	106583	3029	2.842	26.748	164.655	44.586	50.588	10.625	30.723	53.361	-.45540	.43884
6	82	78305	3155	4.029	26.294	125.583	48.423	48.609	15.323	38.706	36.576	-.60860	-.08832
7	81	185629	6673	3.595	71.838	47.713	65.544	29.842	5.004	62.544	27.051	-.08003	-.11120
7	82	237054	6370	2.687	33.386	63.318	62.116	33.178	8.049	52.399	34.052	.47254	.27329
8	79	19154	813	4.245	11.181	45.386	72.491	24.319	37.961	53.581	.814	-1.07200	-.51773
8	80	32040	1680	5.243	20.893	106.524	41.776	55.034	25.097	51.664	16.866	-.97458	-.40486
8	81	46684	2832	6.066	29.880	91.428	33.926	59.082	20.302	64.622	7.508	-.86131	-.46914
8	82	64295	2866	4.458	26.918	55.502	51.698	41.394	16.560	74.580	1.894	-.73726	-.63407

The first policy, identifies banks which behaved as deposit takers (deposit oriented banks). This fact is revealed from negative loadings for cash and due from banks, equity, and total deposits with Pc_2 . These banks concentrated on developing their deposit base over time by opening new branches and marketing their services. Also, they raised their equity account as a cover for expected fluctuations in deposits and withdrawal risk. They depended less on due to banks.

In terms of their asset portfolio, these banks allocated most of their funds as cash and placings with other banks especially outside Egypt, either as demand and time deposits or by purchasing international deposit certificates. They allocated less funds as loans in the local market.

The second policy, concerns loan oriented banks. The above table (6.5) shows the variables positive loadings with Pc_2 . These banks depended on due to banks in FC as their main source of funds. They borrowed funds from other banks (always their founders, Egyptian public sector banks, or their foreign banks partner). They allocated most of these funds as loans mainly to finance international trade.

As a result of introducing new credit control regulations at the end of 1981, commercial banks could no longer allocate more than 65% of their deposits as loans. These new regulations had a serious impact on loan oriented banks because they could no longer depend on due to banks to raise funds, and they had to depend only on their clients' deposits.

Table (6.6) shows the impact of the credit ceiling percentage (65%) on the bank's use of funds ratio as measured by $(\text{total loans}/\text{total deposits} \times 100)$. The use of funds ratio declined for all the sample banks during 1982 as compared with 1981 except for bank (no.7). The same trend is shown for $(\text{due to banks}/\text{total assets})$ ratio in 1982.

It became clear to banks that, the only way to increase their loans base was to attract more deposits and to behave as deposit takers in order to satisfy the CBE regulations. In addition, table (6.6) indicates the increase of (deposits/total assets) ratio in 1982 for most of the sample banks.

The proportion of total loans to total assets declined for all banks (except bank no.7) between 1981-1982, meanwhile, the proportion of cash and due from banks to total assets increased in 1982.

The following table (6.7) shows the F_{c2} trend over time for each bank. The average policy [P_{c2}] for each individual bank may be deduced from the average F_{c2} . An average negative value reflects a deposit oriented policy during the study period and an average positive value reflects a loan oriented policy.

TABLE (6.7)

Principal Component Two P_{c2} 'Bank's Policy'Average Factor Scores (F_{c2}) (1977-1982)

Bank Code No.	1977	1978	1979	1980	1981	1982	Average F_{c2}
1	-.475	-.577	-.737	-.977	-.582	-1.806	-.859
2	-	-.706	+.235	+.826	+.857	+.367	+.316
3	-	-.277	-.390	-.490	-.399	-1.160	-.543
4	-	-	+.434	+1.700	+3.819	+1.752	+1.926
5	-	-	-.164	-.139	-.012	+.039	-.069
6	-	-	-	+.376	+.439	-.088	+.242
7	-	-	-	-	-.111	+.273	+.081
8	-	-	-.518	-.405	-.469	-.634	-.507

Also, the F_{c2} signs trend over time for each bank reflects changes in policy over time ¹⁶.

It was found that the use of funds ratio (total loans/total deposits) is

highly correlated with Pc_2 'bank's policy' factor scores [the correlation coefficient is (0.846)]. The Pc_2 accounts for 21.1% of the total variance.

6.2.2. Development Of The Regression Model

The multiple regression analysis (MRA) technique was used to develop the model. The independent variables were the two principal components standardized factor scores and net profits before taxes as dependent variable.

The objective of the analysis was to find the relationship between the banks' operations behaviour as measured with Pc_1 and Pc_2 and profitability as measured with the net profits values. The step-wise regression method as provided by the SPSSX¹⁷ package was used to carry out the analysis.

The Model Equation

$$Y = 5358.5 + 4740.5 Pc_1 - 767.8 Pc_2 \quad (R^2=92.5\%)$$

(246.6) (250.4) (250.4)

where,

Y = The estimated net profit before tax (absolute value).

Pc_1 = principal component one (Bank's Size) factor scores.

Pc_2 = principal component two (Bank's Policy) factor scores.

R^2 = Multiple correlation coefficient.

(Coefficient of multiple determination).

Figures in parentheses are the estimated standard errors of the coefficient of each independent variable in the regression model.

All the regression analysis statistics and the model coefficients are statistically significant.¹⁸ There is a potential problem of heteroscedasticity in this equation. The standard deviation of error term is likely to be larger for large banks and in the later years when all the banks have grown in size. The remedy is to divide the equation by a size factor, but it is not available in this

case because there already is such a factor in the equation. Residuals have been plotted against the predicted values and this suggested that heteroscedasticity has not been a major problem.

The simple correlation coefficient between net profits before tax and Pc_1 'bank's size' is (.949). Thus, profit is highly correlated with the bank's size and Pc_1 explains about 90% of the profit variance.¹⁹

The model suggested that profitability as measured by net profits in absolute values is highly dependent on bank's size as represented by the asset and liability portfolios.

The Pc_2 has low correlation with net profits (correlation coefficient is - 0.154). Thus, the bank's policy impact on profit is small as Pc_2 account for only 2.5% of the profit variation. The negative regression coefficient for Pc_2 in the equation suggests that deposit oriented banks are more profitable than loan oriented banks, but with small significance.

To sum up, the regression model succeeded in explaining 92.5% of the profitability variance.

6.2.3. Regression Model Residuals Analysis

This section discusses the MRA model residuals analysis. The purpose is to examine the appropriateness of the model.

To test the normality assumption, figure (6.3) displays a plot of the cumulative standardized residuals on a normal probability distribution. The residuals line does not fit the normal line identically, but appears to be reasonably normally distributed and the normality assumption can be accepted.

Figure (6.4) shows the plot for residuals against the predicted values. The plot shows that residuals distributed relatively randomly in the band about

FIGURE (6.3)

A Plot of Cumulative Standardized Residuals
 On Normal Probability Distribution

NORMAL PROBABILITY (P-P) PLOT
 STANDARDIZED RESIDUAL

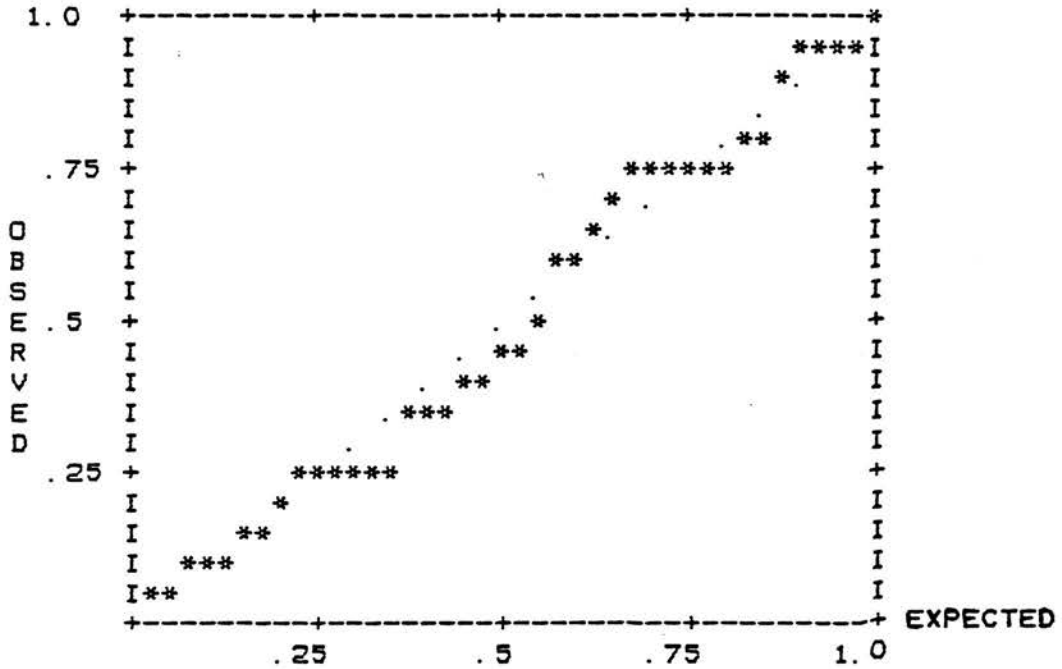
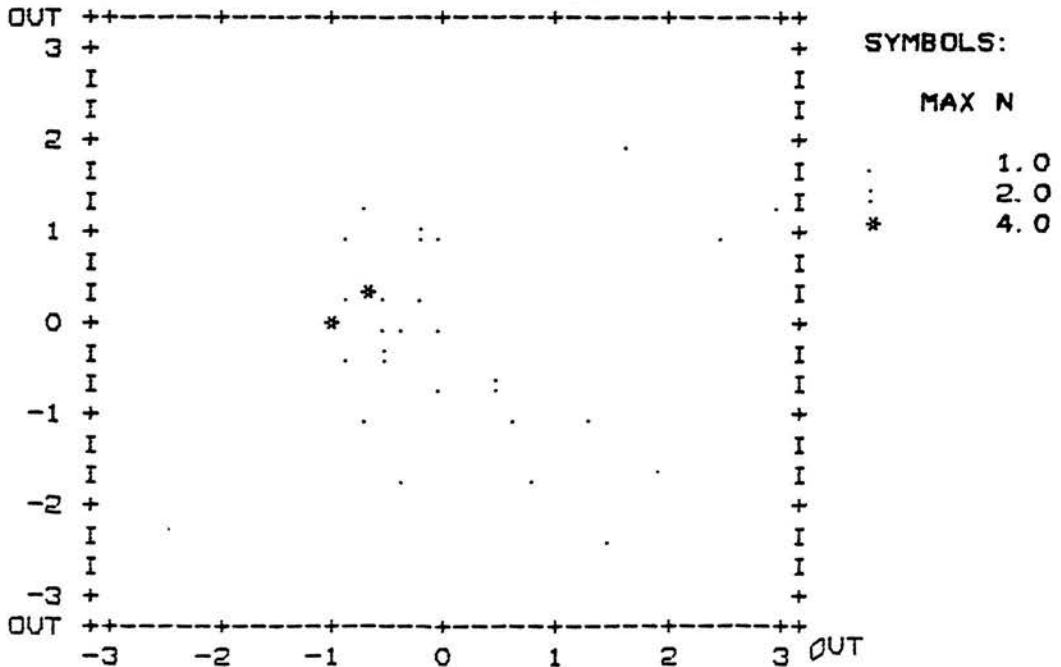


FIGURE (6.4)

A Plot of Residuals Against Predicted Values

STANDARDIZED SCATTERPLOT
 ACROSS - *PRED DOWN - *RESID



the horizontal straight line through zero. In conclusion, the residuals met the assumption of linearity.

Also, figure (6.4) indicates that the spread of residuals relatively is not increasing or decreasing with predicted values. Thus, the variance of the residuals is constant.

The following table (6.8) displays the regression model standardized residuals for each bank. Large residuals were expected for large banks and small residuals for small banks, but the table data reveals that there is no relation between a bank's size and the model's residuals.

TABLE (6.8)

Regression Analysis Standardized Residuals

Bank Code No	1977	1978	1979	1980	1981	1982	Average
1	-.185	-.053	-.075	-.800	+2.056	+1.184	+.355
2	-	-.344	-.830	-1.130	-2.447	+.948	-.761
3	-	+.272	+.241	+1.080	-1.509	-1.109	-.205
4	-	-	+.133	+1.232	+.178	+1.157	+.675
5	-	-	-.134	-.319	-.856	-1.731	-.760
6	-	-	-	+.321	+.117	+.433	+.290
7	-	-	-	-	+1.135	-.719	+.208
8	-	-	+.098	+.445	+.845	+.364	+.438

The residuals analysis ensures that the previously presented equation is appropriate.

6.3. Investment Banks Analysis

The same technique and analysis applied to commercial banks, were carried out to investment banks, but it did not give significant results. The reason was that the number of the sample banks and the available annual reports were very limited.

The financial ratios analysis technique was used to evaluate the investment banks decision behaviour during the study period. The following sections will illustrate each bank's policy concerning asset and liability management. Besides, they will cast light on the relationship between profitability and banks' policies.

6.3.1. Liability Management

Table (6.9) shows the trend in important financial ratios for the sample banks during the study period. As for liability policy, banks were either deposit oriented or due to banks oriented (i.e., depending on borrowing from other banks to raise their funds).

Banks (no.1) and (no.4) were deposit oriented. The proportion of deposits to total assets was higher than the proportion of due to banks to total assets. Also, one can observe from table (6.9) that bank (no.4) changed its policy from being a deposit oriented bank to depend more on due to banks in recent years. The (deposit/total assets) ratio declined from 50.187% in 1977 to 29.361% in 1982; meanwhile, the (due to banks/total assets) ratio increased from 25.008% to 49.195% in 1982.

In contrast, the other group of banks (no.2) and (no.3) depended mainly on due to banks to raise their funds. Bank (no.2) always raised more than 55% of its funds through due to banks with very low (deposits/total assets) ratio. Meanwhile, bank (no.3) tried hard to depend less on due to banks and to increase its deposit base but, unfortunately, it was difficult to achieve that and it remained dependent on due to banks during the study period.

To summarize, the results indicate that all investment banks by the end of the study period were 'due to banks' oriented except bank (no.1) which consistently behaved as a deposit taker over time.

TABLE (6.9)

Investment Banks Financial Ratios

Bank No.	Year	Total Assets \$ Thousands	Net Profits Before Taxes \$ Thousands	ROA %	ROE %	Loans Deposits Ratio %	Cash and Due from Banks T. Assets Ratio %	Investments T. Assets Ratio %	Loans T. Assets Ratio %	Equity T. Assets Ratio %	Deposits T. Assets Ratio %	Due to Banks T. Assets Ratio %	Due to Banks Deposits Ratio %
1	77	34219	1054	3.080	9.704	N.A	65.312	1.461	32.646	31.743	N.A	N.A	N.A
1	78	49746	1452	2.919	12.672	N.A	48.571	3.819	46.818	23.033	N.A	N.A	N.A
1	79	81036	2681	3.308	20.848	74.543	49.824	2.345	44.966	15.869	60.323	15.983	26.496
1	80	139058	4574	3.289	28.970	117.951	33.880	1.366	62.901	11.354	53.328	30.967	58.069
1	81	135994	4983	3.664	26.497	130.266	26.732	1.778	67.693	13.829	51.966	28.299	54.457
1	82	169374	3979	2.349	21.004	145.136	20.347	1.454	72.833	11.185	50.183	32.274	64.313
2	78	109559	1325	1.209	11.762	137.517	72.008	.548	26.591	10.282	19.337	66.184	342.270
2	79	114190	2158	1.890	17.477	147.863	73.467	.771	25.152	10.814	17.010	68.670	403.696
2	80	138654	3506	2.529	24.735	102.415	71.678	.637	26.887	10.223	26.253	59.672	227.293
2	81	159662	2232	1.398	16.356	63.137	80.901	.542	17.756	8.547	28.123	57.860	205.737
2	82	179122	2476	1.382	12.188	74.905	78.692	.478	19.942	11.341	26.623	55.769	209.478
3	79	57086	1078	1.888	19.066	288.105	48.026	.876	48.581	9.904	16.862	69.150	410.087
3	80	59842	1367	2.284	21.230	240.566	42.746	.836	54.158	10.760	22.513	60.215	267.473
3	81	75133	1945	2.589	15.221	224.423	45.756	.665	50.463	17.007	22.485	52.329	232.722
3	82	77781	120	.154	.930	216.336	41.990	.643	53.480	16.582	24.721	47.157	190.758
4	77	95726	2073	2.166	9.710	6.767	86.610	8.297	3.396	22.303	50.187	25.008	49.829
4	78	127081	2645	2.081	11.842	17.074	79.824	9.974	7.146	17.575	41.851	37.559	89.743
4	79	176847	3923	2.218	13.932	33.195	73.557	12.506	11.269	15.922	33.949	46.547	137.110
4	80	247555	5442	2.198	11.841	65.104	60.991	14.375	21.564	18.565	33.123	43.481	131.272
4	81	283270	-4699	-1.659	-11.389	52.341	65.546	10.754	20.180	14.565	38.555	41.548	107.764
4	82	319842	5272	1.648	11.864	58.425	69.157	7.589	17.154	13.893	29.361	49.195	167.554

* Minus sign indicates losses.

- N.A = Not Available.

This fact can be deduced from the (due to banks/deposits) ratio. Most of the sample banks raised funds through due to banks at least equal to their volume of deposits and in some years it reached three or four times their deposits.

6.3.2. Asset Management

Investment banks can be divided into two groups regarding asset management. The first group of banks are loan oriented banks, banks (no.1) and (no.2), which allocated a high proportion of their funds as loans. As shown in table (6.9), both banks have a higher proportion of loans to total assets (with an increasing trend over time) than they do for the (cash and due from banks/total assets) ratio. Bank (no.1) (Loans/total assets) ratio increased and (cash and due from banks/total asset) ratio declined over time. For, bank (no.3) (loans/total assets) ratio was relatively constant over time with a slight increase in 1982.

The second group are "due from banks" oriented banks (nos. 2,4) which placed a high proportion of their funds as due from banks. In 1982, the (cash and due from banks / total assets) ratio was 78.69% for bank (no.2) and 69.16% for bank (no.4) reflecting the liquid nature of their asset portfolio. In contrast, both banks held a very low proportion of funds as loans. The (loan/total asset) ratio was approximately 20% for bank (no.2) and 17% for bank (no.4) in 1982.

Furthermore, all the sample banks allocated a very small proportion of their funds as investments except bank (no.4) which allocated an unusually high proportion.

The low (investment/total assets) ratio perhaps reflects the risk associated with allocating funds as securities or equity investment and the expected low return on investments in the local market.²⁰

With regard to the 'use of funds' ratio²¹ (loans/deposits) , it can be seen from table (6.9) that all the sample banks except bank (no.4) used their due to banks funds as well as deposits to finance loans. This ratio increased for bank (no.1) and declined for banks (no.2) and (no.3) over time, with bank (no.2) loan volume less than its deposit base in 1981 and 1982.

What is surprising however, was that bank (no.2) due to banks was twice its deposits volume in spite of the fact that only 63% of its deposits in 1981 and 74% in 1982 were allocated as loans.

Thus, despite the fact that bank (no.2) was not able to allocate all its deposits as loans in 1981 and 1982, it raised the highest proportion of its funds through due to banks which were allocated as liquid assets. The (cash and due from banks/total assets) ratio for bank (no.2) was 78.692% in 1982.

Furthermore, the same behaviour applied to bank (no.4) where the (due to banks/deposits) ratio was 167.55% in 1982, while the use of funds ratio was only 58.43%.

It is clear that bank (no.1) was the only bank which succeeded to be deposit oriented and allocated the majority of its funds as loans.

In general, with respect to asset management, banks were either loan oriented or due from banks oriented allocating a high proportion of their funds, even those raised through due to banks, as placings in the international markets.

6.3.3. The Interaction Between Asset and Liability Management

The object of this section is to find out the general pattern for investment banks' operations behaviour.

Figure (6.5) summarizes each bank's policy concerning asset and

liability management. This figure reveals every combination of different policies and banks were only consistent regarding one single decision either asset or liability management. Both banks (no.1) and (no.2) were deposit oriented banks with a different policy regarding asset management.

FIGURE (6.5)

Investment Banks' Policies

Bank Code No.	Liability Management Policy	Asset Management Policy
1	Deposit oriented bank	Loan oriented bank
4	Deposit oriented bank	Due from Banks oriented
2	Due to banks oriented	Due from banks oriented
3	Due to banks oriented	Loan oriented bank

Also, both banks (no.2) and (no.3) were 'due to banks' oriented with a different policy regarding asset management.

In conclusion, there is no general similar pattern for investment banks' decision behaviour. Banks were similar in only one single decision either asset or liability management.

-Investment Banks Profitability

The above table (6.9) shows ROA and ROE trend over time for the investment sample banks. Bank (no.1) is the most profitable bank in comparison with the other sample banks. The bank was deposit and loan oriented. The main evidence is that investment banks profitability is related with banks being deposit oriented and allocating their funds as loans rather than placing them with other banks abroad.

6.4. Commercial And Investment Banks' Performance

This section provides a comparison study between the JVCB and JVIB samples' performance using the aggregate data for each group.

6.4.1. Profitability

Commercial banks achieved higher profitability levels than investment banks. This fact is clearly illustrated in the following table (6.10) which shows the ROA and ROE for each group in addition to figures (6.6) and (6.7).

TABLE (6.10)

Commercial And Investment Banks' Profitability

Years	Return On Assets		Return On Equity	
	Commercial	Investment	Commercial	Investment
1976	1.853	2.378	40.645	5.167
1977	1.543	1.860	43.547	9.955
1978	2.263	1.707	31.143	11.689
1979	2.462	2.293	30.929	16.672
1980	2.791	2.545	37.547	18.078
1981	2.772	0.682	45.074	5.158
1982	3.207	1.588	44.536	12.265

The JVCB achieved a continuous increase in their ROA from 1977 when it was 1.543% until 1982, when it reached 3.207%. Conversely, ROA for JVIB fluctuated during the study period with declined trend from 1976 to 1978 and increased till 1980. The ROA experienced a sharp drop from 2.545% in 1980 to 0.682% in 1981 as a result of the impact of bank (no.4) losses in 1981 on the JVIB sample banks profitability. In 1982, the ROA for JVIB increased to 1.588%, but remained lower than the JVCB ratio.

As for ROE, figure (6.7) shows the gap between the two groups profitability levels. The JVCB achieved higher ROE ratios than JVIB although

FIGURE (6.6)
COMMERCIAL & INVESTMENT BANKS ROA

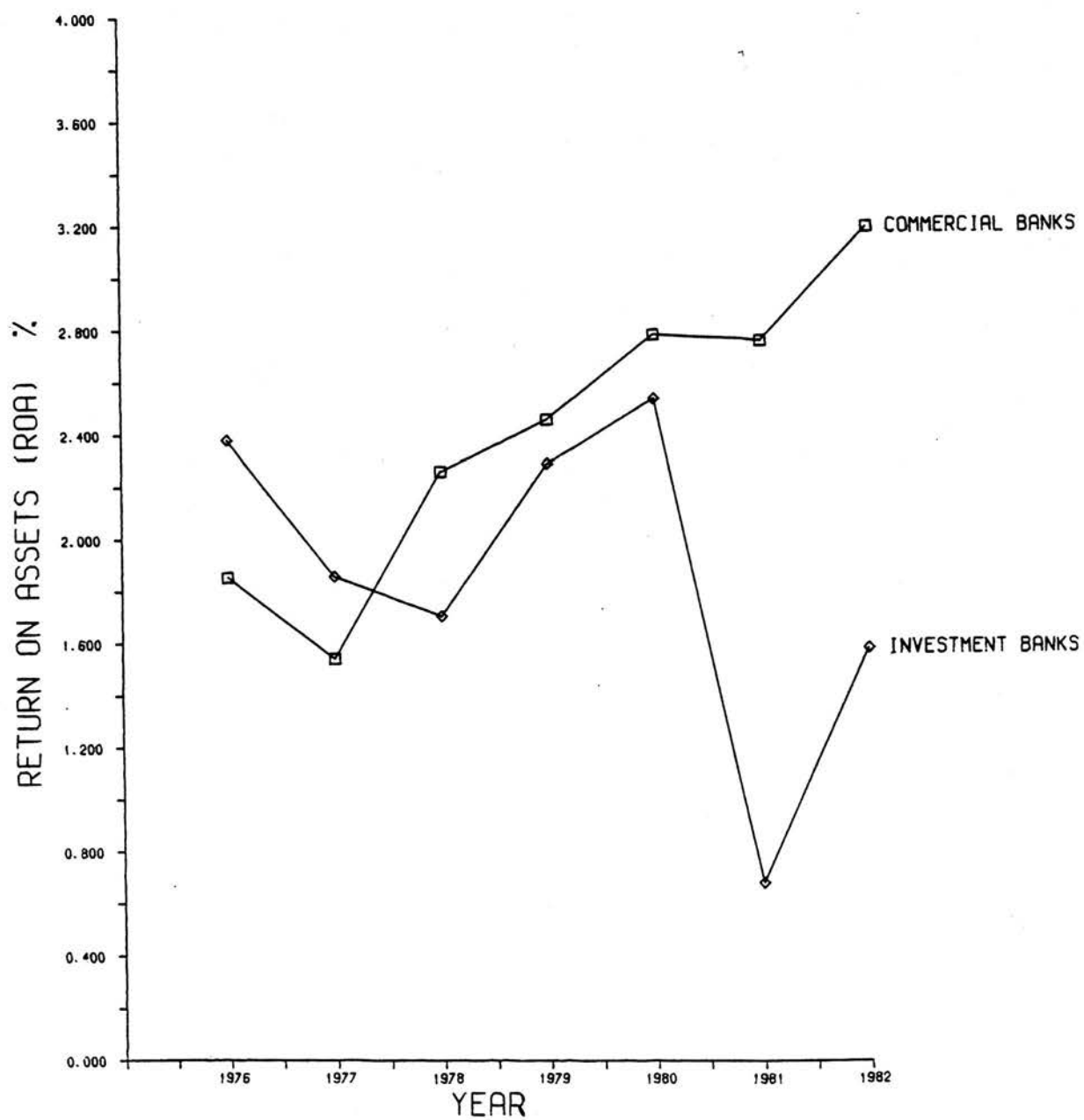
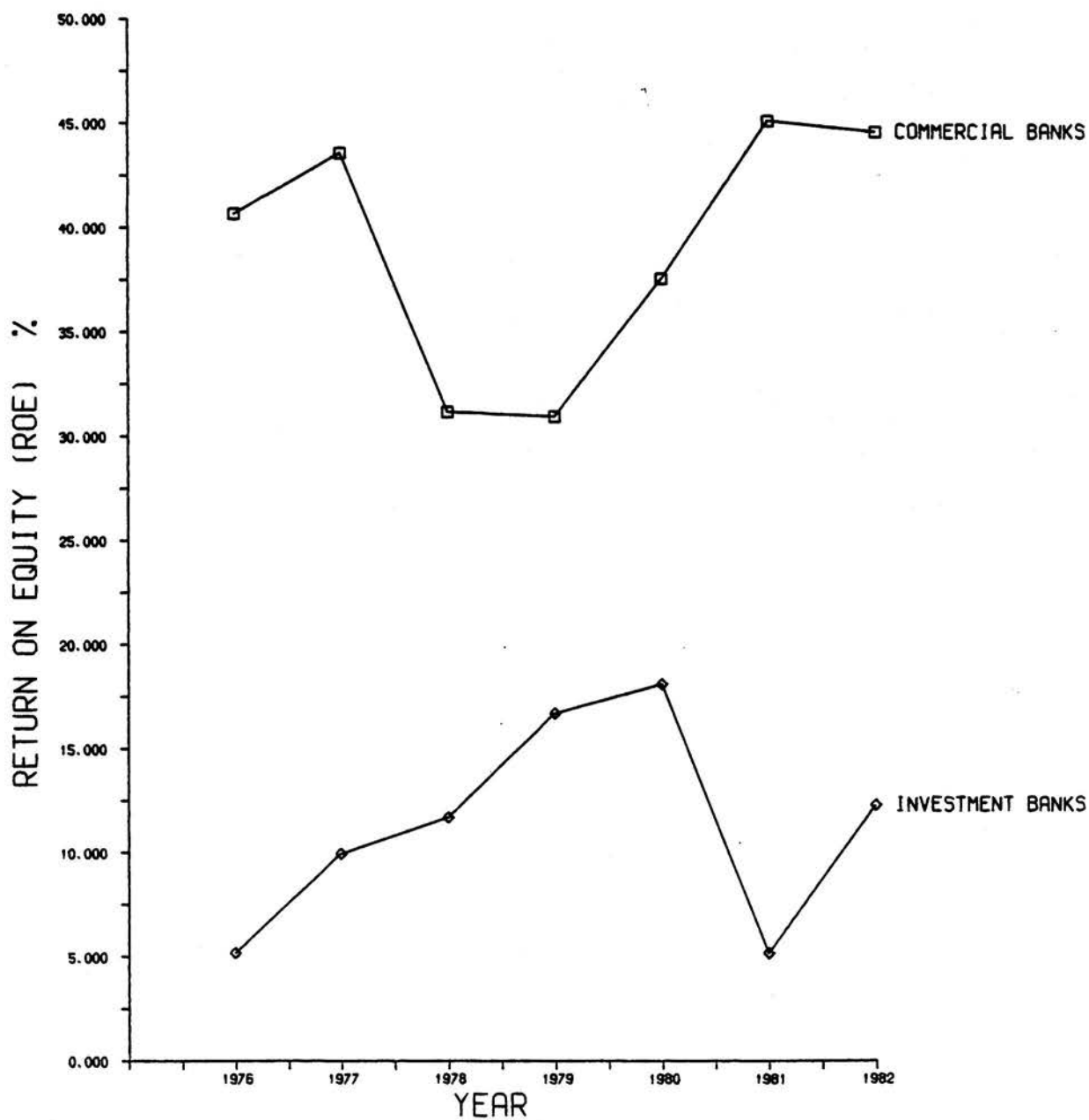


FIGURE (6.7)
COMMERCIAL & INVESTMENT BANKS ROE



the curve fluctuated during the study period. In 1982, ROE for JVCB was 44.536%, meanwhile, JVIB ratio was only 12.265%.

The above analysis suggested that JVCB which dealt in both local and foreign currencies were considerably more profitable than JVIB which dealt in FC only.

6.4.2. Annual Growth Rate

Table (6.11) and figure (6.8) display the commercial and investment sample banks total assets annual growth rate.

TABLE (6.11)

Commercial And Investment Banks Annual Growth Rate (AGR)

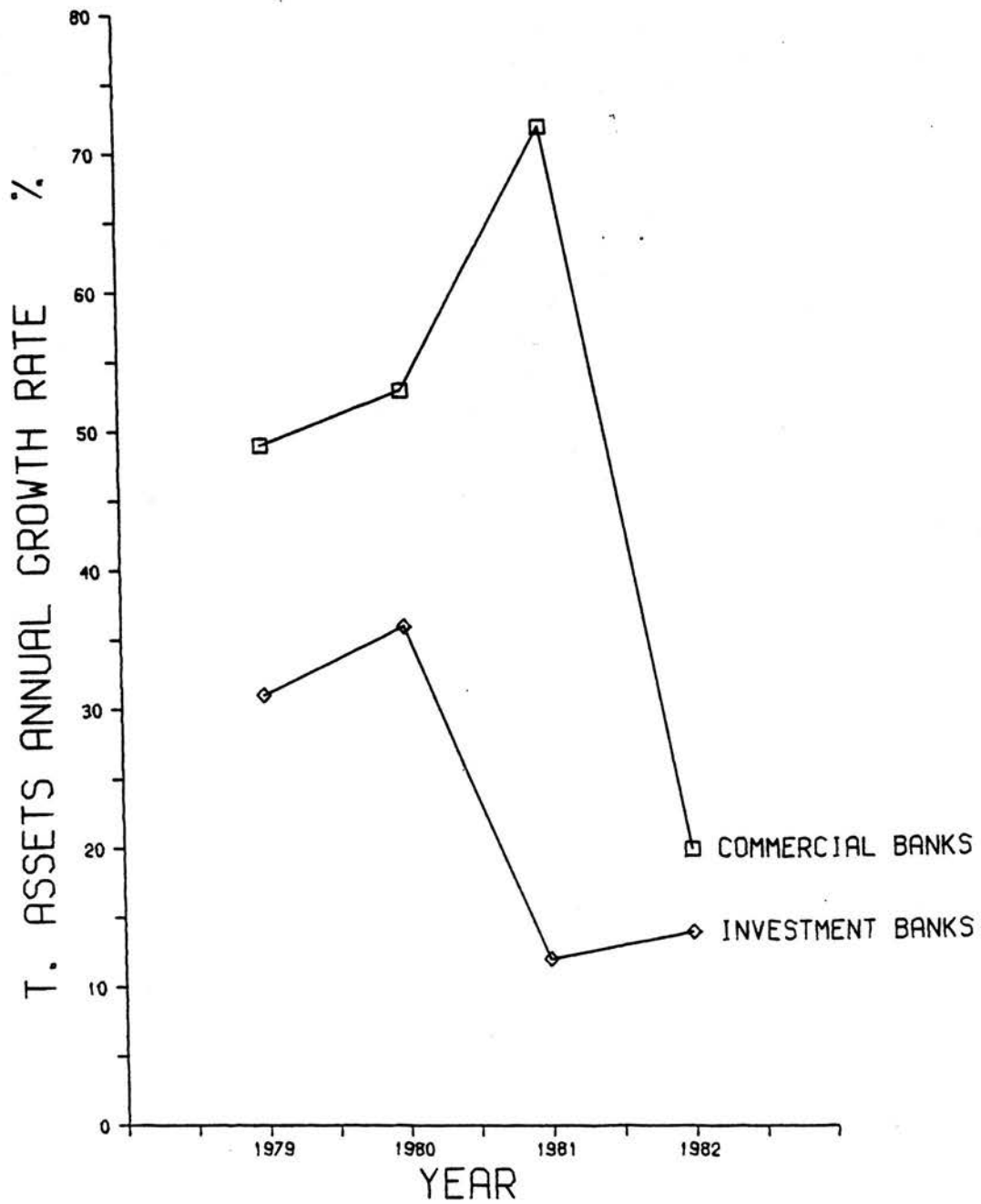
Years	Commercial Banks		Investment Banks
	Total Sector Growth Rate %	Average Growth* of Continuing Banks %	Growth Rate %
1979	59	49	31
1980	64	53	36
1981	72	72	12
1982	20	20	14
Average	54	49	23

* Adjusted to remove the effect of the number of commercial banks growth during the study period.

The table reveals the following facts:

1. The JVCB sample achieved higher annual growth rates than the JVIB sample. The average growth rate during the period 1979-1982, for the continuing banks, was 49% for commercial banks and 23% for investment banks.
2. The JVCB sample achieved an increasing growth rate from

FIGURE (6.8)
COMMERCIAL & INVESTMENT BANKS
ANNUAL GROWTH RATE (1978-1982)



1979 till 1981, then the rate dropped sharply from 72% in 1981 to 20% in 1982 as a result of the credit control regulations and imports instructions.

3. The JVIB sample achieved declined annual growth rate throughout the period except for a slight increase in 1980. The annual growth rate in 1979 was 31% and dropped to 14% in 1982.

6.4.3. Asset And Liability Decisions

This part investigates the asset and liability decisions structure for the sample banks during the study period. Table (6.12) shows the asset and liability variables as a proportion of the total assets for each group. The table reveals the following facts:

1. Asset decisions: The JVCB sample increased the proportion of funds allocated as loans over time (figure 6.9), from 17.809% in 1976 to 52.994% in 1981, then dropped to 44.102% in 1982 as a result of introducing the credit ceiling regulations. Meanwhile, JVIB loans increased slowly from 7.960% in 1976 to 34.250% in 1982 achieving a lower level than JVCB. JVIB allocated quite a significant proportion of funds as investments but the ratio declined from 7.879% in 1976 to 3.763% in 1982. JVCB were not oriented to allocate funds as investments.

With respect to liquid assets (cash and due from banks), both groups tried to reduce their liquid assets over time (see figure (6.10)). By the end of 1981, JVIB sample liquid assets were higher than JVCB : 58.950% and 42.662% respectively. In 1982, commercial banks liquid assets

TABLE (6.12)

Commercial and Investment Banks Important Financial Ratios

Years	Cash & Due from Banks T. Assets		Investment T. Assets		Loans T. Assets		Equity T. Assets		Deposits T. Assets		Due to Banks T. Assets		Loans Deposits	
	Comm.	Inv.	Comm.	Inv.	Comm.	Inv.	Comm.	Inv.	Comm.	Inv.	Comm.	Inv.	Comm.	Inv.
1976	80.597	82.415	0.000	7.879	17.809	7.960	4.558	46.023	73.813	N.A	17.862	N.A	24.127	N.A
1977	71.617	78.706	0.820	4.404	25.366	15.667	3.544	18.688	76.419	N.A	13.509	N.A	33.193	N.A
1978	63.230	69.682	1.884	4.795	32.756	23.525	7.265	14.600	68.480	N.A	18.804	N.A	47.834	N.A
1979	48.637	65.656	1.276	5.918	46.749	26.289	7.959	13.752	60.425	32.149	25.958	49.669	77.367	81.773
1980	46.970	55.214	0.910	6.643	48.833	35.983	7.434	14.076	55.238	35.212	30.937	46.055	88.405	102.191
1981	42.662	58.950	0.608	5.236	52.994	32.946	6.149	13.223	55.487	36.951	30.166	44.013	95.508	89.162
1982	51.398	57.534	0.582	3.765	44.102	34.250	7.200	12.946	63.889	32.946	20.048	46.720	69.028	103.956

N.A = Not Available.

Comm. = Commercial Banks.

Inv. = Investment Banks.

FIGURE (6.10)
COMMERCIAL & INVESTMENT BANKS
(CASH & DUE FROM BANKS/TOTAL ASSETS)RATIO

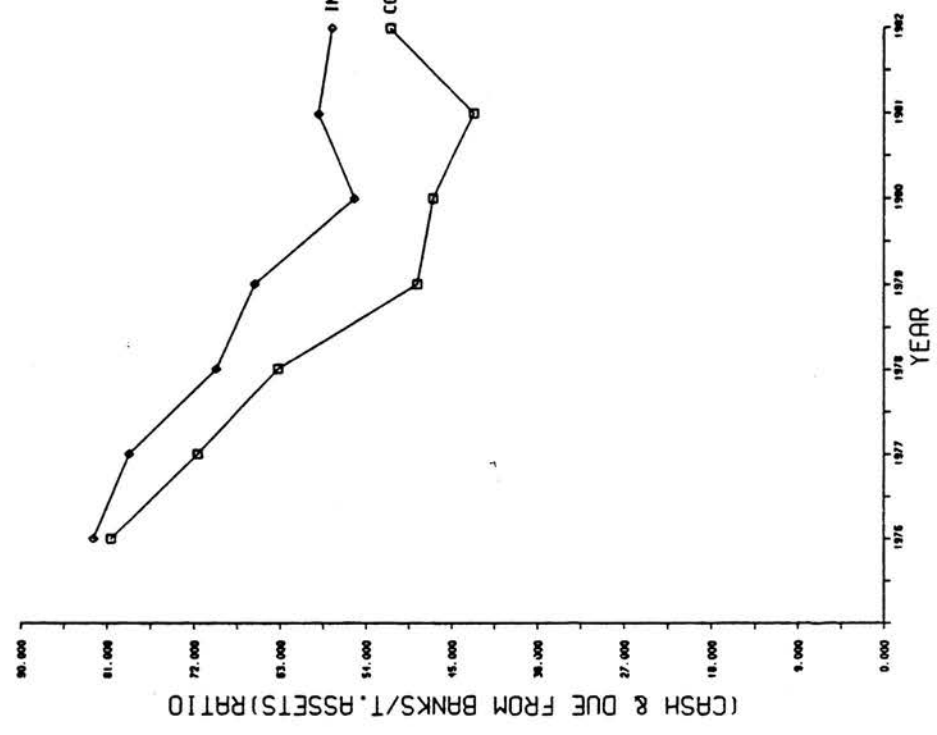
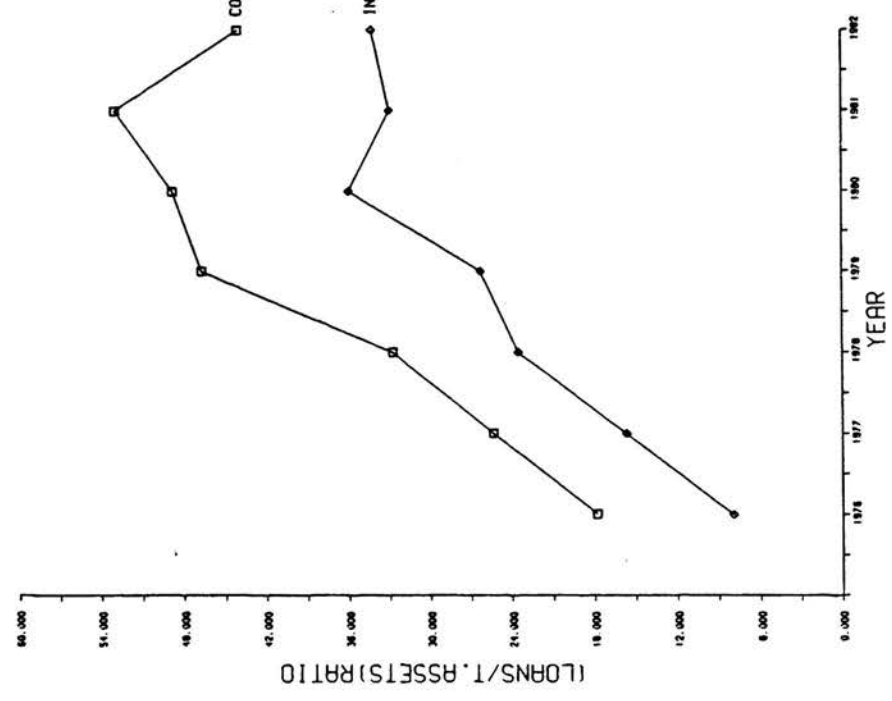


FIGURE (6.9)
COMMERCIAL & INVESTMENT BANKS
(LOANS/TOTAL ASSETS)RATIO



increased to 51.398% and exceeded the loans proportion because of restrictions on banks' ability to allocate funds by the credit ceiling.

2. Liability decisions: The JVCB depended on deposits as their main source of funds, while JVIB were more oriented to depend on due to banks [see figure (6.11) and figure (6.12)]. In 1982, JVIB sample due to banks was 46.720% of total assets which was more than the deposits levels (32.946%).

On the other hand, JVCB deposits declined from (76.419%) in 1977 to (55.487%) in 1980, coupled with an increasing trend to depend on due to banks during the same period (from 13.509% in 1977 to 30.937% in 1980).

Since 1980, JVCB have changed their behaviour to depend more on deposits and less on due to banks. In 1982, the proportion of deposits to total assets reached 63.889%, and due to banks accounts 20.048% of total assets.

3. Despite the fact that investment banks total loans as a proportion of total assets was 34.250% in 1982, their (loan/deposit) ratio was 103.956% which indicates that they allocated more than their deposits as loans.

JVCB (loans/deposits) ratio declined from 95.508% in 1981 to 69.028% in 1982, as a result of introducing the credit ceiling regulations.

The Previous Analysis Suggested The Following Facts

1. Commercial banks which dealt in LC and FC operations

FIGURE (6.12)
 COMMERCIAL & INVESTMENT BANKS
 (DUE TO BANKS/TOTAL ASSETS)RATIO

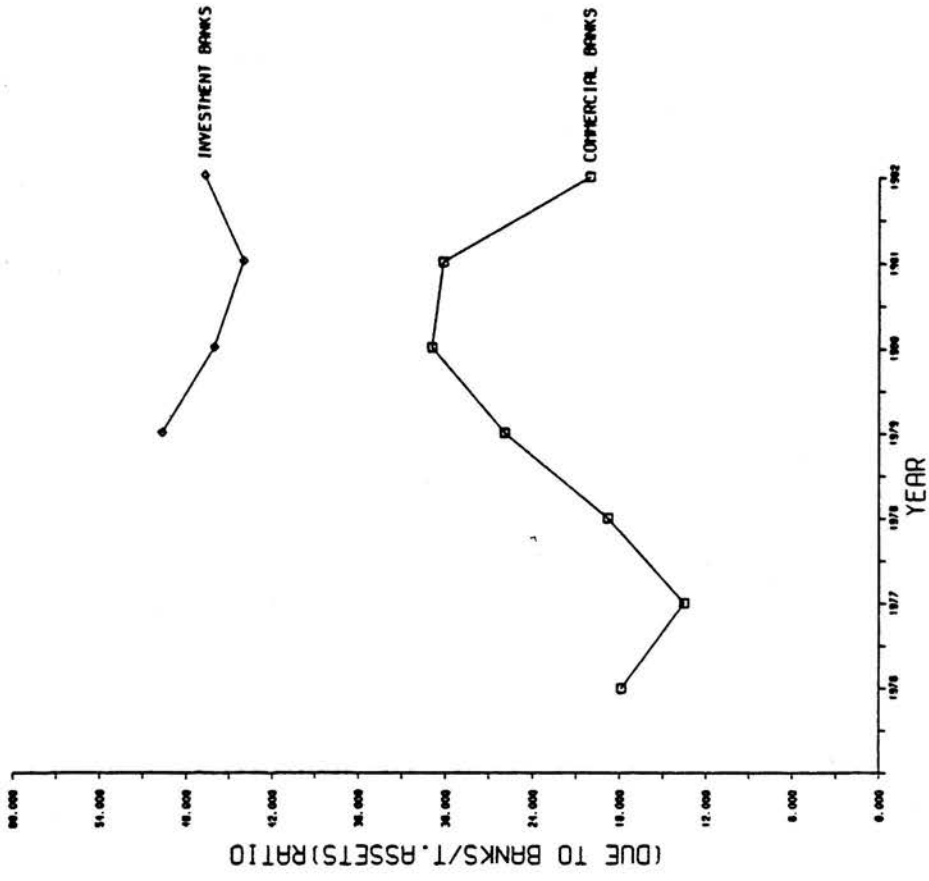
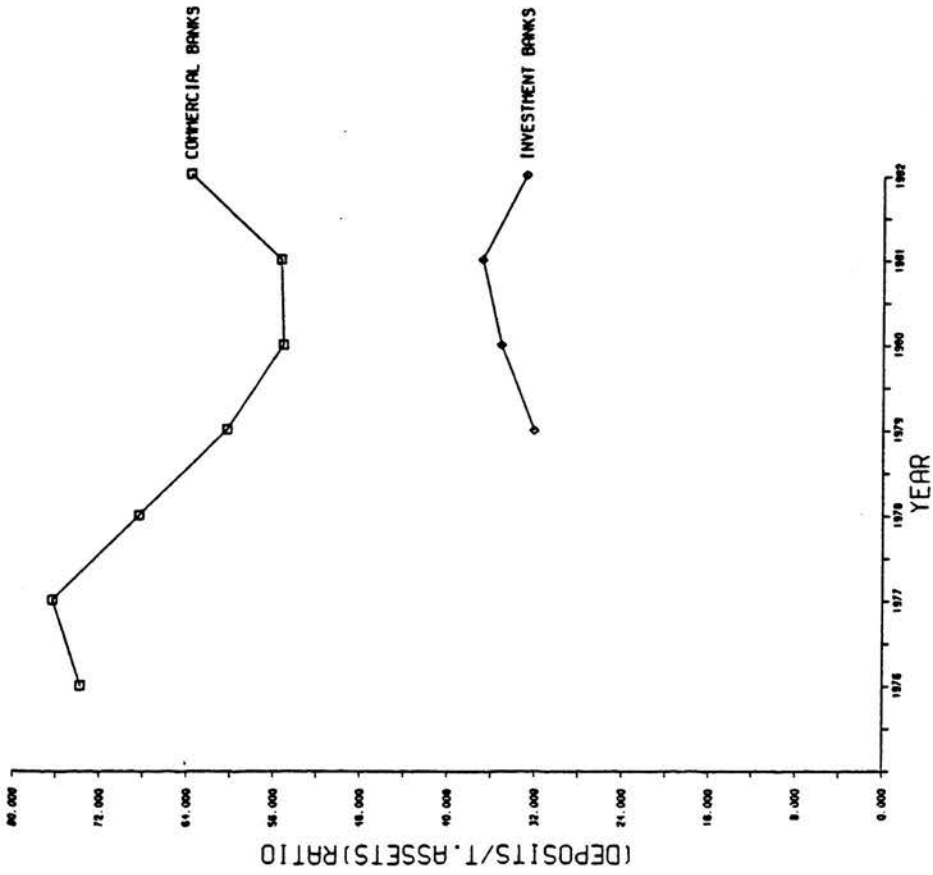


FIGURE (6.11)
 COMMERCIAL & INVESTMENT BANKS
 (DEPOSITS/TOTAL ASSETS)RATIO



were more profitable than JVIB which dealt in FC only.

2. The JVCB achieved higher annual growth rates than investment banks.

3. The credit ceiling regulations forced JVCB to allocate less funds as loans and to depend mainly on deposits to raise funds.

On the other hand, JVIB were more oriented to raise funds through due to banks and placed a high proportion of their funds as placings with other banks.

4. In spite of the fact that JVCB were heavily regulated they were more successful than JVIB.

6.5. Summary And Findings

This chapter analysed the accounting data for both commercial and investment banks.

With respect to commercial banks, a simultaneous equation model was developed using principal components and multiple regression analysis techniques. Two principal components were extracted labelled as "Bank's Size" and "Bank's Policy". In terms of policy, commercial banks were either deposit oriented or loan oriented. Deposit oriented banks mainly depended on deposits to raise their funds and allocated a high proportion of their funds in cash and placings with banks outside the country. Loan oriented banks depended mainly on "due to banks" in FC to raise funds and allocated a high proportion of funds as loans.

The multiple regression model suggested that, the more a bank was able to achieve growth in total size the greater the chance of increasing the bank's profits in absolute value. Also, the model suggested that deposit

oriented banks were more profitable than loan oriented banks, but the significance was small. The model residuals analysis showed the appropriateness of the regression model.

With respect to investment banks, it was found that there was no similar pattern for their decision behaviour. Banks were similar only regarding one single decision, either asset or liability management. Investment banks profitability was related to bank's ability to attract deposits and allocate funds as loans.

Finally, the comparison study between JVCB and JVIB samples aggregate data revealed the following facts:

1. Commercial banks achieved higher profitability levels than investment banks.
2. Commercial banks achieved higher annual growth rates in total assets than investment banks.
3. Investment banks were more oriented to raise funds through due to banks rather than deposits and to place these funds abroad rather than financing loans. On the contrary, commercial banks were more successful in raising funds by attracting deposits rather than depending on due to banks and allocated a high proportion of their funds as loans.
4. The introduction of credit ceiling regulations forced commercial banks to limit expansion of their lending policies and increased their liquidity in 1982.

The previous facts suggested that commercial banks which dealt in both local

and foreign currencies were more profitable than investment banks which dealt in foreign currency only. It is hoped that the LP model will be able to justify this result.

References

1. The content analysis was very helpful in all the study analysis parts.
2. For more information regarding the study sample see Appendices B1,B2, and B3.
3. Most of the investment banks sample obtained permission to deal also in local currency during 1983.
4. The financial year for all banks starts in January and ends in December.
5. For using the principal components analysis as a solution to multicollinearity see A. Koutsoyiannis, Theory of Econometrics, 2nd. ed., (London: Macmillan Press, 1977), pp. 424-436; and G. S. Maddala, Econometrics, (New York: McGraw-Hill Book, 1977), pp. 190-194.
6. George B. Pidot, Jr., "A Principal Components Analysis Of The Determinates of Local Government Fiscal Patterns", The Review of Economics and Statistics, Vol. 51, 1969, p. 179.
7. Peter R. Stopher, and Arnim H. Myburg, Survey Sampling And Multivariate Analysis for Social Scientists And Engineers, (Toronto, Lexington Books, 1979), p. 249.
8. The principal components method has been used by many researchers in many different areas of social sciences to establish simultaneous equation models. See for example, Joseph F. Hair etal., Multivariate Data Analysis, (Oklahoma: Petroleum Publishing Company, 1979) pp. 249-283; Pidot, pp. 176-188; and William F. Massy, "Principal Components Regression In Exploratory Statistical Research", Journal Of The American Statistical Association, Vol. 60, March 1965, pp. 234-256.
9. SPSS Incorporation, SPSSX User's Guide, (New York: McGraw-Hill Book, 1983), pp. 647-661.
10. Eigenvalue (also called latent root): It is the sum of the squares of the loadings of each principal component.
11. See Appendix (C), for all the criteria used to compute the PCA.
12. It is important to note that choosing rotated or unrotated factor matrix would not change the regression analysis results in our case (R^2 and Residuals) except factor scores and the regression equation coefficients.
13. Loadings: Represent the correlation coefficient between the original variables and the principal components factor matrix.
14. Communalities : The sum of a squares of a variable loadings in all the extracted principal components. They represent the variance of a variable accounted for by the combination of all the factors.
15. The (loans/deposit) ratio for bank (no. 4) declined from 1124.5% in 1981 to 317.0% in 1982 and from 164.7% to 125.6% for bank (no. 6). The high odd ratio for bank (no. 4) was mainly due to the fact that the

bank was using due to banks borrowings in FC to finance imports, either directly to clients or through other banks (mainly the public sector founder). Also, all the foreign trade with Rumania (documentary credits) were to be opened or confirmed by the bank.

16. It is important to note that principal component two factor scores vary significantly over time for individual banks, but that there is no significant effect of particular year for all banks taken as a whole. The analysis of variance was used to test the effect of years (columns), having taken into account the bank variance, and it was found that there is no significant effect for years on F_{c_2} variance. The factor scores variance were between rows not columns. The F ratio for year effect (1979-1982) was 1.9281 at 3,18 degree of freedom. It was not even significant at the 10% level.
17. SPSS Incorporation, pp. 601-621; and Marija J. Narusis, SPSSX Introductory Statistics Guide, (New York: McGraw-Hill Book, 1983), pp. 135-170.
18. The SPSSX package subprogram regression default criteria was used as follows:
 - Removal criterion: the variable is removed if F is larger than (.10).
 - Entry criterion: the variable is entered if F:
 - a. Is smaller than the entry criterion [probability of F to enter (0.05)]
 - b. The variable passes the tolerance tests (.01).
19. R^2 for Pc_1 in the equation accounts for 90% of the total model variance ($R^2=92.5$), thus Pc_2 accounts only for 2.5% of the variance.
20. The questionnaires analysis in chapter seven will find more about their investment policy.
21. The Central Bank of Egypt credit control regulations are not govern investment banks operations.

CHAPTER 7
JOINT VENTURE BANKS' OPERATIONS MANAGEMENT
ANALYSIS OF THE QUESTIONNAIRES

Introduction

This chapter presents a description of the EJVB's operations management, based on in-depth interviews and the analysis of questionnaires. Four questionnaires¹ were used to interview the following managers of both investment and commercial banks:

1. The general manager.
2. The loan manager.
3. The deposit manager.
4. The investment manager.

All the JVCB sample managers were interviewed, and those of three out of the four investment sample banks. However, a content analysis was carried out for the fourth bank's annual reports to assist the analysis.

-The Following Are The Main Objectives of The In-depth Interviews And The Questionnaires Analysis

1. To find out the nature of the sample banks' operations, internal policies and problems and obstacles they faced in achieving their objectives.
2. To assess EJVB success in introducing new services to the local market.
3. To investigate the constraints which restrict their operations and the impact of the regulations on their decision behaviour.
4. To find out the factors which limit their ability to allocate term loans and finance projects' equity.

5. To find out the reasons behind placing a high proportion of their FC funds outside Egypt.
6. To investigate possible solutions to change the regulatory framework in order to provide additional benefits to the Egyptian economy.

The information gathered through the questionnaires and its analysis was very helpful in a) constructing the linear programming model considered in chapter eight, b) investigating the banking system regulatory framework reviewed in chapter three, c) finding out answers for the study's objective questions stated in the introduction, and d) casting light on the possible solutions and suggestions to improve their operations in the local market.

-The Method of the Analysis

Figure (7.1) shows the questionnaires analytical structure. This framework was drawn on the basis of themes, and statements relevant to the in-depth interviews analysis objectives.²

It is hoped that the analysis will identify variables which can discriminate between banks' success.

This chapter is divided into the following sections:

Section One: The sample banks' characteristics.

Section Two: Interest rates management.

Section Three: Deposits management.

Section Four: Risk management.

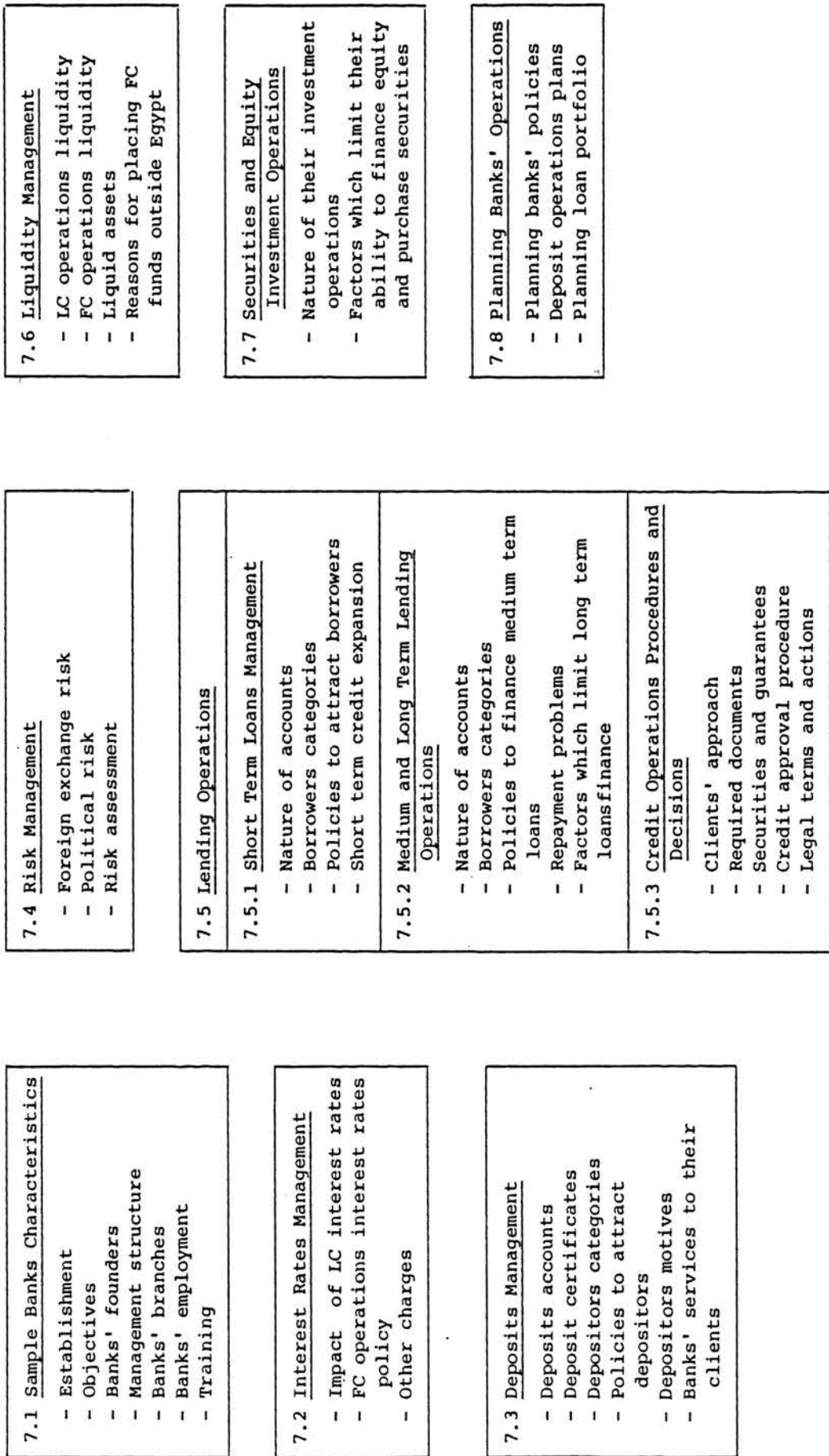
Section Five: Lending operations (short term loans, medium and long term loans and credit operations procedures and decisions).

Section Six: Liquidity management.

Section Seven: Securities and equity investment operations.

FIGURE (7.1)

The Questionnaires Analysis Analytical Framework



Section Eight: Planning bank's operations.

Section Nine: The analysis findings (commercial banks' operations findings, investment banks' operations remarks and general assessment).

7.1. The Sample Banks' Characteristics

The Egyptian government allowed foreign banks to operate in Egypt as joint venture with Egyptian capital to develop the political and economic relationships between Egypt and the external world after being a closed economy for a long time. It was understood from the interviews with the general managers that the main reason for establishing these banks was to create good relationships with the foreign partners' countries.

The successful establishment of Chase National Bank (No.1) in 1975, as a result of the personal sponsorship of Anwer El-Sadat and David Rockefeller³, encouraged foreign capital as well as private sector and public sector banks to start joint venture businesses in the local market.

Both public sector banks and the foreign partners pushed for JVBs to be created. In most cases the Egyptian partners set up the establishment arrangements.

It was planned that the JVB's would achieve the following objectives in order to cover the Egyptian financial market gaps:

- To finance both internal and external trade.
- To attract both Arab and foreign investments.
- To provide foreign finance for economic development projects.
- To participate in establishing productive projects.
- To participate in financing syndicated loans.

- To help in creating an orderly money market and to activate the stock exchange.
- Granting short and long term loans for foreign, joint venture and private companies.
- To open new markets between Egypt and the foreign partner's country.
- Financing the government economic plans and mobilizing public savings.
- To develop the banking industry's services and to transfer modern technology to create competition between these banks and the public sector banks.

Additionally, investment banks were expected to carry out international investment and merchant banks operations such as: a) financing projects' equity, b) acting as corporate financial advisers, c) granting medium and long term loans, d) The management of mergers and acquisitions, and e) introducing important operations which suit the Egyptian financial market such as instalment credit and leasing.

One of this chapter's objectives is to find out how successful these banks were in achieving their goals and to identify the problems and obstacles which prevented them from achieving their goals.

7.1.1. Banks' Founders

The majority of the Egyptian founders for both commercial and investment banks are public sector banks and public sector insurance companies. Individuals had participated as founders in two commercial banks only. In bank (No.6) the bank's chairman holds 2% of the paid up capital and in

bank (No.7) individuals hold 21% of the banks' shares.

On the other hand, all the foreign founders are foreign banks or financial institutions except bank (No.7) where Kuwaiti businessmen hold 34% of the paid up capital.

All the interviewed JVBs' capital was fully subscribed by founders except one commercial bank (No.7) where a small proportion of the bank's shares (approximately 24%) were offered for public subscription.⁴ All the sample banks are closed companies except bank (No.7) where its shares are traded in the stock exchange.⁵

One of the interesting results is that both Egyptian and foreign partners are not willing either to offer their shares for public subscription or to trade their shares in the stock exchange. One general manager said that "According to the founders contract, they have no right either to trade their shares or to offer them for public subscription before ten years to guarantee the bank's success during its early years of operating".

Most of the interviewed banks raised their equity accounts (paid up capital and reserves) during the study period. Capital expansion was financed through the banks' founders according to their proportion of the paid up capital.

It was noticed that large commercial banks⁶, especially those with a number of branches, always raise their capital to cover their expansion plans and to support their financial position. Besides, all the interviewed banks plan to increase their capital in the future.

There are no restrictions regarding capital expansion. The government encourages banks to increase their equity accounts. The only constraint is that banks have to obtain the Investment Authority's approval to increase their

authorized capital. This approval is not restricting banks' operations.

7.1.2. Management Structure Between Egyptian And Foreign Partners

The majority of the JVBs managers are Egyptians and foreign partners have representatives at senior management levels (board of directors, general managers, deputy general manager, branch manager and credit manager).

Two commercial banks (Nos.1,5) used to have management contract with the foreign partner's bank to manage the bank's operations for five years. These banks are joint ventures with American banks and both had quite different experience with the foreign partner management.

In the first case, the foreign partner management, [for bank (No.1)] achieved very successful results. The foreign bank succeeded in : a) establishing a very advanced operating system for all the bank's departments, b) introducing working manuals and procedures and d) helping to train all the bank's staff according to the international standard. The bank achieved rapid growth rates in size and the number of branches. It is considered as one of the most successful banks operating now in Egypt.

In contrast, the second commercial bank (No.5) which used to have a management contract for five years, reduced later to 3 years, witnessed a very bad experience from the foreign partner's management. The bank achieved the lowest profitability in comparison with other commercial sample banks, particularly in 1982.⁸ It was understood from the interviews that the foreign partner had directly interfered in the bank's critical operational decisions, especially credit decisions, without any past experience regarding the Egyptian market and customers' behaviour. Some of these decisions had a serious impact on the bank's performance.

Some bankers pointed out the fact that, during the early years of their

banks' life the foreign management experience concerning the local market was limited and lead to many problems.

One investment bank (No.1) has a joint management structure between the Egyptian and the foreign partners. The foreign partner has a very conservative approach and the bank achieved the highest profitability when compared with the JVIBs sample.⁹

In general, the following are the important advantages from the foreign partner share of management:

1. The foreign partner is a large bank and has a good name and reputation which facilitate the JVB external operations, particularly financing international trade activities.
2. The foreign partner branches all over the world help JVB in managing their FC funds liquidity in the international markets.
3. It was observed from the interviews with the banks' managers that the foreign partner can play an important role in providing JVB with technology (such as computer systems) and in developing their internal manuals and systems. In contrast, the majority of the small banks were applying their public sector banks management systems.

7.1.3. Banks' Branches

Commercial banks, particularly large banks in joint venture with American banks, have been trying hard to increase the number of their branches in order to achieve a high growth rate in total size. Tables (7.1) and (7.2) detail commercial banks branches during the study period. The tables reveal the following facts:

TABLE (7.1)

Joint Venture Commercial Banks Branches At The End of 1982

Bank Number	Greater Cairo*	Alexandria	Port-Said	Tanta	Total Branches	Rank	Future Branches (1983-1984)
1	5	3	1	-	9	1	2 Cairo, 1 Alexandria
2	5	1	-	-	6	3	3 Cairo, 1 Alexandria
3	6	3	-	-	9	2	4 Cairo, 1 Alexandria**
4	1	1	-	-	2	5	1 Cairo
5	2	1	-	1	4	4	3 Cairo
6	1	-	-	-	1	7	1 Alexandria
7	1	-	-	-	1	8	4 Cairo, 1 Alexandria
8	1	1	-	-	2	6	No plans at present

* Including Giza governorate branches.

** The bank also plans to open 4 foreign exchange offices in large hotels.

TABLE (7.2)

Joint Venture Commercial Banks Number of Branches Each Year (1975-1982)

Bank Number	1975	1976	1977	1978	1979	1980	1981	1982
1	1	2	3	4	4	7	9	9
2	-	2	2	2	3	4	5	6
3	-	1	1	2	2	6	9	9
4	-	-	1	1	1	2	2	2
5	-	-	1	1	1	1	3	4
6	-	-	-	1	1	1	1	1
7	-	-	-	-	-	1	1	1
8	-	-	-	1	1	1	1	2

1. The three large banks (Nos. 1,2,3) were more oriented to increase their branches over time than the other commercial banks. Banks (Nos. 1,3) were deposit oriented banks on average during the study period. They both have the highest number of branches (9 branches). Meanwhile, bank (No.2) was loan oriented on average during the study period.¹⁰ It had only six branches by the end of 1982. The three mentioned banks are joint venture with American banks.

2. It is clear from table (7.2) that growth in the number of branches was very slow till 1980 where the three banks started to increase their branches rapidly, especially after achieving successful performance and high profitability levels. This fact indicates the expected good future for successful banks which is clear from their branches expansion plans.

3. All the commercial banks started their operations with one branch or head office in Cairo. Six out of the eight commercial banks have at least one branch at Alexandria because it is the second most important region in Egypt. Only two banks opened branches in Port-Said and Tanta regions.

It is clear that JVCB concentrated their business in their early years in Cairo and Alexandria where the demand existed.

4. Small banks such as banks (Nos. 4,5,6,8) have a very limited number of branches except bank (No.5) which opened 4

branches by the end of 1982. Despite that the bank is very small in size when compared with the other sample banks and gradually changed its policy to be deposit oriented. The bank's ROA was 0.661% in 1982.

-Branches Expansion Plans

Large banks have expansion plans to open new branches in the future. They are doing retail banking and it is the best policy to face hard competition in the local market, especially after introducing the new credit ceiling regulations.

The only way they may allocate funds as loans is through their clients' deposits, so all banks have to develop their policies to attract and mobilize savings. It is expected that all the commercial banks will start to open new markets for their services in other regions. In addition, advertising is becoming a very important policy to attract banks' clients.

The above table (7.1) shows the numbers of expected new branches in the near future (1983-84) for the sample banks. For example, bank (No.7), the most recently established bank and classified under large banks, is planning to open 5 branches within two years.

Small banks do not have specific plans for expansion and they are happy with their present reasonable profitability levels.

It is clear from the investigations and observations that the foreign partner's management approach and objectives had a major influence on JVB expansion plans. It was found that JVB with American banks were always keen to develop their operations, to grow in size, to increase the number of their branches and to introduce new services.

Conversely, small banks happened to be joint venture with other

countries¹¹. The foreign partners' main object was to get back their paid up capital in a short period and to increase their profitability.

Investment banks were more oriented to undertake wholesale banking services and they concentrated all their operations in one branch, mainly their head office in Cairo. Two banks (Nos.1,2) opened another head office in Alexandria [see the following table(7.3)].

Despite the fact that investment banks chief object was to carry out wholesale operations, they were carrying out the same operations as the commercial banks. Moreover, they could no longer depend only on FC operations and started to deal in LC during 1983. Dealing in LC along with FC operations confirms the accounting data analysis results where it was found that JVCB which deal in both LC and FC were more profitable and achieved higher growth rates than JVIB which confined their activities to FC operations only.

Investment banks plans to open new branches are very limited. It is expected that they will be forced, by competition constraints, to change their policy and have to open new branches as long as they are doing retail banking. The other available alternative is to develop their operations and to introduce new activities which suit the Egyptian investor. This will be discussed in more detail at the end of this chapter.

It is evident that all the banks operating in Egypt must obtain approval from the CBE to open a new branch. All the interviewed banks mentioned that this approval does not restrict their expansion plans except one commercial bank (No.4) which found some difficulty in obtaining permission to open a new branch in Cairo. The reason is believed to be that this bank was mainly a loan oriented bank and exceeded the credit ceiling percentage and the CBE refused to give permission until the bank reduced its loans to the credit ceiling level.

It is worth pointing out that the CBE introduced new instructions regarding opening new branches. At present banks are subject to the following instructions to open new branches:

1. The bank should apply the CBE regulations.
2. Not to exceed the credit ceiling and credit control instructions.
3. The bank should participate in financing the economic development plans.

7.1.4. Banks' Employment

The JVB attracted the public sector banks employees with better salaries and careers. But, because the number of new banks increased rapidly during the study period, banks started to face a high turnover of personnel. The demand for good qualified bankers, particularly loan officers, increased locally and in the Arab Gulf countries.

There were two different approaches to recruit the JVCB bankers. Large banks and those joint venture with American banks recruited public sector senior management and attracted the new graduates for junior occupations in order to train them according to their management approach and systems.

On the other hand, small banks depended mainly on their public sector banks partner's employment. They recruited permanent and temporary employees.

Most of the interviewed JVB mentioned that they did not face any problems in finding qualified bankers, except the following cases:

1. Most of the large commercial and investment banks pointed

out the lack of qualified loan officers, particularly those capable to study and evaluate long term loans decisions.

2. One banker mentioned that his bank (No.2) faced the problem of finding qualified employees to work as tellers in their branches as they should be carefully selected.

-Training

Most of the interviewed commercial and investment banks sent their bankers to be trained abroad, chiefly at the foreign partner training centres in London and USA.

Banks always concentrate on technical staff training for important specialities such as (credit and marketing analysis, dealing operations, foreign exchange operations, imports finance, and exposure and treasury management).

7.2. Interest Rates Management

The JVCB are price takers for LC operations interest rates and price makers for FC interest rates. The JVIB which deal in FC only are price makers also for their activities interest rates.

The object of this section is to find out the impact of LC interest rate structure on banks' operations and to investigate how these banks set the interest rates for FC operations.

-The Impact Of LC Interest Rates On Banks' Operations:

Six out of the eight JVCB sample said that the LC deposits interest rates prevented them from attracting as much deposits as they would like.

The fixed interest rates policy for LC deposits restricted banks' ability to compete in attracting more deposits. One banker mentioned that "It is

difficult for savers to distinguish between banks because of the fixed interest rates policy, despite the fact that services vary between banks”.

In addition, it was observed that these banks did not introduce new deposit instruments while the public sector banks have been issuing a diversified deposit instruments for a long time. Accordingly, JVCB still cannot compete with the public sector banks' LC deposits operations.

As for lending interest rates in LC, five out of the eight commercial banks mentioned that the debtor interest rates prevented them from lending as much short term loans as they would like.

Most of the interviewed loan managers complained about the lack of flexible lending interest rates which differentiate between loans maturities. Moreover, the recent credit control regulations allow banks to allocate only 65% of their deposits as loans in addition to restricting loans expansion to profitable sectors (commercial and household sectors). The only chance to increase their loan base is to allocate funds to industrial and agricultural sectors with low interest rate¹² (maximum 13%) and loans to these sectors are usually long term loans.

It is clear that both interest rates and credit control regulations restricted banks' ability to allocate funds as term loans.

-Foreign Currency Operations Interest Rates:

Most of the JVIB and JVCB use the LIBOR rate as a base to set FC operations interest rates.

With regard to foreign currency deposits banks usually set the interest rates as a margin ranged between (1/16%, 1/8%, 1/4% to maximum 1/2%)¹³ below the international rates or the LIBOR.

In addition, banks take into account the following factors when setting up the FC interest rates for each client:

1. The amount of the client's deposits.
2. The bank's need for the FC offered by the client.
3. Bank's liquidity.
4. The client's past experience with the bank.
5. Deposit maturity.

With respect to the FC loans, the margin ranged between (1/2% to 2.1/2%) over the LIBOR rate. Banks usually take into account the nature of the client's activities, loan maturity, securities offered by the client and the client's previous experience with the bank.

In addition to the interest rates, it was found that all banks charge their client for the banking services and the administrative costs required to allocate and to manage client's loans. Banks charge their clients the actual cost for all expenses associated with the loan such as (postage, telex, telephones, etc.).

Other charges and fees such as (commissions, commitment fees, management fees, and tax stamp dues are levied according to CBE unified tariff regarding banking services for both commercial and investment banks.

7.3. Deposits Management

The JVCB succeeded in mobilizing deposits in both LC and FC more than JVIB which accepted deposits in FC only. Generally, both groups received deposits from big companies and individuals with a specific minimum limit to open deposit accounts.

It is evident that the US dollar, pound sterling, Deutsche mark, Swiss franc and French franc are the most important foreign currencies JVB accept as deposits. The US dollar dominates most of the JVB operations in the local market.

7.3.1. Deposit Accounts

The following are the deposit accounts banks offer to their clients:

1. Demand deposits

Commercial banks accept demand deposits in both LC and FC. Most of the small banks (Nos.4,6,8) offer their clients interest rates for their FC deposits with an average minimum balance limit during each month. Also, the most recent bank (No.7) offers interest rates to mobilize more deposits. The average balance limit range is between \$1000 and \$2000 or the equivalent in other foreign currencies. On the contrary, the three large joint ventures with American banks offer interest only for special clients with large amount of deposits (in some cases, balances which exceed \$2 millions).

Small banks offer interest rates for demand deposits to attract more deposits as it is difficult to compete with the large number of banks and because of their small number of branches (1-3 branches).

Banks calculate the interest rates for demand deposits in different ways according to each bank's internal policy. Some banks use the monthly average for international interest rates, others according to yearly average (usually 2% below the international rates).

With regard to LC demand deposits, according to the CBE regulations, there is no interest rate for such accounts.¹⁴

The minimum required amount to open a demand deposit account in

LC ranged between (LE 500 - LE 5000) and between (\$500 - \$7000) for FC [see the following table (7.5)].

TABLE (7.5)

The Minimum Required Value* for Deposit Accounts

Deposit Accounts	JCVB		JVIB
	Minimum Required Amount Range		
	LC (LE)	FC (\$)	FC (\$)
- Demand deposits	(500-5000)	(500-7000)	(3000-5000)
- Time deposits	(500-10000)	(1000-10000)	5000
- Saving deposits	(5-800)	(100-1500)	5000
- Call accounts	5000	5000	3000

* Mainly for the head office with exceptions for banks' branches.

In general it was found that large banks were very selective in accepting their clients. One banker mentioned that:

"Our bank never allows small savers to deal with our head office. It is not a popular bank, and we are only oriented to serve big and special clients. Small savers can go to the public sector banks. The number of our clients are small but we are looking for quality not quantity. Small savers are allowed to deal with our branches and only through opening a savings pass book account because it is less costly to manage and these accounts are not included in our computer system".

Also, another bank stated in its annual report that:

Our bank has now become more selective in accepting accounts, minimum balance requirements have been introduced in order to obtain high average balance accounts and to eliminate retail business. This new policy is in line with the operational capabilities of the bank, the cost of administration of accounts and marketing considerations.¹⁵

On the other hand, small banks are less selective in setting up their deposits limits.

2. Time Deposits

All the JVCB accepted time deposits in both LC and FC. Most of the sample asked their clients to open a demand deposit account first before opening a time deposit account. The minimum required amount were (LE500 - LE10000) for LC and (\$1000 - \$10000) for FC time deposits. As for short term time deposits (one week or two weeks) in both LC and FC, a certain minimum amount was required by each bank.

3. Saving Deposits

The JVCB offer two types of saving accounts:

A. Saving pass book in both LC and FC: all the sample banks offered this account except one bank (No.8) which planned to introduce this service in 1983 and two banks (Nos.4,6) which offered this account in LC only. The three mentioned banks are small with a few branches. The minimum required amount ranged between (LE 5-LE 800) for LC and (\$100 - \$1500) for FC.

B. Call account: This account was offered only by two banks ; one bank in LC and FC and the other in FC only. The minimum required amount in LC was LE 500 and \$5000 in FC. Banks offered a floating interest rate according to the international rates.

In reference to the investment banks: all the three interviewed banks offered demand and time deposits while one bank (No.2) offered also saving and call deposits and one other bank (No.1) offered call accounts.

It was found that, only one bank (No.3) offered interest rate for demand deposits according to the monthly average interests rates with minimum limit \$1000. The minimum required amount to open demand deposits ranged between \$3000 - \$5000 for time deposits and was \$3000 to open call

accounts.

7.3.2. Deposit Certificates

Two commercial banks (Nos.3,5) only issued deposit certificates in LC during the study period. Both banks are joint venture with American banks. The "Golden Savings Certificates" was issued in 1980 by the Egyptian American Bank (No.3) as an Egyptian pound saving instrument designed to develop the bank's LC term deposits. This certificate offers depositors three interest payments options ranging from monthly or every six months, to automatic reinvestment of all the interest up to maturity.¹⁶

The second certificate is "Time Saving Certificate" in LE issued by Misr America International Bank. The selling price for each certificate is LE 5000, with 5 years maturity and 13% interest rate given each three months. The other two joint ventures with American banks are planning to issue deposit certificates in the future.

All the banks operating now in Egypt have to obtain the CBE approval to issue deposit certificates. This approval does not restrict their deposits policies.

Some banks complained that it was difficult to compete with the public sector banks' deposit certificates for the following reasons:

1. Public sector banks have been issuing these certificates for a long time to mobilize long term savings and they offer good terms.
2. Banks pointed out to the National Bank of Egypt¹⁷ deposit certificates which have been issued since 1965 to finance the state budget. The bank offers interest rate higher than the CBE declared interest rate structure.

One investment only bank (No.4) succeeded in issuing for the first time a floating rate deposit certificate in US dollar. The bank's first issue was \$10 millions and the certificate's period is three years.¹⁸

7.3.3. Banks' Depositors Categories

The majority of the JVCB's depositors were the private sector companies and individual establishments. Five out of the eight commercial banks mobilized deposits from the public sector companies. In addition, it was found that the new projects and joint venture companies established under the new investment law No. 43 of 1974, were the most important category of the banks' depositors. The proportion of public sector companies' deposits to banks' total deposits ranged, on average, between 5% - 25%.

All the interviewed investment banks' depositors were individual establishments and private sector companies. None of the JVIB mobilized deposits from public sector companies.

7.3.4. Banks' Policies To Attract Depositors

All the deposit managers for the eight commercial banks stressed that opening new branches is the most important policy to attract and to increase banks' deposits volume. The following table (7.6) shows the other important policies ranked in descending order.

TABLE (7.6)

Banks' Deposits Policies

Banks' policies to attract depositors	Observations
1 Opening new branches	8
2 Advertising deposit services and interest rates in FC	5
3 Competitive fees for the bank's services	4
4 Direct contact with the expected clients (marketing approach)	4
5 Using diversified deposit accounts and instruments	3

Advertising is the second important policy for attracting banks' depositors. Principally, it is evident that most of the banks used advertising as a general policy to increase public awareness of their activities.

It is worth mentioning that, the direct contact approach through marketing officers is very important in the local market especially with the private sector institutions. The four large JVCB especially those joint venture with American banks are applying this approach. It is expected that most of the banks operating now in Egypt will apply this approach in the future to face competition. Another important reason is that banks have to depend on deposits to allocate loans as a result of introducing the new credit regulations.

For investment banks: two out of the three interviewed banks (Nos.1,2) were using the marketing approach to attract their expected clients. Other policies varied between the three banks. Each bank focused on certain policies and there was no similar pattern for their policies.

7.3.5. Depositors Motives To Deal With The JVB

It is evident that the bank's name and reputation, particularly for the foreign partner, is the most important motive for depositors to deal with JVCB. The following table (7.7) shows the other important motives. Most of the sample banks agreed that good and quick services, transactions between Egypt and the foreign partner's country and competitive interest rates for deposits in FC are the most important motives for depositors.

Table (7.7)

Depositors Motives To Deal With The JVCB

Depositors Motives	Observations
1 The bank's name and reputation	7
2 Good and quick services	6
3 Transactions between Egypt and the foreign partner's country	5
4 Competitive interest rates for FC deposits	5
5 The bank's financial position	2

Investment banks agreed that the bank's name and reputation is very important motive for depositors to deal with their banks. In addition, they pointed out the importance of the transactions between Egypt and the foreign partner's country and the banks' good and quick services.

7.3.6. Services The JVB Offer To Their Clients

Despite the fact that most of the JVCB foreign partners are famous international banks, they only introduced very limited services to their clients. It was noticed that commercial banks with many branches tried to introduce some new services gradually, especially because they are new banks in a new market and there has been economic instability. Also, they faced problems in introducing some advanced services such as the fact that it was difficult to

connect all the bank's branches with one computer system to computerize the teller services because of communication problems.

The following discussion summarizes the findings concerning the existence of the international banking industry services in the local market:

1. Credit Cards

Only three commercial banks (Nos. 2,3,7) out of the eight banks acted as guarantor to issue credit cards. Bank (No.2) was the first bank to issue (Visa Card) and also provided American Express and Thomas Cook Cards. In 1982, bank (No.3) became an authorized issuer of the American Express gold card. Also, bank (No.7) acted as guarantor for credit cards as a special service for special clients.

In this context, it is very important to point out that Egypt is a cash country. Most of the market transactions are in cash. Cheques are not accepted in the daily life transactions. Credit cards are a special service introduced after the ODP and only a few tourist places such as five star hotels and restaurants accept credit cards.

2. Budget Accounts

This service is not known yet in Egypt and three banks mentioned that they offer it as a special service for a few limited number of big clients with standing instructions.

3. Insurance Services

None of the banks operating now in Egypt offer such service to their clients. All insurance activities are confined only to insurance sector companies.

4. Autoteller Services

Most of the large banks mentioned that because of communication problems it was difficult to connect all the banks' branches with one computer system. Also, these banks had very limited number of branches, maximum 9 branches, and the cost of introducing such facilities is very high.¹⁹

5. Possibility to Cash in and Out from Any Branch

Again, because of communication problems the client can only cash in and out from his own bank branch. The only way to cash out from other branches is by telephone to obtain your branch withdrawal permission.

6. Trustee Services

None of the JVCB introduced this service to their clients, although it is offered by the public sector commercial banks.

7. Cheque Cards

As mentioned earlier, most of the local transactions are in cash and banks found that there is no real need for such service in the local market. Only one bank (No.3) issued a "Money Card" for his clients. This card allows selected clients to make cash withdrawal at any of the bank's branches up to a specific limit. Also, this service is available during weekends at the bank's offices at a number of major hotels in greater Cairo.²⁰

8. Safe Boxes

Only introduced by three banks as special service for big clients.

9. Night Safe Deposits

Only introduced by one commercial bank (No.1) at one branch.

In addition, all the interviewed commercial banks offered overdraft

facilities to their clients according to a specific agreed limit and clients can obtain loans secured against their deposits

Generally, a few services have been introduced by the JVCB in the local market. Some banks tried to introduce some services gradually and sometimes their ability to introduce such services were confronted by infrastructure problems and the nature of Egyptian clients behaviour. Egyptian consumers needs time to accept the new banking industry technology.

In addition to previous services, large banks offered general services for their clients, such as: technical and financial advice, carrying out special feasibility studies for borrowers and information services.

Each bank developed its own types of services to attract clients. Some banks offered their correspondents and foreign partner's branches facilities all over the world to serve their clients. For instance, one banker mentioned that his bank can supply market data information services about any specific commodity or service in any foreign country where the foreign partner has a branch.

Some banks developed new ways to approach the Egyptian clients such as a) bank (No.2) introduced trustee services for his clients, b) bank (No.3) used its marketing officers to manage all their big clients business particularly those who receive a multiservice (deposits, loans, letters of credit and foreign exchange transactions), c) bank (No.3) also organized a series of international conferences in Frankfurt and Paris to promote and to develop the business relationships between Egypt and European countries,²¹ and d) bank (No.5) introduced a series of seminars to improve the relationships between the foreign investors and the Egyptian economy.²²

Conversely, it was found that small banks' ability to offer or to develop

special services was very limited and subject to their clients request and the banks' ability to offer such services.

7.4. Risk Management

The analysis found that the foreign exchange risk associated with lending FC had a serious impact on both the JVB and investors activities.

The continuous increase of the dollar exchange rates against the Egyptian pound in the black market led banks to be very cautious in lending FC. The investor who borrowed FC loan from a bank at black market rate for instance equal to \$1 = LE 0.90, and have to pay back the loan amount at maturity according to the new black market rate which could reach to \$1 = LE 1.15. Investors have to rely on their Egyptian pound earnings for repayments. The interviewed loan managers pointed out that some investors could not pay back their debts and banks have to reschedule their loans.

It is evident that the expected foreign exchange risk is the principal reason behind banks reluctance to grant FC loans in the local market. Also , it justifies their attitude towards placing a high proportion of their FC funds with overseas banks.

These findings are consistent with other researchers results. Foda's (1982) survey found that ". . . , the constant erosion of the value of the pound made many investors unwilling to borrow in foreign currencies due to the exchange risk anticipated or already experienced".²³ Also, Ingram (1983) mentioned that:

They argue that it is hard for them to make a hard currency loan to a businessman whose project is unlikely to earn anything except Egyptian pounds. With the local currency depreciating steadily on the free market, the chances of getting prompt repayment on a \$ loan to a project confining its operations to the local market are considered too risky.²⁴

At the same time, investment banks, which deal in FC only found it difficult to expand their loans base because of the foreign exchange risk. They were more conservative than commercial banks ; in particular some of the sample banks granted medium term loans and participated in financing projects' equity as will be described later. To reduce the influence of the foreign exchange risk on their operations all the investment sample banks started to deal in LC during 1983.

One banker mentioned that to get rid of the foreign exchange risk they lend their clients, specially importers, the equivalent of their FC needs in Egyptian pounds in order to purchase \$ from the black market. Then the importer can use the \$ to open a letter of credit with the bank to finance imports. The importer will repay back the loan in LC at maturity. The previous transaction might help to reduce the impact of foreign exchange risk on both the banks' and the clients' operations.

The political and economic instability (political risk) was the second most important factor which increased the JVB risk and prevented them from setting up long term plans.

As illustrated in part one, the frequent changes in regulations and economic decisions reduced the degree of confidence in the Egyptian financial market and both banks and investors could not commit themselves to long term investments and productive projects. It was difficult for banks to predict the expected market events and they concentrated on short term operations. In addition, as pointed out by some bankers, investors started to transfer part of their business outside the country for security reasons.

With regard to assessing the expected default risk associated with allocating funds as loans, it was found that banks do not have advanced ratios (i.e. capital adequacy ratio, the risk-asset ratio) or even methods to evaluate

the risk concepts. Also, banks do not hold reserves equal to a certain proportion of their risky assets.

It is evident that the banking industry in Egypt does not recognize the risk concepts. They would rather take prudential ways to prevent the risk associated with their business as follows:

First, banks assess the credit risk connected with each individual loan by carrying out a credit analysis study to find out the client's credit worthiness.

Second, banks are very cautious and ask for collateral and guarantees.

Third, they set a specific credit limit to each one of their borrowers especially for overdraft facilities and financing imports.

Fourth, JVCB allocate the following reserves and provisions as a cover for their risky operations:

1. Legal Reserve: By law banks are required to allocate at least 5% of their net profits as legal reserves to force banks to raise their equity accounts.
2. General Reserve: All the JVB sample allocated a certain proportion of their net profits as general reserve. Each bank decides this proportion according to its board of directors decision.

This reserve is acting as a cover for risky assets but it is not related to risky assets volume, but to management judgement.
3. Bad and Doubtful Debt Provisions: The JVB take care of the expected loan losses and doubtful debts by allocating a certain provision which consists of:

- A special provision for doubtful or bad debts according to the bank's analytical study for each case alone.
- All banks calculate a certain proportion of their total outstanding loans [almost ranged between (1% - 4%)] as a general provision for loan losses. Banks usually allocate this provision at the end of the financial year.

Moreover, banks carefully follow up their clients debt payments on a monthly basis to avoid expected bad debts or clients failure to repay loans.

Loan managers pointed out that commercial sector, suppliers, tourism sector, construction sector and unsecured loans are the most risky categories of loans and always required the highest provisions.

It was detected that the number of loans involving repayment delay was greater for small banks than for large banks. Accordingly, large commercial banks were more successful in managing their loan portfolio than small banks.

7.5. Lending Operations

7.5.1. Short Term Loans Management

It was found throughout the study that the majority of JVB funds were allocated as short term loans in both local and foreign currencies. They used their short term deposits in FC to finance importers needs.

The overdraft facilities are considered as the second important type of short term loans. In addition, the most common short term loans in the local market are those secured against (bills, securities, merchandise, contracts, goods, deposits and personal guarantees).

During their early years of operating JVB were concentrating on granting loans for commercial sector because it was profitable, less risky and the loans turnover was very high. The introduction of the new credit control regulations restricted banks' ability to expand by granting loans to commercial sector.

- Short Term Loans Borrowers Categories

Most of the banks' borrowers were private sector, particularly multinational companies and investment projects which were established under the new investment law. Five out of eight commercial banks lend short term loans to public sector companies and one investment bank only dealt with them.

It is evident that all the public sector companies have to obtain permission first from their public sector bank in order to deal or to borrow from the JVB.

The severe competition between the large number of banks led JVB to welcome new borrowers as long as clients' credit analysis study was approved by the bank. Only two commercial banks (Nos.4,6) could not accept new clients or grant loans (temporary) because they exceeded the credit ceiling percentage and credit expansion limits. Those two banks were loan oriented and depended mainly on due to banks in FC to finance their loans.

In general, it was evident that the new credit ceiling percentage (65%) and credit expansion instructions were the most important constraints which seriously affected banks' ability to allocate funds as loans and increased banks' liquidity in LC.

- Banks' policies to attract borrowers for short term loans:

In general, it was found that JVCB employed two important approaches to

attract borrowers for short term loans:

1. The first approach concerned service oriented banks: This was used by all the sample banks especially during their early years of operating as new banks in the Egyptian market. They depended on the services they rendered to their clients, such as: good and quick credit services, charging minimum interest rates, using well trained credit officers and other banking services to attract borrowers.
2. The second approach concerned direct contact with banks' clients. There were two different policies under this approach.
 - a. The personal contact approach: In addition to a service oriented approach, some banks depended on the personal contact approach with their old and new clients through their senior management and credit officers. Almost all the loan managers agreed that the personal relationship between the client and the bank is very important in the Egyptian market.
 - b. The marketing approach: Three of the JVCB, mainly joint venture with American banks (Nos.1,3,5) applied the marketing approach. The department of credit and marketing set policies to achieve direct contact with banks' clients through marketing or credit officers. The marketing officers were responsible to attract and to contact banks' clients.

The marketing approach became essential in the local market as pointed out in one of the bank's annual reports:

. . . we are greatly concerned with the future. It is evident that our future operations will face economic, political and technological challenges. In order to overcome such challenges we need to develop fresh strategies and policies.

We are about to enter the age of the "Marketing Approach" in order to meet the changes facing contemporary business organizations; we are leaving the age of the "Service Oriented Approach".²⁵

For small banks, there was a close relationship between the banks' management and their clients. In some cases, banks attract clients which had direct transactions with the foreign partner's country (for instance; joint venture with a French bank attracted clients with trade relationship with the French market.

Banks used advertising policy to introduce their services and name to the public because there are now 70 banks operating in Egypt, and banks would like the client to recognize their name. Banks also used advertising policy to promote deposits interest rates in FC. A very interesting point was that banks did not advertise FC loans interest rates because they cannot set a specific interest rate unless they carried out the credit analysis study for the client.

With regard to investment banks, the three interviewed banks agreed that direct contact with clients was a very important policy to attract Egyptian clients.

- Factors Which Increase The Risk Associated With Making Short Term Loans

The following are the most important factors which increase the risk associated with making short term loans according to JVB experience:

1. Banks mentioned that their clients always present inadequate documents regarding their financial position. In some cases, it was difficult to assess the client's credit worthiness. As a result, banks were very cautious in granting loans and always ask for enough guarantees to secure their rights.
2. The frequent changes in the economic decisions, especially imports regulations, increased the banks' risk.
3. The expected foreign exchange risk had a serious impact on the clients' ability to repay back their FC loans.
4. Social and political instability increased the perceived risk.

In addition, it was found that banks developed their own lending terms to overcome some problems related to granting loans in the local market. For example, one banker mentioned that they evaluated the real estate value used as a guarantee for FC loans according to the black market exchange rates. In general, it was found that banks always require guarantees and collateral at least equivalent to the loan value and in some cases more than the loan value.

- Short Term Credit Expansion

The credit ceiling and the credit expansion regulations were the most important factors which limit JVCB's ability to extend short term loans. The second most important factor was the new imports regulations imposed by the government to rationalize imports.

Some bankers pointed out the fact that they can no longer allocate interbank loans (due to bank in FC) as loans, especially to finance importers needs in FC, and they have to use only clients' deposits.

It was clear from the accounting data analysis that the proportion of loans to total assets for JVCB sector declined in 1982 as compared with 1981, as a result of introducing the credit ceiling and imports regulations.

With respect to investment banks, although the credit control regulations did not govern their operations, the foreign exchange risk increased the repayment delay and JVIB were very reluctant to lend FC in the local market. Also, imports regulations limited their ability to lend short term loans because they were mainly financing international trade.

7.5.2. Medium and Long Term Lending Operations

Most of the JVCB preferred financing short term loans to medium and long term loans. Most of their term loans were medium loans up to seven years. Also, banks either lend medium loans directly to their clients, particularly private sector, or participate in financing syndicated loans which are considered as a new lending instrument in the local market.

Three out of the eight commercial banks had clear term lending policies. They were the three largest joint venture with American banks (Nos. 1,2,3). They allocated a small proportion of their funds as medium and syndicated loans. They were expanding their term loans activities gradually in the light of their experience. Meanwhile, two of the sample banks (Nos. 5,6) had no term loans policy at all and their lending activities were devoted to finance short term loans although they allowed for the rollover policy for short term loans. The other three banks (Nos. 4,7,8) experience with term loans was very limited. They mainly participated in financing syndicated loans with large banks as they did not have policy or even enough staff to study term projects finance.

On average the medium term loans as a proportion of total loans portfolio ranged between (5% to 10%) for small banks and between (10% to

25%) for large banks.

The following table (7.8) shows the proportion of total one year maturity loans and total loans more than one year to the total loans portfolio for JVPCB. From the table it can be observed that total loans more than one year maturity proportion to total loan portfolio declined from 13.7% in 1978 to 5.7% in 1981.

TABLE (7.8)

The JVPCB Loans Portfolio

Loan Maturity	1978	1979	1980	1981
Total one year maturity loans	86.3	90.4	91.6	94.3
Total loans more than one year maturity	13.7	9.6	8.4	5.7
Total loans portfolio	100.0	100.0	100.0	100.0

Source: Computed from, CBE, quoted in Foda, Exhibit 16.

In general, most of the JVCB were not oriented to allocate funds as medium and term loans.

For the three interviewed investment banks, all of them allocated medium term loans up to seven years and on average the term loans as a proportion of total loans portfolio ranged between (4.1% to 20%).

In spite of the fact that these banks were introduced mainly to carry out long term finance operations, the majority of their FC loans portfolio was directed to finance short term loans especially international trade.

Additionally, investment banks also participated in financing syndicated loans which are considered as an important tool to diversify risk between several financial institutions.

It is important to point out that one of the investment banks (No.4) was mainly oriented to finance and to participate in establishing developmental projects either by granting medium term loans or by direct finance for projects' equity. Also, the bank acted as a lead manager for syndicated loans and is considered as the only bank in Egypt which carries out investment operations.

- Medium Term Loans Borrowers Categories

Joint venture banks directed most of their term loans to finance the private sector especially the joint venture and multinational companies operating in Egypt. Only three commercial banks allocated medium loans to public sector banks. Most of the term loans were allocated to the manufacturing sector and financing syndicated loans.

- Banks' Policies To Finance Medium Term Loans

There were two general approaches for financing term loans:

The first approach concerned banks which finance medium term loans and syndicated loans. These banks employed a direct contact policy with their old or expected clients. Also, sometimes clients were introduced to the bank by the Egyptian or the foreign partners. In addition, some of the investment banks promoted good investment opportunities between their clients and banks to finance syndicated loans.

The second approach concerned small banks which waited for the client to approach the bank or the lead manager bank to invite them to participate in financing syndicated loans. Generally, these banks had small credit departments, oriented to finance short term loans, particularly imports, and they did not have well trained credit officers to take the long term loans decisions.

- Medium Term Loans Repayment Problems:

Some of the sample banks' clients failed to repay back their loans mainly because of the economic recession which started in 1982. Some of the new projects which were being established, could not start to operate and the banks had to reschedule their payments. Also, banks pointed out the serious impact of economic and political instability on some economic sectors especially tourism projects which faced recession after the president's assassination in late 1981.

In most of the repayment delay cases, banks always try first to reschedule the interest and the premium or give the client a grace period. In only a very few cases involving a few banks clients were taken to court.

For example, one housing project which borrowed \$15 million from one of the investment banks failed to repay the loan interest in 1982, which amounted to \$1.8 millions approximately. The bank faced severe financial problems and was forced to allocate most of its funds as provision to cover the default risk and its profitability declined significantly (the bank's ROE declined from 15.22% in 1981 to 0.93% in 1982).

To sum up, some of the joint venture banks had very bad experiences regarding financing term loans, especially investment banks which allocated medium loans in FC. The repayment problems were mainly because of the impact of economic and political instability and economic recession on the new projects' performance.

- Term Loans Limits

The findings reveal that, there are no restrictions to restrain banks' from financing medium and long term loans and always the government encourages them to finance such loans.

With respect to the required minimum amount for medium term loans which banks can consider, they usually prefer to lend to big clients with a strong financial position. The minimum amount ranged between (LE 250,000 to LE 500,000) and (\$500,000 for FC loans).

One investment banker mentioned that "the client has to finance at least 40% of his project's investment cost and the bank's finance must not exceed 60% of the total investment costs".

In addition, some commercial banks are very conservative in financing both short and medium term loans as one banker remarked that : "In general, the bank lend only big clients and normally the loan volume is not less than LE 500,000".

- Factors which limit JVBs' ability to finance term loans in the local Market

The following factors were the most important reasons which restricted, both commercial and investment banks from financing medium and long term loans.

1. Frequent changes in laws, regulation and economic decisions.
2. Lack of well studied or packaged projects presented to JVB.
3. The impact of foreign exchange risk on financing term loans in FC.
4. Some bankers claimed that they received limited demand for medium and long term loans from their clients.
5. Lack of well trained bankers to evaluate and to take the medium and long term decisions.
6. The new credit control regulations hindered banks, in

general, from allocating funds as loans. Banks found that it was more profitable to finance short term loans with expected high turnover and the possibility of charging a substantial amount of money as fees and expenses.

7. Most of the JVB deposits were short term as stressed by Foda (1982):

The survey found that most of the time deposits are short term in both foreign and local currencies. It is estimated that average maturity in local currencies is about 12 months, with a 6 months median. The foreign currencies' maturities average 60 days with a 30 days median.²⁶

So obviously it was difficult to allocate these short term deposits as medium and long term loans.

8. The present LC interest rate structure does not differentiate between loans maturity which discouraged banks to finance medium and long term loans.

In addition to the above mentioned factors, some bankers pointed out that the lack of accurate market data concerning the main economic sectors prevented them from evaluating the feasibility studies and investment opportunities.

The sample banks depended on their credit departments, investigation units, to supply the required information in order to take credit and investment decisions. Some banks depended on private consultation offices to study important projects which the bank is willing to finance.

It is evident that none of the interviewed banks had a business appraisal system to help in evaluating market investment opportunities.

7.5.3. Credit Operations Procedures And Decisions

The object of this section is to describe the JVB credit operations procedures and the process of taking credit decisions.

- The Client's Approach To Ask For Loans

There were two approaches for banks' clients to ask for loans:

The first approach: The client can seek advice first from the loan officer or the branch manager before submitting the loan application form to the bank. The second approach was to submit the loan application form to the bank first.

All the interviewed banks preferred the first approach because it was consistent with their personal contact policy especially in the case of financing medium term loans.

- Required Documents For Credit Analysis Study

The required documents vary according to loan type, the client's circumstances and the nature of his business and experience in the market.

Because these banks' lending experience in the local market were very limited, they carried out their own credit analysis studies very carefully and usually ask their clients to produce sufficient evidence to assess their financial position.

In general, banks ask for a lot of documents such as previous years financial statements, deed of partnership, information about clients' property, register of commerce and trade, tax certificate and import licence.

In addition, medium term loans borrower has to provide the project's feasibility study which includes the project technical, economic, and marketing

studies.

Banks which participate in financing syndicated loans always review the documents and studies provided by the lead bank.

- Securities And Guarantees

Because of political and economic instability banks are heavily biased to obtain enough guarantees. The required securities vary according to the client's activity, loan type, loan maturity and loan volume.

Most of the short term loans are secured against bills, merchandise and contracts, accepted letters of guarantees, pledged deposits and personal guarantees and collaterals.

Medium term loans are usually secured against a complete senior commercial or real estate mortgage.

- Credit Approval Procedure

One of the interesting results is that banks' head office in Cairo and Alexandria are the only responsible branch for credit operations decisions. Additionally, all the credit procedures are usually carried out in the head office for both short and medium term loans.

Only two commercial banks did allow some branches to take short term loans decisions. Bank (No.3) allowed only 4 branches out of its 9 branches with maximum limit LE 100,000 and bank (No.5) allowed 3 branches out of its 4 branches with maximum limit LE 50,000.

The loan decision levels of authorization vary from one bank to another, but in general each bank has specific maximum levels for credit officer, branch manager, credit manager, general manager and the loan

committee.

Senior management are always responsible for medium term loans approvals. Mainly the general manager, managing director, credit committee and the board of directors are responsible for medium term loans with a specific limit for each level.

The time required to carry out the credit analysis study for the clients' applications and the loan administrative arrangements varies between banks. It depends on the loan volume, the required documents availability and if the client is a new or an old one. It was found that the average time required to finish the credit analysis study ranged between (2 to 4) weeks for old clients and it may take up to six weeks for new clients. Besides, the time required to grant short term loans to finance imports could be only one week.

The time required to study the medium term loans depends on the nature of the client's project activities. On average, for both commercial and investment banks the study could take from one to three months.

With respect to the loan administrative arrangements, on average it takes one week for both short and medium term loans unless the bank asked for real estate mortgage as a condition to sign the loan contract and to obtain the loan. In this case, finishing the mortgage arrangements takes a long time, sometimes up to six months or more.

Some banks agree to sign the loan contract subject to the client finishing the real estate mortgage in a specific period.

The personal contacts and negotiations between the bank and the client play an important role to shorten and facilitate the loan approval procedure.

- The Legal Terms of The Loan Contract:

The banking community in Egypt had very bad experiences with the legal actions taken when the borrower failed to repay back the loan. The legal judicial proceeding and procedures are very difficult and take a long time. The legal costs and judicial fees are very expensive. As a result, banks are very cautious in lending and usually try to put enough conditions and terms in the loan contract to secure their rights, such as: a) the client must obtain the bank's permission before dealing with other banks, b) the client has no right to pledge his project's assets without the bank's permission, c) the client has to sign a sublease contract for the bank's interest in case of loans secured against merchandise and d) stock companies have no right to distribute profits without the bank approval or after a certain period.

Most of the interviewed banks mentioned that if the borrower fails to repay back the loan, they first try to discuss his financial problems and repayment difficulties in order to reschedule the loan. If the client refuses to pay back the loan, legal action is taken as a final step.

7.6. Liquidity Management

This section considers the JVB liquidity management and explores the reasons behind placing a high proportion of their FC funds abroad.

The new credit control regulations increased commercial banks' liquidity. The reason was that these banks were not allowed to allocate more than 65% of their deposits base as loans.²⁷ Moreover, JVCB cannot allocate due to banks funds as loans.²⁸ Accordingly, by the end of the study period commercial banks faced serious problems concerning their liquidity management.

The analysis reveals that there is no efficient money market for LC in

Egypt. The LC interbank transactions are very limited and occurred principally between the public sector banks and their joint venture subsidiaries.

In contrast, most of the sample banks found it easy to manage their liquidity in FC because they can use the eurodollar market to place their access FC funds abroad. As a result, the interbank transactions in FC are very efficient and very limited for LC funds as emphasised by Foda (1982) : ". . . , the interbank market in LE is highly limited and sporadic and cannot be said to be a true interbank market".²⁹

With respect to liquidity ratio, most of the interviewed commercial banks tried to be within the liquidity ratio set by the CBE in addition to applying the credit control regulations. Large banks, specially those joint venture with American banks used very sophisticated ratios to manage their liquidity. Principally, they were using their foreign partner's advanced systems and manuals. Also, it was evident that liquidity management is very important for large banks with many branches to estimate the required vault cash for each branch.

The following are the important liquid assets for commercial banks:

A. Vault Cash In LC and FC:

Banks hold this account to meet the expected fluctuations in loans and deposits accounts. Most of the commercial banks pointed out that they allocate their vault cash as a proportion of their demand, time, and saving deposits. Banks take into account the following factors to set up the ratio between vault cash and deposits accounts.

1. Their average liquidity ratio for past years.
2. The required vault cash for their branches.

3. Egyptian customer behaviour. Banks have to hold vault cash at levels higher than western banks because most of their customers' daily transactions are in cash as pointed out earlier.

In addition, JVCB keep their vault cash at minimum levels as they mentioned that it is easy to obtain access to their public sector partners funds and increase their vault cash balances at any time.

B. Balances With CBE

All commercial banks have to deposit 25% of their LC deposits with CBE free of interest. Moreover, investment and commercial banks have to place 15% of their FC deposits with CBE at interest rate offered on 3 month LIBOR.

All the eight commercial banks remarked that the previous required cash reserves in LC with the CBE restricted their operations and increased, along with the credit control regulations, their liquidity. Also, commercial and investment banks complained about the 15% required deposits with the CBE in respect of their FC deposits. Bankers stated that they can place these funds in the international markets at rates higher than the CBE rates. One banker said that: "The interest rate which we obtained from the CBE in respect to the 15% deposits in FC is less than the international rates (in between 1/4% to 1.8%)".

C. Due From Banks:

Due from banks is considered as one of the most important liquid assets for joint venture commercial and investment banks. All the interviewed banks place all their access FC funds with other banks abroad.

Bankers stressed that they can accept FC deposits even if the supply exceeds their maximum targets as long as they can place these funds with

overseas banks and achieve profit margin.

- Reasons For Placing FC Outside The Country

The following were the most important reasons behind placing a high proportion of their FC funds in the international markets:

1. The short term nature of their FC deposits forced banks to place these funds as call accounts, demand and time deposits to meet their liabilities.
2. The foreign exchange risk practised by JVB encouraged them to place their FC funds instead of financing loans.
3. Most bankers mentioned that it was less risky and profitable to place FC funds because the existence of efficient international money markets.
4. The credit control regulations restricted banks' ability, in general, from allocating funds as loans. Bankers preferred to allocate LC funds as loans first because of the LC funds liquidity management problem.
5. Economic and political instability increased the credit risk associated with FC loans and encouraged banks to place these funds abroad.

7.7. Securities And Equity Investment Operations

As mentioned earlier in chapter five, most of the interviewed banks did not have an investment department or even a policy. As a result, only a few bankers were approached to answer the investment manager questionnaire. The object was to investigate why the investment operations did not have an important role in their activities. It was found that only one investment bank

(No.4) was oriented to carry out investment activities and participated in establishing a reasonable number of development projects through financing equity and granting term loans.

The JVB investment activities were confined to purchasing government bonds in US\$ and direct finance of the new projects equity. As found from the accounting data analysis, they invested a low proportion of their funds as investments.³⁰ Few commercial banks (four out of the eight sample banks) started recently to finance projects' equity (shares), where three are joint ventures with American banks (No.1,2,3) and one is joint venture with Kuwaiti businessmen (No.7). Funds invested in such operations ranged between LE 362,000 to LE 1,080,000 in 1982. Only two banks (Nos.2,7) participated in management as a condition of financing projects' equity .

Commercial banks mentioned that they started to finance equity to test their expected success in such operations as stated in one of the bank's annual report:

In addition to our lending activities, the bank is carefully pursuing an equity investment program whereby we will make small investment in first class projects involving major Multinational Corporation. Although this program is only in its early stages, we view this as an opportunity to play a more active role in encouraging foreign investment in Egypt, a prime objective of the Open Door Policy of the Government.³¹

Five commercial banks purchased Egyptian government development bonds in dollars with fixed interest rates (8%) till maturity. The amount invested in government bonds ranged from \$5,000,000 to \$20,000. Also, two commercial banks did not allocate any funds as investments.

With respect to investment banks, they mainly allocated a low proportion of their funds as government development bonds in dollars. In addition, bank (No.4)³² was also oriented to finance the establishment of new

projects by financing equity and by providing management and financial advice.

It was evident that there were no governmental regulations to restrict banks' investment operations. The following were the most important factors which limited the JVBs' ability to finance equity and to purchase securities in the local market:

1. Lack of viable projects and good investment opportunities to encourage banks to finance project's equity.
2. Frequent changes in laws and economic decisions. Also, the frequent changes in the regulations which govern the banking system.
3. The lack of activity on the stock exchange affects banks willingness to allocate funds as investments in securities. The number of listed and traded shares were very limited as investigated earlier in chapter two.
4. Lack of well trained bankers to study investment opportunities and to evaluate the feasibility studies.

Additionally, some bankers pointed out that the net return from securities investments is less than saving deposits interest rates. Accordingly, they expected that the securities market will remain inactive for a long time. Also, they mentioned the lack of sufficient published data regarding the new companies financial position which is required to help banks in taking their investment decisions. A few bankers stated that the private sector was against bank's equity finance and they ask only for loans.

Finally, it was obvious from the interviews that JVB were engaged with investment operations just to show or to prove that they are financing the

state development plans. In spite of the limited number of projects which were financed through equity, the majority of these projects were new joint venture industrial projects or major multinational companies.

7.8. Planning Banks' Operations

The JVBs' ability to set up long term plans and targets for their operations were very limited for the following reasons:

1. The frequent changes in economic decisions and CBE regulations made it difficult for banks to achieve their objectives and targets. With every change they have to modify their plans. Banks succeeded only in constructing short term plans in quarterly bases.

Some bankers complained about the CBE written regulations and instructions interpretation. The wording of these regulations can be interpreted in many different ways by more than one banker, thus making it difficult to apply such regulations without consulting the CBE officials to have the correct interpretation. This problem caused confusion and complicated their planning process.³³

2. Since the introduction of the new credit control regulations banks found it difficult to manage their credit targets because they have to apply the credit ceiling percentage and the credit expansion instructions.

Three out of the eight commercial banks, all joint venture with American banks, and one investment bank out of the three interviewed banks (this bank is joint venture with an English bank) were using their foreign partners' advanced methods and systems to set up their plans. Despite the advantage of using such systems they complained that these methods were not helpful in the local

market because of the regulatory framework instability.

On the other hand, small banks used very primitive methods to construct their plans and targets such as expected annual growth rate. They predicted their services according to their past years performance.

- Planning Deposits Operations

Seven out of the eight commercial banks and one out of the three interviewed investment banks mentioned that they had targets for their deposit accounts. Generally, it was evident that all the JVB have been trying hard to increase their deposit base for the following reasons:

1. To confront the severe competition in the local market and to raise their funds.
2. To be able to allocate more funds as loans because of the credit ceiling and credit expansion instructions.
3. Loan oriented commercial banks specially those exceeded the credit ceiling percentage have to increase their deposits to change their policy from depending on due to banks to depend only on their deposits to finance loans.

Joint venture banks do not use any sophisticated statistical techniques to estimate their deposit targets. They used elementary parameters such as a) expected annual growth rate for banks' operations, b) expected changes in interest rates, c) historical analysis for deposits trend and d) expected changes in the economic policies.

One important result is that all the JVB are willing to accept deposits even if the supply increases more than their planned maximum targets. Banks can accept FC deposits without any limit as long as they can place these funds

with their correspondents outside Egypt. As for deposits in LC JVCB remarked that they are obliged to accept all LC deposits supply although they are fairly liquid and have difficulties making their LC liquidity as found earlier in this chapter. Only two commercial banks mentioned that they would not accept LC deposits more than their maximum targets.

- Planning Loans Portfolio:

It was obvious from the interviews that by the end of the study period all the commercial banks loans portfolio targets depended entirely on the CBE credit regulations and the only way to increase their loans levels was through raising their deposits levels.

It was observed from the interviews that only a few banks had a firm policy for their loans activities. These banks set up their credit policy using criteria such as a) expected deposits volume, b) monthly credit analysis for loans portfolio, c) loans expected annual growth rate and d) the CBE credit control regulations.

Although investment banks were not applying the CBE credit regulations, most of the interviewed loan managers stated that it was difficult to lend more than their targets except bank (No.1) which pointed out that it can exceed its loans maximum target level by 10% only.

7.9. The Analysis Findings

The object of this section is to illustrate the in-depth interviews analysis major findings. Firstly, it will consider the important variables which discriminate between large and small commercial banks' success. Secondly, it will assess the JVIB success in introducing investment banks operations. Thirdly, it will evaluate the JVB success in achieving their objectives which stated earlier in this chapter and it will describe the problems and obstacles

which impede their progress in the Egyptian financial market.

7.9.1. Commercial Banks' Operations Findings

It is evident that there is a difference between small and large commercial banks' operations management.

The following are the most important variables which discriminate between small and large banks' operations management and which are the direct reasons for large banks success:

1. Diversified Assets and Liability Portfolios:

Large banks through their branches managed to mobilize savings and to diversify their sources of funds and hence, asset portfolio. They managed to adjust their portfolios to accommodate the frequent changes in economic decisions and the CBE regulations, especially the recent changes in credit control regulations.

In contrast, small banks, with their limited number of branches, found it difficult to diversify their portfolios especially when the credit ceiling was introduced by the end of 1981. The credit ceiling forced loan oriented banks, especially banks (Nos.4,6), to stop allocating funds as loans. As a result, they achieved negative growth rate in total assets in 1982 and very low ROE in 1982 (bank (No.5) ROE was 0.661%).

2. Branches Expansion

Successful banks were more oriented to concentrate on branches expansion as an important strategic policy for their growth [see the following table (7.9)]. Their object was to benefit from the first five years tax holiday advantage and to cover all the new branches' expenses from their profits. These banks were very clever because they focused on expansion plans to establish their name

and to increase their share in the market, particularly in their early years of life, rather than focusing on getting back their paid up capital and to achieve high profitability levels. They opened a considerable number of branches, which covered the main geographical areas in Cairo and Alexandria. They used these branches to promote for their services, to meet the increasing demand for the ODP new banks services and to be prepared for the expected severe competition between banks in the local market. Large banks have also very ambitious plans for branches expansion in the future.

TABLE (7.9)

Commercial Banks Sample Important Indicators

Bank Code Number	Total Assets In 1982 LE Millions	Bank's* Size	Total Assets Average Annual Growth Rate %	Average ROE %	Number of Branches	
					By the end of 1982	Expected No. by the end of 1984
1	561	large	39.4	45.9	9	12
2	540	large	46.5	48.6	6	9
3	381	large	49.9	51.8	9	14
4	194	small	59.9	43.1	2	3
5	141	small	43.5	18.2	4	7
6	78	small	-3.4	27.1	1	2
7	237	large	27.7!	52.6	1	6
8	64	small	50.2	22.2	2	3

* Large Banks total assets > LE 200 millions.

* Small banks total assets < LE 200 millions.

! This is the actual growth rate between 1981 - 1982.

In contrast, most of the small banks were oriented to have a limited number of branches. Their foreign partners were mainly oriented to achieve high profits in short period.

3. Financing Term And Syndicated Loans

Large banks started to allocate a low proportion of their funds as medium term loans and introduced for the first time in the local market syndicated loans.

Small banks principally were more oriented to participate in financing syndicated loans according to the invitation of the lead banks and two of them were only involved in financing short term loans (Nos.5,6).

Additionally, it was observed from the interviews that large banks had large credit departments and well trained credit officers to conduct credit analysis study for term loans.

4. Investments Operations

Despite the fact that all the commercial banks allocated a low proportion of their funds as investments, large banks started recently to finance projects' equity in addition to government bonds. Conversely, small banks only purchased government bonds and two banks (No.5,6) did not carry out any investments operations.

5. Interest Rate for FC Demand Deposits

To cope with the hard competition, small banks gave their clients interest rates for their FC demand deposits with specific average balance during each month. Large banks used interest rates as a special service for their important clients with large deposit volumes.

6. Total Size Growth and Profitability

Large banks achieved higher total assets average annual growth rates and average ROE rates than the small banks, [see above table (7.9)] except bank (No.4) which achieved also high average growth rate, but in 1982 the bank achieved negative growth rates in total assets.³⁴ Also, bank (No.4) was dependent on due to banks as its main source of funds and was seriously affected by the credit ceiling regulations.

7. Using Marketing Approach

Marketing approach and personal contact were important policies for large banks to attract both borrowers and depositors. Small banks used personal contact and the service oriented approaches.

8. Using A Computer System

The computer system enabled all the large sample banks to develop their internal management system, to plan for fully automated branches and to render quick and good services for their clients. It was detected that the use of a computer system was essential for a large bank with a branch network, especially in terms of the future when they can connect all their branches with the head office central computer. None of the small banks used a computer system and only one bank planned to introduce it in 1983.

9. Using Advanced Operational Systems and Manuals

Successful large commercial banks, particularly joint ventures with American banks, introduced their foreign partners' advanced manuals and operational systems which increased their decision making efficiency and performance. Small banks, except bank (No.5), depended on their public sector partner management systems.

10. Introducing New Services

Large banks offered their clients a variety of new services such as:

- Acting as guarantor for issuing credit cards.
- Helping borrowers to conduct feasibility studies.
- Safe Boxes and night safes.
- Investment Trustee and information services.

- Arranging for conferences and seminars locally and abroad to promote and invite foreign investors to invest their funds in the Egyptian market.

In conclusion, large banks were more oriented to achieve high asset growth rates and to sustain their profitability at reasonable levels during the study period. However, their main target was to increase their branches network.

Because LC operations interest rates are fixed, large banks realized that the best way to beat the expected hard competition is to offer better services. Better services could be interpreted as a branch near at hand. Branch expansion policy was very successful in mobilizing more savings and diversifying their liabilities composition.

On the other hand, small banks were more oriented to have limited number of branches, concentrated on financing international trade, and were seriously affected with the credit ceiling percentage. The reason was that they found it very difficult to change their policy from being 'due to banks' oriented to depend on deposits as they were not able with their limited number of branches to raise funds or to increase their deposit base.

The accounting data analysis for JVCB showed that profitability was much related with bank's size growth. The questionnaires analysis results also showed that successful large banks concentrated on banks' growth in size and branches expansion and achieved average ROE higher than the other sample banks.

In addition, it is important to point out that profitability was not the only important target for commercial banks success, but growth in total size, branches expansion and increasing their deposits base were the most important policies in a new market where severe competition exists.

7.9.2. Investment Banks' Operations Remarks

The previous analysis suggested the fact that there was not much difference between commercial and investment banks operations except one investment bank (No.4) which was genuinely oriented to perform investment banks' operations.

It was found that JVIB were carrying out the same operations as the commercial banks specially financing international trade and short term loans.

It is evident that these banks did not succeed in introducing the international merchant and investment banks' operations to the Egyptian financial system such as:

- Acting as corporate financial adviser in the field of, long term finance, mergers and take-overs.
- Mobilizing long term sources of funds except bank (No.4) which issued floating rate deposit certificates in dollars and managed to obtain long term loans from international financial institutions to finance productive projects.
- Instalment credit and leasing which are important types of medium term finance could fit the small private sector industrial projects.³⁵
- Issuing bonds to mobilize medium and long term sources of finance and to increase the listed securities in the stock market.
- Raising the required capital for public and private sector companies by acting as underwriters for public subscription issues.

- The management and promotion of acquisitions and mergers for Egyptian corporations.

The above mentioned operations could be very useful for private business projects and might activate the securities market.

It is worth noting that, the findings regarding investment banks operations are consistent with Foda's (1982) survey which covered most of the banking system sectors. He concluded that:

Apart from two to three investment banks organized according to law 43, the team did not detect much difference between commercial banks and investment banks organized according to law 43. If all banks established under law 43 are pooled together, perhaps one, at the most two, institutions will stand out as being primarily investment oriented.³⁶

On the other hand, investment banks succeeded in financing international trade and introduced, along with JVCB, new operations such as financing syndicated loans which became known in Egypt after the ODP.

7.9.3. General Assessment

There is no doubt that the JVB played a significant role in developing the Egyptian banking industry. They succeeded in achieving some of their objectives such as mobilizing savings in both LC and FC, financing international trade, financing syndicated loans and improving the services which were offered to the Egyptian customers.

In addition, large banks and some investment banks gradually started to develop their policies and to modify their operations according to the market needs. Some banks issued deposit certificates and others started recently to finance projects' equity. Also, they increased the degree of competition between banks for the client's interest.

On the other hand, JVB were mainly oriented to serve a special

selective type of client and most of their operations were confined to finance short term loans. Moreover, they did not succeed in attracting foreign funds from outside Egypt and they placed most of their FC funds with foreign banks abroad. In addition, they introduced very limited new services and operations to the local market and did not succeed to mobilize long term maturity deposits.

There are a number of constraints and obstacles which restrain banks' ability to achieve such operations. The following are the most important obstacles:

1. Environmental Constraints

A. Political and economic instability restricted banks from committing themselves to long term operations. They were very cautious about granting term loans or financing projects' equity because of the frequent changes in economic lows and decisions.

B. The lack of adequate infrastructure, especially the communication system, prevented banks from introducing advanced technology such as connecting all their branches with one computer system to introduce the autoteller services.

C. The FES had a serious impact on banks' operations and created foreign exchange risk which restricted them from granting FC loans in the local market and encouraged them to place these funds abroad.

2. Regulations Constraints

The frequent changes of the regulations which govern the banking system industry restricted their ability to set long term plans, and hence, to commit themselves to finance long term operations. Also, the local debtor interest

rates discouraged banks from financing medium and long term operations. The new credit control regulations, particularly credit ceiling, were found to be the most important constraint which restricted banks from granting loans and increased banks' LC liquidity.

3. Market And Cultural Constraints

The JVB ability to introduce new operations and services were restricted by the nature of the financial system and banks' clients behaviour.

1. Banks found it difficult to introduce new services such as cheque and credit cards. According to the Egyptian customers habits, cheques are not accepted as a means of payment.
2. Because there is no orderly money market for LC funds banks found it difficult to manage their LC funds liquidity.
3. Lack of well suited or packaged projects which could encourage banks to grant term loans.
4. Most of the deposits which were supplied to the banks were of short term maturity and it was difficult to allocate these funds as term loans.
5. The lack of activity in the stock exchange prevented banks from allocating funds to investment operations.

It is hoped that the linear programming model, in chapter eight, will be able to explain more about their operations behaviour.

References

1. See Appendix "D" for the study's questionnaires which were used to carry out the in-depth interviews.
2. For more detailed discussion concerning using the same analytical method see Angela M. Bowey, *et al.*, "Effects of Incentive Payment Systems: United Kingdom, (1977-1980)", Department of Employment, Research Paper No. 36, London, 1982, pp. 15-28.
3. Ingram, p. 26.
4. It was understood from the bank's general manager that the bank was planning to offer all its shares for public subscription, but the CBE forced them to accept two public sector banks as founders as a condition to obtain permission to establish the bank.
5. Bank (No. 7) share nominal value is \$20, while the share market value reached \$35 by the end of 1982.
6. See appendix "B₂" for JVCB classification into small and large banks according to their total assets size in 1982 and number of branches.
7. The bank has its own training program for credit offers. This program is available for all the Egyptian banks' credit officers.
8. See above table (6.6), p. 152.
9. See above table (6.9), p. 160.
10. See above table (6.7), p. 154.
11. See appendix "B".
12. It is important to note that the recent credit interest rates differentiate between sectors, see table (3.2) p. 78.
13. The margin sometimes is 1% below the LIBOR for saving deposits in FC.
14. The only exception is that balances more than LE 500,000 can obtain 5% interest rate according to each bank internal policy.
15. Chase National Bank (Egypt), Annual Report, 1976, p. 7.
16. Egyptian American Bank, Annual Report, 1981, p. 5.
17. National Bank of Egypt is one of the largest public sector banks in Egypt. The bank's deposit certificate net sales increased from LE 95.6 millions in 1970 to LE 1385.0 millions by the end of 1982.
18. Misr Iran Development Bank, Annual Report, 1980, p. 13.
19. In Egypt, there is only one public sector bank (Misr Bank) which introduced the autoteller service in two branches only by the end of 1983.
20. Egyptian American Bank, Annual Report, 1982, p. 4.

21. Egyptian American Bank, Annual Report, 1980, p. 6.
22. Misr America International Bank, Annual Report, 1981, p. 6.
23. Foda, p. 9.
24. Ingram, p. 28.
25. Misr America International Bank, Annual Report, 1981, p. 6.
26. Foda, p. 49.
27. See above credit control regulations, chapter 3.
28. Before introducing the credit ceiling percentage loan oriented banks depended on interbank balances (due to banks in FC) to finance imports.
29. Foda, P. 48.
30. See above the investments (securities + equity investments)/Total assets ratio tables (6.4) and (6.9).
31. Chase National Bank (Egypt), Annual Report, 1981, p. 2.
32. Although it was difficult to interview bank (no. 4) managers, its general performance was investigated through the content analysis for its annual reports.
33. It is important to mention that we have been through the same experience while doing this research and in many cases it was referred back to bankers to obtain the correct interpretation.
34. Commercial bank (No. 4) total assets decreased from LE 262 millions in 1981 to LE 194 millions in 1982. (Negative growth rate - 26%)
35. It is worth noting that investment bank (No. 4) was the first bank in Egypt to plan to introduce leasing finance as mentioned in its annual report (1982).
36. Foda, p. 49.

CHAPTER 8
A LINEAR PROGRAMMING MODEL FOR
JOINT VENTURE COMMERCIAL BANKS' OPERATIONS

Introduction

The object of this chapter is to construct a linear programming model for JVCB operations in order to explain their decision behaviour. The model will take into account the following aspects:

1. The regulations which govern their operations as introduced in part one.
2. The review of literature regarding the theory of the banking firm and the research design explained earlier in part two.
3. The accounting data analysis results introduced in chapter six.
4. The findings from the in-depth interviews discussed in chapter seven where all the JVCB operations and the constraints which restrict their activities were investigated.

This chapter is divided into the following sections. Section one displays the model objectives. Section two considers the JVCB model decision variables. Section three explains the model objective function. In Section four the model constraints and objective function coefficients are described. Section five presents the model solution and results. Section six relaxes and tightens up the model constraints and the LC operations objective function coefficients using sensitivity analysis. Section seven evaluates the model to test the agreement between the model behaviour and banks actual decision behaviour. Finally, section eight details the analysis conclusions.

8.1. The Objectives of The Model¹

The object is to construct an explanatory LP model to simulate and to explain the way the JVCB selected their portfolios and to justify their attitude towards placing FC deposits with other banks especially overseas banks.

The model solution is considered as the expected optimal behaviour from a rational bank given the model constraints, the objective function coefficients, and the financial system in which the bank operates.

The model optimal portfolio will be compared with the actual portfolio to test the model validity according to data availability. Also, it will test and explain the assumption that JVCB which deal in both LC and FC are more profitable than JVIB which deal in FC only.

It is hoped that the model can be used to predict how banks would respond to changes in the economic and regulatory environment.

Finally, the results from the model, together with those from the analysis will provide answers to the questions posed in the study objectives detailed in the introduction.

-The Limitations of The Model

The model presented in this chapter reflects the regulations which govern the JVCB operations at the end of the study period. Also, the model does not deal with the decision variables maturities although this aspect is very important for the bank's planning process.

The actual supply function for demand, time and saving deposits is not modelled in detail and a fixed ratio between time and saving deposits and demand deposits is used.

8.2. The Decision Variables

The asset and liability decision variables used to construct the model are displayed in the following tables (8.1) and (8.2). These tables also show the return and cost associated with each asset and liability categories. The (X_1, X_2, \dots, X_9) represent asset items and $(X_{10}, X_{11}, \dots, X_{17})$ represent liability items.

TABLE (8.1)
Asset Decision Variables

x_i	Asset Variables		Return r_i	Cost c_i
x_1	Vault Cash	LC	$r_1 = 0$	$c_1 = 0$
x_2	Vault Cash	FC	$r_2 = 0$	$c_2 = 0$
x_3	Reserves with CBE	LC	$r_3 = 0$	$c_3 = 0$
x_4	Deposits with CBE	FC	$r_4 \geq 0$	$c_4 \geq 0$
x_5	Due from Banks	LC	$r_5 = 0$	$c_5 = 0$
x_6	Due from Banks	FC	$r_6 \geq 0$	$c_6 \geq 0$
x_7	Total Loans in	LC	$r_7 \geq 0$	$c_7 \geq 0$
x_8	Total Loans in	FC	$r_8 \geq 0$	$c_8 \geq 0$
x_9	Fixed and Other Assets	(LC & FC)	$r_9 = 0$	$c_9 = 0$

LC = Local Currency (LE)

FC = Foreign Currency

TABLE (8.2)
Liability Decision Variables

x_i	Liability Variables		Return r_i	Cost c_i
x_{10}	Equity (Capital + Reserves) (LC & FC)		$r_{10} = 0$	$c_{10} = 0$
x_{11}	Due to Banks	LC	$r_{11} = 0$	$c_{11} = 0$
x_{12}	Due to Banks	FC	$r_{12} \geq 0$	$c_{12} \geq 0$
x_{13}	Demand Deposits	LC	$r_{13} = 0$	$c_{13} = 0$
x_{14}	Demand Deposits	FC	$r_{14} = 0$	$c_{14} = 0$
x_{15}	Time and Saving Deposits	LC	$r_{15} \geq 0$	$c_{15} \geq 0$
x_{16}	Time and Saving Deposits	FC	$r_{16} \geq 0$	$c_{16} \geq 0$
x_{17}	Other Liabilities	(LC & FC)	$r_{17} = 0$	$c_{17} = 0$

The X_i represents Egyptian pound quantities for LC items and the LE equivalent of dollar quantities for FC items. The assets and liabilities decision variables are those related directly to the constraints and the operations incorporated into the model.

The investment variable (securities and equity investment) is not included as it is found from the accounting data analysis that this variable is not important to JVCB operations.

8.3. The Objective Function

The model's objective function is profit maximization.

$$\text{Maximize } \Pi = \sum_{i=1}^9 X_i (r_i - c_i) - \sum_{i=10}^{17} X_i (r_i + c_i)$$

where,

Π = Net profits (absolute value).

$\sum_{i=1}^9 X_i (r_i - c_i)$ = total net return on asset portfolio.

$\sum_{i=10}^{17} X_i (r_i + c_i)$ = total net cost of liability portfolio.

r_i = interest received for each asset item and
paid for each liability item.

c_i = cost of serving each asset or liability.

Costs in the model represent administrative costs and overheads paid to serve each decision variable. Costs are allocated for earning assets and liabilities only.

8.4. The Model's Constraints

This section describes the model's constraints applied throughout the investigation. The model involved only the quantitative constraints which restrict the bank's operations. There are a number of constraints which restrict the bank's ability to select asset and liability composition. The model contains the following three classes of restrictions:-

1. Regulatory constraints.
2. Internal policy and operational constraints.
3. Market constraints.

8.4.1. Regulatory Constraints

This part includes the regulations which govern JVCB operations as illustrated in chapter three and as investigated in the interviews.

The following are the important regulations which bind JVCB operations.

1. Required cash reserve with CBE for LC deposits.
2. Required deposits with CBE in FC.
3. Liquidity ratio.
4. Credit ceiling constraint.

-Required Cash Reserve With CBE for LE Deposits

All commercial banks operating in Egypt are required to place 25% of their total deposits in LC with CBE free of interest.

The constraint is:

$$X_3 \geq R_1 (X_{13} + X_{15})$$

where,

X_3 = Reserves with CBE in LC

X_{13} = Demand deposits in LC

X_{15} = Time and saving deposits in LC

R_1 = The required reserve percentage = (.25)

-Required Deposits With CBE in FC

At present, all banks operating in Egypt which deal in FC, including investment banks, are required to deposit, in \$, with the CBE 15% of their total FC deposits. The deposits earn rates offered on 3 month LIBOR.²

The constraint is

$$X_4 \geq R_2 (X_{14} + X_{16})$$

where,

X_4 = required deposits with CBE in FC

X_{14} = Demand deposits in FC

X_{16} = Time and saving deposits in FC

R_2 = the required deposits percentage = (.15)

-Liquidity Ratio

All commercial banks are required to maintain a liquidity ratio not less than 30%.

This constraint is:

$$\frac{X_1 + X_2 + X_3 + X_4 + X_5 + X_6}{X_{11} + X_{12} + X_{13} + X_{14} + X_{15} + X_{16}} \geq R_3$$

where,

X_1 = Vault cash in LC

X_2 = Vault cash in FC

X_3 = Reserves with CBE LC

X_4 = Deposits with CBE FC

X_5 = Due from banks LC

X_6 = Due from banks FC

X_{11} = Due to banks LC

X_{12} = Due to banks FC

X_{13} = Demand deposits LC

X_{14} = Demand deposits FC

X_{15} = Time and saving deposits LC

X_{16} = Time and saving deposits FC

R_3 = The liquidity ratio required by the CBE = (0.30)

-Credit Ceiling Constraints

It was found from the interviews with the JVCB loan managers that the credit ceiling percentage (0.65) and credit control regulations were the most important constraints on banks' operations. Also, it was clear from the accounting data analysis that the credit ceiling had a serious impact on their portfolio structure in 1982, especially for loan oriented banks which depended heavily on due to banks.

The credit ceiling constraint in the model will reflect the recent changes in the credit regulations that had been applied to all banks.³ To simplify the model, the credit expansion limits for the commercial and family sectors were ignored because it was difficult to breakdown the loan portfolio into sectors or even according to maturity as the interest rates structure does not differentiate between loans of different maturities.

Thus, the credit ceiling constraint is:

$$X_7 + X_8 \leq R_4 (X_{13} + X_{14} + X_{15} + X_{16})$$

where,

X_7 = Total loans in LC

X_8 = Total loans in FC

X_{13} = Demand deposits in LC

X_{14} = Demand deposits in FC

X_{15} = Time and saving deposits in LC

X_{16} = Time and saving deposits in FC

R_4 = The credit ceiling percentage = (.65)

8.4.2. Internal Policy and Operational Constraints

This group of constraints reflects banks' internal policy regarding setting up the required vault cash or interbank balances in addition to other operational ratios which show the relationship between balance sheet items and total assets.

The following are the internal policy and operational constraints:

- Vault cash in LC.
- Vault cash in FC.
- Assets and liabilities in LC constraint.
- Assets and Liabilities in FC constraint.
- Interbank balances in LC constraint.
- Fixed and other assets and other liabilities constraints.
- Equity constraints.
- Balance sheet constraint.

-Vault Cash in LC

The bank has to hold vault cash to meet its daily business needs such as the withdrawal of deposits. Banks allocate vault cash as a certain proportion of their deposits.

This constraint is:

$$X_1 \geq P_1 X_{13} + P_2 X_{15}$$

where,

X_1 = Vault cash in LC

X_{13} = Demand deposits in LC

X_{15} = Time and saving deposits in LC

P_1 = the required proportion of vault cash to demand deposits.

It is the actual ratio for each bank according to its internal policy.

This ratio was chosen to be 2% as an example to run the model.

P_2 = the proportion of vault cash to time and saving deposits.

It is also the actual ratio for each bank according to its

internal policy. In the model this ratio was set at 1%.

Notice that $P_1 > P_2$ as the required vault cash for demand deposits is certainly higher than the required vault cash to meet time and saving deposits fluctuations.

-Vault Cash In FC

This constraint is the same as the previous one, but for FC deposits. The same proportion (P_1 and P_2) as for vault cash in LC was used.

Thus, the constraint is:

$$X_2 \geq P_1 X_{14} + P_2 X_{16}$$

where,

X_2 = Vault cash in FC

X_{14} = Demand deposits in FC

X_{16} = Time and saving deposits in FC

-Assets and Liabilities in LC Constraint

Because the JVCB deal in both LC and FC the total funds allocated as assets in LC should be equal to or greater than the liabilities counterpart which used to generate LC asset portfolio.

The constraint is:

$$X_1 + X_3 + X_5 + X_7 \geq X_{11} + X_{13} + X_{15}$$

where,

X_1 = Vault cash in LC

X_3 = Reserves with CBE in LC

X_5 = Due from bank in LC

X_7 = Total loans in LC

X_{11} = Due to banks in LC

X_{13} = Demand deposits in LC

X_{15} = Time and saving deposits in LC

-Asset and Liabilities in FC Constraint

This constraint is the same as the previous one. The total assets in FC must be equal to or greater than FC liabilities.

$$X_2 + X_4 + X_6 + X_8 \geq X_{12} + X_{14} + X_{16}$$

where,

X_2 = Vault cash in FC

X_4 = Deposits with CBE in FC

X_6 = Due from banks in FC

X_8 = Total loans in FC

X_{12} = Due to banks in FC

X_{14} = Demand deposits in FC

X_{16} = Time and saving deposits in FC

-Interbank Balances in LC Constraint

It was found from the interviews that there is no money market for local currency liquid assets and there is no active interbank market in Egyptian pounds. Thus, banks hold interbank balances (due to banks in LC, and due from banks in LC) for payments, cheque clearing and services between banks, but there is no interest received or paid on these interbank balances. As Foda (1982) stated that "The Central Bank of Egypt's discount rate plays no role in the Interbank market".⁴

The constraint is:

$$X_5 = X_{11}$$

where,

$$X_5 = \text{Due from banks LC}$$

$$X_{11} = \text{Due to banks LC}$$

It is important to note that loan oriented banks used mainly interbank balances in FC to finance international trade. Besides, at the end of the study period banks were not allowed to allocate interbank balances as loans and most of the interviewed banks were facing serious problems regarding managing their liquid assets in LC.

-Fixed And Other Assets, And Other Liabilities Constraints

These two items are not related to the bank's portfolio selection and are balancing items.

Fixed and other assets: represent the bank's premises and other fixed assets. Also, it includes the end of period other assets such as: repaid expenses, income earned but not collected, and accrued interest receivable.

Other liabilities include items such as: repaid income and accrued interest payable.

In the model both items are estimated as a proportion of the bank's total assets or liabilities.⁵

Fixed and total assets constraint is:

$$X_9 = P_3 \sum_{i=10}^{17} X_i$$

where,

X_9 = fixed and other assets

$\sum_{i=10}^{17} X_i$ = total liabilities

P_3 , is the actual proportion of fixed and other assets to total liabilities for each bank. This proportion was chosen as 4% as an example to solve the model.

Other liabilities constraint is:

$$X_{17} = P_4 \sum_{i=1}^9 X_i$$

where,

X_{17} = Other liabilities

$\sum_{i=1}^9 X_i$ = Total assets

P_4 , is the actual proportion of other liabilities to total assets.

P_4 = 7% to solve the model.

-Equity Constraints (Paid Up Capital and Reserves)

Equity in the model plays an important role in reflecting the bank's total size. The model is classified under the complete models group constructed to select optimal asset and liability composition. All the assets and liabilities decision

variables are to be selected. So, it was assumed that at the beginning of the model period the bank will start with a specific amount of capital (which represents the actual amount of equity accounts for each bank).⁶ Also, equity was set as a fixed proportion of total assets.⁷ The more the bank grows in size the more the bank will increase its equity.

The other alternative was to relate equity to risky assets (mainly total loans in LC and FC in the model) as measure for risk. Beazer (1975) remarked that: "The risk asset ratio requirement calls for the bank to hold capital equal to some fraction of its risk asset holdings".⁸ But, it was found from chapter seven that the risk concept is not recognized by JVCB and it is only associated with the credit analysis study required for each client's loan application. Further, it was found that bankers take care of risk by allocating legal and general reserve as a certain proportion of net profits at the end of each financial year. Thus, there is no such relationship between the bank's risky assets and equity and there are no regulations regarding capital adequacy. So, equity could not be related to risky assets and instead it was related to the bank's total assets.

There are two constraints:

$$X_{10} = M \quad , \text{ and}$$

$$X_{10} = P_5 \sum_{i=1}^9 X_i$$

where,

X_{10} = equity accounts.

$\sum_{i=1}^9 X_i$ = total assets

M = the equity constant value at the start of the period,
it was set $M = \text{LE } 5,000$ thousands to run the LP model.

P_5 = the bank's actual proportion of equity to total assets.

In this case it was set as 7% to solve the model.

-The Balance Sheet Constraint

This constraint reflects the fact that total assets equal to total liabilities.

Thus, the constraint is:

$$\sum_{i=1}^9 X_i = \sum_{i=10}^{17} X_i$$

where,

$$\sum_{i=1}^9 X_i = \text{total assets} \quad \text{and,}$$

$$\sum_{i=10}^{17} X_i = \text{total liabilities}$$

8.4.3. Market Constraints

These constraints reflect the market impact on the supply of bank's resources (mainly deposits accounts supplied to the bank). There are two constraints:

-The Ratio of Time and Saving Deposits to Demand Deposits In LC Constraint

This constraint represents the supply of deposits accounts (demand deposits, and time and saving deposits) to the bank. For each bank there is a specific ratio between time and saving deposits and demand deposits. Usually, time and saving deposits volume is greater than demand deposits volume.

The constraint is:

$$X_{15} \geq D_1 X_{13}$$

where,

X_{15} = Time and saving deposits in LC

X_{13} = Demand deposits in LC

D_1 = The ratio for X_{15} : X_{13} , was chosen as $(2 : 1)^9$ to solve the model.

It was assumed that the supply of X_{15} is two times the supply of X_{13}

$$D_1 = (2)$$

-The Ratio of Time and Saving Deposits to Demand Deposits in FC Constraint

This constraint is the same as the previous one for FC deposits accounts supply.

$$X_{16} \geq D_2 X_{14}$$

where,

X_{16} = Time and saving deposits in FC.

X_{14} = Demand deposits in FC.

D_2 = The ratio for $X_{16} : X_{14}$ was chosen as $(6 : 1)^{10}$ to run the model.

It was assumed that the supply of X_{16} is six times the supply of X_{14} , because it was found that most of the bank's clients deposits in FC were in time and saving deposits in order to benefit from the high interest rates.

$$D_2 = 6$$

8.4.4. The Objective Function Coefficients

Decision variables in LC: Deposits and loans in LC interest rates are fixed by the CBE.¹¹ Saving deposits in LC interest rate was chosen as the expected return for time and saving deposits (X_{15}) because the majority of the Egyptian savers deposit their LC funds as saving accounts. Another reason is that the interest rate paid for saving deposits is higher than interest rates paid for time deposits up to one year maturity.

The interest rates at the end of 1982 was chosen as a criterion to run the model. The interest rate for X_{15} ($r_{15} = 10\%$), and the average lending interest rates was chosen as objective function for loans in LC variable (X_7), ($r_7 = 14.5\%$).

Decision variables in FC: It was found from the interviews that banks were using London Inter Bank Offer Rate (LIBOR) as a base for setting up the

FC operations interest rates. The annual average euro-dollar 3 months deposits interest rate during 1982¹² was chosen as a base for bank's borrowings (due to banks) X_{12} , and $r_{12} = 13\%$, because most of the FC operations are in short term.

As for FC deposits, banks set the interest rate in between (1/16 : 1/4, maximum 1/2%) below the LIBOR (with different rates according to deposit volume and maturity). So, the interest rate paid for time and saving deposits in FC (X_{16}) is equal to ($r_{16} = 12.5\%$) after deducting the maximum margin below the LIBOR.

Banks determined the FC loans interest rates on the basis of a margin between (0.5% to 2.5%) over the LIBOR rate. The maximum margin was chosen to give banks the best return which could cover the risk involved in lending FC loans (X_8) in the local market.¹³ Thus, $r_8 = 15.5\%$.

Additionally, the bank will obtain, for placing FC with banks as due from banks in FC [X_6], interest rate slightly below the LIBOR (due to banks interest rate base) by 1/4%. Thus $r_6 = 12.75$ or 12.8% approximately.

It is important to note that banks receive interest rate for their placings outside Egypt (as due from banks in FC) higher than the interest rates they paid to their depositors. As found in the interviews, the existence of money market in FC enabled banks to accept all the FC deposits supplied to them as long as they can place these funds with other banks abroad and gain the difference between interest received from placings and interest paid for depositors.

As regards the required deposits with CBE in FC, banks mentioned that they received interest rates slightly below the interest rate which they can receive if they place these deposits in international markets as due from banks.

The range was in between (1/8% - 2/8%) below placing rates, therefore $r_4 = 12.6\%$.

To sum up, the following are the interest received and paid for the balance sheet items as used to obtain the model solution.

LC Variables

X_7	Loans in LC	$r_7 = 14.5\%$
X_{15}	Time and saving deposits in LC	$r_{15} = 10.0\%$

FC Variables

X_4	Deposits with CBE in FC	$r_4 = 12.6\%$
X_6	Due from banks in FC	$r_6 = 12.8\%$
X_8	Total loans in FC	$r_8 = 15.5\%$
X_{12}	Due to banks in FC	$r_{12} = 13.0\%$
X_{16}	Time and saving deposits in FC	$r_{16} = 12.5\%$

The spread between loans and deposits in FC is 3%, meanwhile the spread between the average lending and saving deposits interest rates in LC during the period from 1977 to 1982 was on average 5.0% approximately as illustrated in the following table (8.3). In 1982, the spread was only 4.5% because the average was computed using the maximum rate for industry sector and the minimum rate for commercial sector.

Cost of serving each variable (c_i) was allocated as $2\%^{14}$ for all the earning assets and liabilities as an example to run the model.

8.5. The Model Solution and Results

Using the model constraints and the objective function coefficients illustrated in figure (8.1) the model was solved by applying the LPEVAL¹⁵ computer programme.

Table (8.4) displays the model optimal solution results which can be summarized as follows:

1. As for the liability composition, the model selected time and saving deposits in LC as the most important source of funds for the bank (50.6%). Demand deposits in LC is the second important source of funds, and represents 25.3% of the total liabilities. The selected total deposits in FC represent only 10.1%, meanwhile, total deposits in LC equals 75.9%. Due to banks in both local and foreign currencies are not included in the liability portfolio.
2. In terms of assets , the model allocated a high proportion of funds as loans in LC 55.9% up to the credit ceiling limit. The portfolio does not include loans in FC. Most of the FC funds are allocated as due from banks (placings) in FC (18.5%).
3. In table (8.4), the interbank balances in LC are not included in the portfolio (X_5 and X_{11}) for the following reasons:
 - a. There is no money market for LC in Egypt and banks just hold these balances to adjust transactions between them.
 - b. Banks can not allocate due to banks funds as loans because of credit ceiling regulations. Further, due to banks in FC (X_{12}) is not included in the solution.
4. All the model constraints are binding on the banks'

TABLE (8.4)
Commercial Banks' Model Optimal Solution

x_i	Selected Asset Portfolio	Value LE1000's	%	Objective Function Coefficients $r_i - c_i$
x_1	Vault Cash in LC	723	1.0	0
x_2	Vault Cash in FC	83	0.1	0
x_3	Reserves with CBE in LC	13550	19.0	0
x_4	Deposits with CBE in FC	1084	1.5	+ .106
x_5	Due from Banks LC	0000	0.0	0
x_6	Due from Banks FC	13203	18.5	+ .108
x_7	Total Loans in LC	39929	55.9	+ .125
x_9	Fixed and Other Assets	2857	4.0	0
	Total Assets	71429	100.0	
	Selected Liability Portfolio	Value LE1000's	%	Objective Function Coefficients $r_i + c_i$
x_{10}	Equity	5000	7.0	0
x_{13}	Demand Deposits LC	18067	25.3	0
x_{14}	Demand Deposits FC	1032	1.4	0
x_{15}	Time and Saving Deposits LC	36135	50.6	- .120
x_{16}	Time and Saving Deposits FC	6195	8.7	- .145
x_{17}	Other Liabilities	5000	7.0	0
	Total Liabilities	71429	100.0	

Objective function value (Net profits) = LE 1,297,000

ROA = 1.8%
ROE = 26.0%

operations except the following two constraints:

- a. Liquidity ratio constraint: banks are fairly liquid as a result of introducing the credit ceiling percentage which restricted banks' ability to allocate funds as loans. Also, the required deposits in FC with the CBE increased banks' liquidity.
- b. Assets and liabilities in FC constraint: This constraint is not binding on banks' operations because FC decision variables play no significant role in the portfolio chosen by the model.

5. The programme output also provides the reduced costs ¹⁶ associated with each variable not in the optimal solution. The reduced cost for total loans in FC indicates the value which should be added to the FC loans interest rates (or objective function coefficient) before FC loans would be introduced to the asset portfolio. In the example, the bank must increase the objective function coefficient for FC loans by at least 1.359%.

The model solution suggested the following facts

1. Local currency operations (deposits and loans) are more profitable than FC operations.
2. Allocating funds as LC loans are more profitable than allocating funds as FC loans. This fact is consistent with

the interviews findings where it was found that allocating FC funds as loans in the local market was risky for the following main reasons:

- a. The foreign exchange risk experienced by both banks and investors.
 - b. Lack of good bankable projects with expected foreign currency income.
 - c. Political and economic instability.
 - d. The short term nature of banks' deposits in FC.
3. The best way to allocate the FC funds is placing these funds as due from banks outside Egypt. As it was found that JVCB will accept all the FC deposits supplied to them as long as they can place these funds with other banks. At the same time, they will grant loans in FC for good opportunities and projects with FC earnings as part of the services they offer to their clients.
4. The model solution does not include the due to banks in FC because banks can no longer allocate these funds as loans in FC.
5. The model also suggested that banks achieved higher liquidity levels than the CBE liquidity ratio (30%). The model solution liquidity ratio is 46.627%. Therefore, credit control regulations forced banks to be fairly liquid.
- The solution contains a very interesting result regarding the

computation of the credit ceiling percentage. Although banks are not allowed to allocate more than 65% of their deposits in both LC and FC as loans, the model showed that (loans LC/deposits LC) ratio is higher than the credit ceiling percentage (73.7%). The model did not allocate any funds as loans in FC and benefit from the existing of FC deposits value in the total deposit base when calculating the credit ceiling percentage 65%.

To illustrate this fact,

The credit ceiling in our example =

$$\begin{aligned}
 &= \frac{X_7 + X_8}{X_{13} + X_{14} + X_{15} + X_{16}} \times 100 \\
 &= \frac{39929}{18067 + 1032 + 36135 + 6195} = 65\%
 \end{aligned}$$

However, if this ratio was calculated for LC operations only =

$$\frac{X_7}{X_{13} + X_{15}} \times 100 = \frac{39929}{18067 + 36135} = 73.667\%$$

In addition to the optimal solution, the computer programme provides another two important results.

First, the programme produces the dual values (shadow prices) associated with each constraint right hand side (RHS) value for those constraints in the optimal solution. Dual values reflect the marginal values for any changes introduced to the model's constraints RHS. In our case, because all the model's constraints RHS values are zeros¹⁷ (except for equity constant value constraint) dual values have no useful interpretation as concluded by

Williams (1978) : "The right-hand side is zero. The shadow price predicts the effect of altering this zero value. It is hard to see a useful interpretation for this".¹⁸

The dual value associated with the equity constraint is .26 which reflects the fact that if the bank increases the equity by one Egyptian pound the profits will increase by LE 0.26 and the more the bank increases the equity value the more the chance to increase profits in absolute values.

Second, the programme output produces the objective function coefficients ranging which reflect the objective coefficients lower and upper limit ranges, where the objective function coefficients may be changed within this range without changing the model optimum solution. As for FC operations, banks set interest rates according to international markets rates. As regards LC operations, the interest rates are fixed by the CBE and they will be changed in order to see the effect on banks decision behaviour and to recommend possible changes to develop the LC interest rate structure.

8.6. Relaxing and Tightening the Model Constraints

In this section sensitivity analysis was used to test the impact of changing the model's important constraints on the optimal solution and to test the model stability. The following tests were carried out :

1. Relaxing and tightening the regulatory constraints.
2. Relaxing and tightening the equity and market constraints.
3. Relaxing and tightening the LC operations objective function coefficients.

The object was to use the model to predict expected portfolios if specific changes were introduced to the regulations which govern banks operations,

market constraints and LC interest rates. It is important to note that the changes which were introduced to relax and to tighten up the model constraints were not for the RHS, but were for the constraints ratios and percentages (hardness, ex: $P_1, P_2, \dots, P_5, D_1 \alpha D_2$) as the RHS values equal zeros.

Besides, a single change for one constraint at the time for each run was introduced without knowing exactly the permitted ranges because these ranges are associated with the RHS values which are zeros in this case.

8.6.1. Relaxing and Tightening the Regulatory Constraints

1. Credit Ceiling Constraint:

$$X_7 + X_8 \leq .65 (X_{13} + X_{14} + X_{15} + X_{16})$$

It was found that, if the credit ceiling percentage (65%) was relaxed to 67% for example, the bank will have the opportunity to allocate more funds as loans in LC, FC assets will decrease and profits will increase. The opposite will happen if the credit ceiling percentage was tightened for instance to 63%. It will restrict the bank's ability to allocate deposits as loans. However, loans volume will decrease, LC portfolio will shrink, FC assets will slightly increase and profits will decrease.

To sum up, the more the CBE restricts banks' ability to grant loans, the more banks' liquidity will increase, especially for LC operations. Because there is no money market in Egypt for LC, it will be difficult for banks to manage their liquidity and to achieve high profitability levels. Also, tightening the credit ceiling percentage would not encourage banks to allocate FC funds as loans and banks will continue to place a high proportion of their FC funds abroad as long as the foreign exchange risk exists.

Since the CBE would like banks to participate in financing long term

loans, particularly to agricultural and industrial sectors, and to restrict granting loans to commercial sector, the following solutions are suggested:

1. Funds allocated as term loans in FC could be excluded from total loans base when calculating the credit ceiling percentage. This could encourage banks to allocate more funds to productive sectors and to create new deposit instruments to mobilize long term savings in both LC and FC.
2. The CBE could change the LC lending interest rates to differentiate between loan maturities especially for long term loans in order to give banks good incentive to finance such projects.
3. The CBE could allow banks to use interbank medium and long term borrowing to finance term loans with a specific limit to prevent exposure for specific client or sector.
4. The credit ceiling percentage (65%) could be calculated separately for LC operations and FC operations. It was found that if the credit ceiling constraint was divided into two separate constraints for LC and FC loans, the model will select loans in both LC and FC. This solution might encourage banks to expand their FC loans instead of placing their funds with overseas banks.
5. Another alternative is to confine the credit ceiling to LC operations only and let banks free to use their FC funds as investment banks which deal in FC only.

Finally, the CBE could issue different credit ceiling percentages and instructions

for each individual bank to differentiate between banks' performance and their real participation in developing the Egyptian economy.

2. Required Reserves with the Central Bank of Egypt in LC Constraint:

$$X_3 \geq .25 (X_{13} + X_{15})$$

The 25% interest free reserve with the CBE in respect to the LC deposits was relaxed, for example to 23%, and very surprising results were observed. The model selected less LC deposits volume (while keeping LC loans volume constant) and increased the FC deposits volume.

The answer seems to be that, given the fixed equity base, the bank has a fixed balance sheet total. Given this balance sheet total, the credit ceiling fixes the amount of loans it will make (all in local currency because it is more profitable for banks). So local currency loans are fixed and when the 25% required reserve relaxed the bank will accept less LC deposits (and will maintain the same LC loans value) and will accept more FC deposits.

Additionally, banks will need to allocate less deposits with the CBE as reserve in LC ,however, they can reduce their deposit base in LC volume by the reduction resulted from relaxing the 25% and still they can use their new deposit base to allocate the same volume of loans in LC as before relaxing the constraint.

Relaxing the 25% required LC reserve will increase bank's profitability because cost will be reduced as a result of decreasing the volume of LC interest free reserve and FC deposits will increase thus enabling the bank to increase its return whether it places these funds with the CBE or with other banks as due from banks.

Conversely, if this constraint was tightened the opposite results would have been obtained. Banks will be forced to increase the required reserve with CBE in LC volume just to maintain the same level of loans in LC, to increase their deposit base in LC and to decrease deposits in FC. The bank's costs will increase and profits will decrease.

In general, relaxing the 25% required reserve in LC with CBE might increase the deposit base in FC, but these funds will be placed with other banks rather than allocated as loans in the local market.

3. Required Deposits with CBE in FC:

$$X_4 \geq .15 (X_{14} + X_{16})$$

It was found that relaxing and tightening up the 15% required deposits in FC with the CBE in respect to deposits in FC had no significant impact on the model optimal portfolio. If the 15% was relaxed, the bank would place less funds with the CBE and would increase placings with other banks. If the constraint was tightened, the profitability would decrease slightly.

The important result is that, relaxing the 15% required deposits with the CBE in FC would not give banks incentive to allocate their FC deposits as FC loans. Banks will continue to place a high proportion of their FC funds outside Egypt.

4. Liquidity Ratio:

The model showed that this constraint is not binding on banks' operations.

8.6.2. Relaxing and Tightening The Equity And Market Constraints

1. Equity Constraint:

$$X_{10} = 5000$$

As pointed out earlier that the dual value associated with this constraint represents the expected ROE. The RHS ranging for this constraint is (0.012 as lower limit and infinity as upper limit) . Thus, the more the bank increases the equity value the more the chance to increase the bank's profitability.

2. Market Constraints:

The object of relaxing and tightening market constraints is to find out the impact of changing the deposit accounts supplied to banks (demand, time and saving deposits) on the optimal solution.

-Deposit Supply In LC Constraint:

$$X_{15} \geq 2 X_{13}$$

Table (8.5) shows the time and saving deposits to demand deposits ratio for the JVPCB from 1978 to 1981. The ratio increased with time from (1.32 : 1) to (2.149 : 1).

If the model ratio is reduced from (2 : 1) to (1 : 1), the demand deposits volume will increase and time and saving deposits volume will decrease. The increase of demand deposits (interest free) will reduce costs and profitability will increase.

When this ratio was increased [for example to (3 : 1)] the following

TABLE (8.5)
Time and Saving Deposits* To Demand Deposits Ratio

	1978	1979	1980	1981
- <u>Joint Venture and Private</u> <u>Commercial Banks Sector</u>				
- Deposits in LC	1.132:1	1.023:1	1.692:1	2.149:1
- Deposits in FC	1.313:1	2.162:1	3.733:1	5.806:1
- <u>Investment and Business</u> <u>Banks Sector</u>				
- Deposits in LC	3.220:1	1.598:1	1.165:1	4.222:1
- Deposits in FC	3.088:1	5.693:1	6.094:1	9.175:1

Source: Computed from CBE, quoted in Foda, Exhibits 15, 18.

* Excluding other deposits.

interesting results were obtained.

1. Time and saving deposits increased as well as the cost of serving funds because banks are obliged to pay interest rates for this account.
2. The model portfolio changed and liabilities portfolio included only due to banks in LC and other liabilities. The asset portfolio included only due from banks in both LC and FC.
3. The surprising result is that the optimal portfolio does not include loans and deposits in both LC and FC. The reason perhaps may be that when the supply of time and saving deposits increased, costs increased and the model found it profitable to include only interbank balances especially in LC.

The ratio was reduced to (2.5 : 1) and a portfolio containing all variables except FC loans and interbank balances in LC was obtained. Time and saving deposits in LC increased, demand deposits in LC decreased and profitability declined.

-Deposit Supply in FC Constraint:

$$X_{16} \geq 6 X_{14}$$

A high proportion of the FC deposits supplied to commercial banks are time and saving deposits. This fact can be observed from the above table (8.5) where the ratio of time deposits to demand deposits increased from (1.313 : 1) in 1978 to (5.806 : 1) in 1981 for commercial bank, and reached (9.175 : 1) in

1981 for investment and business banks. Savers were mainly depositing FC with banks to benefit from the high interest rates as compared with the low interest rates for LC deposits.

In general, it was found that the more this ratio was relaxed (for example from [6 : 1] to [5 : 1], [4 : 1]) the more cheaply the bank will obtain its supply of FC deposits (demand deposits in FC interest free) and the more profitable the bank will be. Also, if this ratio is less than (4:1), bank's asset and liability portfolios will change from LC to FC. It is considered that the reason is that the cost of funds will decrease, because the FC demand deposits will increase, thus reducing the cost of raising funds and banks will obtain interest in respect to their deposits with CBE and profitability will increase.

Increasing the ratio from (6 : 1) to (7 : 1) or (9 : 1) would not make any significant change to the model portfolio except decreasing demand deposits in FC, increasing FC saving and time deposit and decreasing profits.

In general, it is better for the bank to reduce this ratio to obtain more foreign currency funds to reduce costs and to increase profitability.

So far, sensitivity analysis was used to predict expected changes if the important constraints were relaxed and tightened to test the model stability. Each time a single change was introduced to one constraint only below and above the constraint ratio or hardness without knowing exactly the permitted ranges¹⁹ as most of the RHS values are zeros.

To evaluate approximately the stability of the model, all the changes which produced an increase in the model's optimal solution, i.e. profitability, were introduced. By introducing all the desired changes at the same time the model was solved and the same decision variables were obtained. In conclusion, the model is stable against all the changes introduced; however,

due to a lack of constraints RHS ranging, these changes were chosen at random.

8.6.3. Relaxing And Tightening The LC Operations Objective Function

Coefficients

This section investigates the impact of changing the LC interest rate on banks' operations.

The LPEVAL programme output provides the objective function coefficients ranging²⁰ for each variable. If any single change within the range is introduced, the optimal solution variables and values will not change, but the model objective function value will change.²¹

The following table (8.6) illustrates deposits and loans in LC objective ranging and the objective function coefficients.

TABLE (8.6)

Local Currency Operations Objective Ranging

	Annual Average Interest Rate	Net Return or cost ($r_i \pm C_i$)	Objective Range	
			Lower Limit	Upper Limit
- Time and Saving deposits in LC	10.0%	-12.0%	-13.5%	-2.7%
- Loans in LC	14.5%	12.5%	11.2%	27.8%

-Changing the objective coefficient for LC deposits

It was found from chapter three that the low interest rates for LC deposits

encouraged Egyptian savers to shift their savings from Egyptian pound to dollar. Hence, the CBE must increase the LC deposit interest rates to enable banks to mobilize more FC deposits. The important question is, to what extent can the CBE increase the deposits interest rates?

Several tests were run to evaluate changes in the LC deposits objective function coefficients; the following results were obtained :

1. The interest rate for deposits can be increased up to the lower limit without changing the optimal solution. The possible increase in the example is 1.5%. Of course, the increase in LC deposits interest rate will reduce the bank's profitability.
2. Any increase out of the range will change the whole optimal portfolio. Asset and liability portfolios will include only interbank balances.

-Changing the objective coefficient for LC Loans

The LC loans objective ranging is (11.2% - 27.8%). The upper limit to some extent is open which gives the CBE the chance to increase the loans interest rates up to the upper limit(in our example is 27.8%) without changing the model optimal portfolios.

8.7. The Model Evaluation

The object of this section is to test the agreement between the model behaviour and the JVCB actual decision behaviour and to find out to what extent the model succeeded in simulating and explaining the way these banks choose their portfolios.

The tests used depended mainly on the available actual data and the

interviews findings. Detailed data was sought in order to compare the model optimal solution and the actual portfolios.

The following are three comparison studies carried out to evaluate the model. The first two studies depend on actual data. The third one compares the commercial banks model portfolio and investment banks expected operations behaviour to test the assumption that JVCB are more profitable than JVIB.

8.7.1. A Comparison Between One Of The Commercial Banks Actual Portfolio And The Model Solution

Data obtained from one of the sample banks for the 1982 balance sheet composition in LC and FC was used to run the model. The actual equity value and constraints actual ratios (P1,P2,P3,P4,P5) were used. In addition, the model objective function coefficients were used.

Table (8.7) compares the actual portfolio as a proportion of total assets²² and the expected optimal portfolio obtained by the model.

Liability Portfolio: The model selected deposits in LC as the most important source of funds (68.7% of the total liabilities) and chose a very small proportion of funds as deposits in FC (7.8%). Due to banks in LC and FC are not in the optimal solution. Meanwhile, the actual deposits portfolio includes 30.2% deposits in LC and 38.1% deposits in FC.²³

To a large extent, the two liabilities portfolios are the same. The only difference is that the actual volume of FC deposits is more than the actual volume of the LC deposits. This fact is opposite to the optimal deposit portfolio, where the model selected a deposits composition nearly all in LC because it is most profitable for the bank's uses.

Neither portfolio includes due to banks in LC and the actual

TABLE (8.7)
A Comparison Between One of the Commercial Banks Actual
Portfolio and the Model Optimal Solution

Commercial Banks Actual Portfolio	%	%	x_i	The Model Optimal Portfolio
Vault Cash LC	0.8	1.8	x_1	Vault Cash LC
Vault Cash FC	0.5	0.1	x_2	Vault Cash FC
Reserves with CBE LC	11.0	17.2	x_3	Reserves with CBE LC
Deposits with CBE FC	6.8	1.2	x_4	Deposits with CBE FC
Due from Banks LC	1.9	0.0	x_5	Due from Banks LC
Due from Banks FC	30.7	23.4	x_6	Due from Banks FC
Investments (G. Bonds)	0.3	-	-	-
T. Loans in LC	32.9	49.7	x_7	T. Loans in LC
T. Loans in FC	8.5	-	x_8	T. Loans in FC
Fixed and Other Assets	6.6	6.6	x_9	Fixed and Other Assets
Total Assets	100.0	100.0		Total Assets
Equity	16.5	16.5	x_{10}	Equity
Due to Banks LC	0.0	0.0	x_{11}	Due to Banks LC
Due to Banks FC	1.9	0.0	x_{12}	Due to Banks FC
Demand Deposits LC	13.8	31.4	x_{13}	Demand Deposits LC
Demand Deposits FC	4.2	0.9	x_{14}	Demand Deposits FC
Time & Saving Deposits LC	16.4	37.3	x_{15}	Time & Saving Deposits LC
Time & Saving Deposits FC	33.9	6.9	x_{16}	Time & Saving Deposits FC
Other Deposits (LC & FC)	6.3	-	-	-
Other Liabilities	7.0	7.0	x_{17}	Other Liabilities
Total Liabilities	100.0	100.0		Total Liabilities
ROA	4.5	3.4		ROA
ROE	26.9	20.6		ROE
(Loan/Deposit) Ratio*	60.6	65.0		(Loan/Deposit) Ratio
(LC Loans/LC Deposits) Ratio*	108.9	72.4		(Loans LC/Deposits LC) Ratio
(FC Loans/FC Deposits)*	22.3	-		-
Liquidity Ratio	67.6	57.09		Liquidity Ratio
Total Deposits*	68.3	76.5		Total Deposits

* Excluding other deposits.

portfolio includes a very low proportion of due to banks in FC (1.9% of total assets) as the bank can not allocate these funds as loans.

Asset Portfolio: Most of the model's funds are allocated as loans in LC. Also, the optimal solution does not include loans in FC because dealing in LC operations is more profitable than FC operations. In the optimal solution, FC funds are placed with other banks as due from banks.

With regard to the bank's actual asset composition, a very interesting result was obtained. Although the bank's main source of funds is FC deposits (38.1% of total assets), the funds allocated as FC loans represent only (8.5% of total assets) and the majority of the bank's deposits in FC allocated as due from banks (30.7% of total assets).

This fact is consistent with the model results, where the optimal portfolio does not include FC loans while the actual asset portfolio includes only 8.5% as FC loans. This reflects the real demand for LC loans and the bank's unwillingness to allocate funds as loans in FC.

With reference to the credit ceiling percentage, the bank's actual total loans represent only 55.5% of total deposits in both LC and FC (including other deposits) and 60.6% (excluding other deposits). Thus, the use of funds ratio is less than the credit ceiling percentage (65% of total deposits). In 1982, the credit ceiling regulations were not binding on the bank's operations although it exceeded this percentage in 1981 and 1980 (mainly loans in LC).

On the other hand, the (LC loans/LC deposits) ratio is 108.9% (excluding other deposits). Thus, the bank allocates more than its total deposits in LC as loans in LC.

Although the actual liability portfolio does not include due to banks in LC, the bank allocated a small proportion of its LC funds as due from banks in

LC (1.9% of total assets) because the bank is fairly liquid in LC. Perhaps the bank places these funds with its public sector partner.

It was found that the actual liquidity ratio is very high (67.6%) and cash and balances with banks represent 51.7% of total assets. Meanwhile, the expected portfolio liquidity ratio is less than the actual one (57.09%), but the ratio is much higher than the CBE minimum liquidity ratio (30%) as the model predicted.

The above result suggested that, given the regulations governing the JVCB operations, their internal policies, the market supply for deposits and demand for bank's services and cost/return for their operations, all these factors together forced banks to be fairly liquid.

With regard to profitability: The model predicted profitability as measured by ROE (20.6%) to be slightly less than the actual bank ROE which is 26.9%. The difference is due to the fact that the cost in the model is estimated as 2% (a constant percentage) which has been allocated to earning assets and liabilities in the objective function coefficients as explained earlier.

-The analysis findings:

Most of the results presented in this section are consistent with the model's results in section five.

The main difference between the actual portfolio and the model's optimal solution is the total deposits composition in LC and FC.

This difference can be clearly explained by the actual supply function of deposits in both LC and FC which is not modelled in detail. The model chooses the expected deposits portfolio as optimal from a profit maximization point of view (cost/return associated with each decision variable). However,

the actual deposits composition reflects the actual deposits supplied to the bank in both LC and FC.

In spite of this difference, both the bank's expected portfolio and the actual portfolio are consistent.

As long as LC operations are more profitable for JVCB as the model explained, it is expected that banks will compete to attract LC deposits by creating new deposit instruments and by heavy advertising to mobilize LC deposits.

8.7.2. A Comparison Between The Model Solution And Joint Venture And Private Commercial Banks Sector Actual Data

In this part the JVCB model was run using the operational and internal policy constraints, market constraints and actual ratios and proportions for JVPCB sector data in 1981.²⁴

The following are the constraints actual ratios

$P_1=3\%$	(Vault cash as a proportion of Demand deposits)
$P_2=2\%$	(Vault cash as a proportion of time and saving deposits)
$P_3=9.7\%$	(Fixed and other assets as a proportion of total assets)
$P_4=15.7\%$	(Other liabilities as a proportion of total assets)
$X_{10}=193,000$	(Equity accounts actual values, LE thousands)
$P_5=5.9\%$	(Equity accounts as a proportion of total assets)

Additionally, the actual portfolio interbank balances were adjusted in a net base because they are not divided according to LC and FC. The model variables do not include the other deposits variable as it is mainly related to letters of credit and guarantees.

Table (8.8) compares the JVPCB model predicted portfolio with the actual portfolio. The table reveals the following facts:

1. With respect to liability , although the model total deposits (78.4%) are very close to the actual total deposits volume (78.3%), the deposits portfolio composition is quite different. The model selected a high proportion of deposits in LC (70.1% of total liabilities) and 8.2% in FC. Meanwhile, the actual portfolio reflects the actual supply of deposits in both LC and FC according to the market power where deposits in LC is 41.1% of total liabilities and deposits in FC is 37.3%.
2. The model allocated most of the funds as loans in LC (50.9% of total assets) and FC loans are not included in the optimal solution. The actual total loan portfolio represents nearly the same proportion 49.7% of total assets and includes both LC and FC loans reflecting the real demand for bank's services.

The model portfolio reflects the optimal trade off between cost and return in order to achieve high profit levels (profit maximization objective). In reality, banks have to take into account other important aspects such as the actual supply function of funds and the real demand function for bank's services.

To some extent the model simulates JVPCB decision behaviour in aggregate base only, i.e. total loans and total deposits portfolios, but it did not succeed in simulating the portfolio composition for both deposits and loans. The supply and demand function influence the final shape of the portfolio.

TABLE (8.8)

A Comparison Between JVCB Model Portfolio and JVPCB Actual Portfolio

		(LE Thousands)						
JVPCB Actual Portfolio	Sub-Total	Total	%	%	Total	Sub-Total	x _i	Model Portfolio
Vault Cash LC	98,000	98,000	3.0	1.8	59,325	53,527	x ₁	Vault Cash LC
Vault Cash FC	-	-	-	-	-	5,798	x ₂	Vault Cash FC
Reserves with CBE LC	670,000	670,000	20.6	18.8	614,095	573,508	x ₃	Reserves with CBE LC
Reserves with CBE FC	-	-	-	-	-	40,587	x ₄	Deposits with CBE FC
Net Interbank Balances* (in LC & FC)	514,000	514,000	15.8	18.8	613,468	0,000	x ₅	Due From Banks LC
Security Portfolio	37,000	37,000	1.2	-	-	613,468	x ₆	Due From Banks FC
Loans in LC	911,502	1,612,711	49.7	50.9	1,666,997	1,666,997	x ₇	Loans in LC
Loans in FC	701,209	-	-	-	-	Not in Solution	x ₈	Loans in FC
Fixed and Other Assets**	316,000	316,000	9.7	9.7	317,306	317,306	x ₉	Fixed and Other Assets
Total Assets	3,247,711	3,247,711	100.0	100.0	3,271,191	3,271,191	-	Total Assets
Equity Accounts	193,000	193,000	5.9	5.9	193,000	193,000	x ₁₀	Equity Accounts
Demand Deposits LC	-	-	-	-	-	Not in Solution	x ₁₁	Due from Banks LC
Demand Deposits FC	386,820	-	-	-	-	Not in Solution	x ₁₂	Due from Banks FC
Time and Saving Deposits LC	148,710	-	-	-	-	764,678	x ₁₃	Demand Deposits LC
Time and Saving Deposits FC	831,409	-2,544,342	78.3	78.4	2,564,615	38,654	x ₁₄	Demand Deposits FC
Other Deposits LC	863,424	-	-	-	-	1,529,355	x ₁₅	Time and Saving Deposits LC
Other Deposits FC	116,764	-	-	-	-	231,928	x ₁₆	Time and Saving Deposits FC
Other Deposits FC	197,215	-	-	-	-	-	-	-
Other Liabilities	510,369	510,369	15.7	15.7	513,576	513,576	x ₁₇	Other Liabilities
Total Liabilities	3,247,711	3,247,711	100.0	100.0	3,271,191	3,271,191	-	Total Liabilities

* Represents the net balances between due from banks and due to banks in both (LC & FC).

** Fixed and other assets includes LE 134,000 thousands, to adjust the difference between the total balance sheet loans in LC & FC value and the breakdown figures for loans in LC & FC.

8.7.3. A Comparison Between JVCB Model And Investment Banks Operations

This section compares the JVCB optimal solution with JVIB expected optimal portfolio. The object of the analysis is to test the assumption that JVCB which deal in both LC and FC are more profitable than JVIB which deal in FC only.

It is important to note that the model was not built to explain investment banks decision behaviour, since it was found from the accounting data analysis that there is no similar pattern for their operations. The model object is to simulate the expected behaviour for investment banks, given the constraints which restrict their operations.

-The Investment Banks Linear Programming Model

The Decision Variables: Table (8.9) shows the JVIB model decision variables. The (Y_1, Y_2, \dots, Y_5) , represent asset decisions and $(Y_6, Y_7, \dots, Y_{10})$ represent liability variables. The Y_i represents \$ quantities for all the bank's balance sheet items because investment banks sample deal only in FC.

The Objective Function

The model's objective function is profit maximization.

The objective function is,

$$\text{Maximize } \Pi = \sum_{i=1}^5 Y_i (r_i - c_i) - \sum_{i=6}^{10} Y_i (r_i + c_i)$$

where,

Π = Net profits (absolute value).

$\sum_{i=1}^5 Y_i (r_i - c_i)$ = the total net return on asset portfolio.

$\sum_{i=6}^{10} Y_i (r_i + c_i)$ = total net costs of liability portfolio.

r_i = interest received for each asset item and paid for each liability item.

TABLE (8.9)
Investment Banks Decision Variables

Y_i	Asset Variables		Return r_i	Cost c_i	Net Return ($r_i - c_i$)
Y_1	Vault Cash	FC	$r_1 = 0$	$c_1 = 0$	0
Y_2	Deposits with CBE	FC	$r_2 \geq 0$	$c_2 \geq 0$	10.6
Y_3	Due from Banks	FC	$r_3 \geq 0$	$c_3 \geq 0$	10.8
Y_4	Total Loans	FC	$r_4 \geq 0$	$c_4 \geq 0$	13.5
Y_5	Fixed and Other Assets	FC	$r_5 = 0$	$c_5 = 0$	0

Y_i	Liability Variables		Return r_i	Cost c_i	Net Cost ($r_i + c_i$)
Y_6	Equity (Capital + Reserves)	FC	$r_6 = 0$	$c_6 = 0$	0
Y_7	Due to Banks	FC	$r_7 \geq 0$	$c_7 \geq 0$	-15.0
Y_8	Demand Deposits	FC	$r_8 = 0$	$c_8 = 0$	0
Y_9	Time and Saving Deposits	FC	$r_9 \geq 0$	$c_9 \geq 0$	-14.5
Y_{10}	Other Liabilities	FC	$r_{10} = 0$	$c_{10} = 0$	0

FC = Foreign Currency.

c_i = cost of serving each asset and liability.

Costs allocated as 2% for each earning asset and liability as in the case for commercial banks model.

-The Model's Constraints

The following are the important constraints which restrict investment banks' operations. Note that the required deposits in FC with the CBE is the only regulation which governs their operations. Other operational and internal policy constraints and market constraints are the same ones used for the commercial banks model.

For comparison reasons the liquidity ratio constraint (30%) was used as in the case for commercial banks because each bank has its own internal liquidity ratio. In addition, the same ratios and objective function coefficients for foreign currency operations were applied to run the model.

Thus, the investment banks' constraints are:

1. Required deposits with CBE in FC constraint:

$$Y_2 \geq .15 (Y_8 + Y_9)$$

where,

Y_2 = Deposits with CBE in FC

Y_8 = Demand deposits FC

Y_9 = Time and saving deposits in FC

2. Balance sheet constraints

$$\sum_{i=1}^5 Y_i = \sum_{i=6}^{10} Y_i$$

where,

$$\sum_{i=1}^5 Y_i = \text{total assets, and}$$

$$\sum_{i=6}^{10} Y_i = \text{total liabilities}$$

3. Equity constraints:

$$Y_6 = \$ 5,000,000 \text{ and}$$

$$Y_6 = .07 \sum_{i=1}^5 Y_i$$

where,

$$Y_6 = \text{equity accounts,}$$

$$\sum_{i=1}^5 Y_i = \text{total assets}$$

4. Fixed and other assets constraint:

$$Y_5 = .04 \sum_{i=6}^{10} Y_i$$

where,

$$Y_5 = \text{fixed and other assets}$$

$$\sum_{i=6}^{10} Y_i = \text{total liabilities}$$

5. Other liabilities constraint:

$$Y_{10} = .07 \sum_{i=1}^5 Y_i$$

where,

$$Y_{10} = \text{other liabilities, and}$$

$$\sum_{i=1}^5 Y_i = \text{total assets}$$

6. Vault cash constraint:

$$Y_1 \geq .02 Y_8 + .01 Y_9$$

where,

$$Y_1 = \text{Vault cash in FC}$$

$$Y_8 = \text{Demand deposits in FC}$$

$$Y_9 = \text{Time and saving deposits in FC}$$

7. Liquidity Ratio:

$$Y_1 + Y_2 + Y_3 \geq .30 (Y_7 + Y_8 + Y_9)$$

where,

Y_1 = Vault cash in FC

Y_2 = Deposits with CBE FC

Y_3 = Due from Banks FC

Y_7 = Due to Banks FC

Y_8 = Demand deposits FC

Y_9 = Time and saving deposits in FC

8. The ratio of time and saving deposits to demand deposits in FC constraint:

$$Y_9 \geq 6 Y_8$$

where,

Y_9 = Time and saving deposits in FC

Y_8 = Demand deposits in FC.

-The Investment Banks' Model Solution

Table (8.10) shows the investment banks model optimal solution. Note that all the balance sheet variables are included in the optimal portfolio except due to banks. The following are the model solution results:

1. With reference to liability composition, the model selected time and saving deposits and demand deposits as the main sources of funds (total deposits as a proportion of total liabilities equal to 86.0%). The due to banks item is not included because costs of borrowing funds from other banks are higher than interest paid to depositors. Of course, the model assumes that the deposits supply is flexible.

TABLE (8.10)
Investment Banks' Model Optimal Solution

y_i	Selected Asset Portfolio	Value \$ 1000's	%	Objective Function Coefficients ($r_i - c_i$)
y_1	Vault Cash FC	702	1.0	0
y_2	Deposits with CBE FC	9214	12.9	10.6
y_3	Due from Banks FC	8512	11.9	10.8
y_4	Total Loans FC	50143	70.2	13.5
y_5	Fixed and Other Assets	2857	4.0	0
	Total Assets	71428	100.0	
	Selected Liability Portfolio	Value \$ 1000's	%	Objective Function Coefficients ($r_i + c_i$)
y_6	Equity	5000	7.0	0
y_8	Demand Deposits FC	8775	12.3	0
y_9	Time and Saving Deposits FC	52653	73.7	-14.5
y_{10}	Other Liabilities FC	5000	7.0	0
	Total Liabilities	71428	100.0	

Objective Function Value (Net Profits \$ 1,031,000)

ROA = 1.4%

ROE = 20.6%

2. Most of the funds are allocated as loans in FC (70.2%) after allocating the required deposits with CBE and satisfying the liquidity ratio 30%. Due from banks represents only 11.9% because allocating FC funds as loans is more profitable for the bank. In practice it was found that the foreign exchange risk prevented banks from granting FC loans and clients from demanding FC loans. In addition, it was found that investment banks rely heavily on due to banks and place a high proportion of their funds with other banks. Investment banks' managers mentioned that the low loans level is a result of: a) the lack of bankable projects with expected return in FC to repay these loans, b) economic and political instability and c) the risk associated with lending FC in the local market.

-Given the previous results and recalling the commercial banks' model findings, it may be deduced that :

1. Commercial banks which deal in both LC and FC are more profitable than investment banks which deal in FC only. The JVCB model ROE is 26%, while JVIB ROE is only 20.6% . Thus, the LP model results supports the accounting data analysis for the aggregate sample data where it was found that the commercial banks sample achieved higher profitability levels than the investment banks sample during the study period.
2. Despite the fact that JVCB were heavily regulated with CBE control tools, especially credit ceiling percentage, they were more profitable than investment banks. The (total

loans/total deposits) ratio for JVCB is 65% and all the loans are in LC, while the same ratio for the investment banks model is 81.6% and all the loans are in FC. Accordingly, allocating funds as loans in LC and dealing in LC operations is in general more profitable than dealing in FC operations.

3. The liquidity ratio constraint is restricting JVIB operations while JVCB are fairly liquid. The liquidity ratio for investment banks is 30% and 46.6% for commercial banks.

8.8. Concluding Remarks

It is important to state that the model presented in this chapter is not a predictive one, but is an explanatory model constructed to simulate, justify and to explain the JVCB decision behaviour.

The model solution served as an example to the optimal behaviour which would be expected from a rational bank given the model constraints, the objective function coefficients and the financial system in which the bank operates.

Beyond the scope of the model is the actual supply function of the funds and the real demand function for the bank's services which also influence the final shape of the portfolio.

The major object of the model was to explain the way the JVCB selected their portfolios and to justify their attitude towards placing FC funds with other banks especially overseas banks.

Sensitivity analysis was used to predict how banks would respond to changes in the model constraints. The model regulatory and market constraints and the LC operations objective function coefficients were relaxed and tightened in order to suggest possible alternative solutions to develop

their operations and to participate in developing the local market.

-The following Are The Model's Major Results

1. Dealing in LC operations is more profitable than FC operations. In particular, allocating funds as loans in LC is more profitable than allocating funds as loans in FC.
2. The optimal way to allocate FC funds is to place them with other banks because it is risky and less profitable to allocate FC loans.

In spite of this fact the evidence is that investment banks have made substantial loans in FC. The model suggested that it is profitable for commercial banks to allocate loans in LC and place FC with banks abroad. However, in reality banks cannot behave like that especially in case of investment banks which deal in FC only. They have to allocate and finance FC loans to meet the real demand.
3. The regulations governing the JVCB forced them to be fairly liquid.
4. The JVCB which deal in both LC and FC were more profitable than JVIB which deal in FC only despite the fact that only a few regulations govern JVIB operations.

To a great extent the model succeeded in explaining banks' operating behaviour in terms of an aggregate base. The model does not simulate the exact portfolios chosen in reality especially with respect to the detailed deposits portfolio composition as the supply function is not modelled in detail. Furthermore, in practice a bank does not rely only on the trade off between

cost and return to select its portfolio, but has to take into account other important aspects such as the risk associated with allocating funds, political and economic stability and market constraints.

Finally, the model is not a sophisticated one, but it is a simplified model constructed to reflect, justify and to present an empirical analysis regarding Egyptian joint venture commercial banks' decision behaviour.

References

1. Model objectives which were originally outlined in chapter five are restated here for clarity.
2. It was found from the interviews that the interest rate the CBE offered is slightly lower than the interest rate that could have been obtained from international markets by approximately (1/8%:2/8%) on average.
3. The regulations introduced during the study period regarding the credit control sometimes were confined to specific banks. The starting operating date for banks was used as a measure to decide the allowable credit expansion percentage. It was found that these regulations were not binding on banks' operations.
4. Foda, p. 48.
5. See below the balance sheet constraint where total assets = total liabilities.
6. The equity variable is the only known variable in the portfolio.
7. It was found from the accounting data analysis for JVCB that, the equity variable in absolute value is highly correlated with total assets in absolute value (the correlation coefficient is 0.950). Also, there is positive correlation (0.530) between total assets and ROE and between equity as a proportion of total assets and total assets in absolute value (correlation coefficient is 0.404).
8. Beazer, p. 64.
9. See below Table (8.5), p. 275.
10. See below Table (8.5), p. 275.
11. See above, table (3.2), chapter 3, p. 78, for the LC interests rates structure during the study period.
12. See above, table (3.3), chapter 3, p. 79, for the euro-dollar deposits in London during the study period.
13. Note here that it was assumed that the bank will add the maximum margin below the LIBOR for deposits (1/2%) and will add the maximum margin over the LIBOR, for interest received from borrowers to gain the best spread between loans and deposits which is 3% in this case $(r_8 - r_{16}) = (15.5\% - 12.5\%) = 3\%$.
14. The 2% cost was estimated according to actual detailed data supplied by one of the sample banks for profit and loss account in 1982. This data was supplied only for the study purpose and was not included in their annual reports.
15. LPEVAL is a linear programming programme developed by Business Studies Department, University of Edinburgh. For more detail see, R. E. Day, LPEVAL: Linear programming (Two-phase), University of Edinburgh, March 1982.

16. For more detailed discussion regarding the reduced cost interpretation see, H. P. Williams, Model Building In Mathematical Programming, (Chichester: John Wiley and Son, 1978), pp. 97-102.
17. See above figure (8.1).
18. Williams, p. 96.
19. We mean here by the RHS range the lower limit and the upper limit associated with the constraint RHS value. See Williams, pp. 105-106.
20. The objective function ranging is the upper limit and the lower limit associated with each variable objective function coefficient.
21. For more detailed discussion regarding objective ranges analysis see Williams, pp. 106-113.
22. For confidential reasons.
23. The other deposits item was neglected to simplify the comparison.
24. This was the only published available recent actual data about this sector.

CHAPTER 9
SUMMARY, FINDINGS, AND RECOMMENDATIONS

9.1. Summary

The major object of the study was to explain EJV decision behaviour because they appear to be failing in terms of developing the Egyptian economy.

Part one (background) described the Egyptian economic development before and after the ODP. In chapter one it was found that the Egyptian economy will face many challenges in the future to create new sources of foreign exchange, to increase local production to meet local demand and to reduce the balance of payments deficit.

In chapter two, the Egyptian financial system's structural development was investigated. The number of banks increased rapidly from 4 public sector commercial banks to 70, including commercial banks, business and investment banks, specialized banks and one multinational bank. Islamic banks achieved rapid growth rates which reflected their expected important role in the future.

The regulatory framework of the banking system was considered in chapter three. It was detected that the banking system was heavily regulated. In addition, the interest rate structure and the foreign exchange system shifted the public savings composition from Egyptian pounds into dollars.

Part two presented the literature review and research methodology. The literature was highly specialized and designed to serve different analytical purposes. Most of the banking firm models presented theoretical frameworks without empirical evidence. It was impossible to get the data required to test these models fully.

The LP approach was chosen to model JVCBs' operations because these banks were seeking profit maximization and a lot of regulations and restrictions governing their operations. However, it was the only approach

applied in practice by both banks and researchers.

Finally, part three (the analysis) was divided into three chapters. Chapter six analysed the published accounting data for commercial and investment banks. An explanatory econometric model for commercial banks was developed using principal components analysis and multiple regression analysis. The analysis showed that the banks could broadly be divided into deposit oriented and loan oriented banks. Through most of the period of the study there was no major difference in the profitability of these two types of banks, but when the credit ceiling was introduced, the deposit oriented banks had the advantage.

With regard to investment banks, it was discovered that there was no similar pattern for their operations. Banks were similar regarding only one single decision, either asset or liability management. Profitability was mainly related to a bank's ability to attract deposits and to allocate funds as loans.

The comparison between JVCB and JVIB samples aggregate data revealed that commercial banks achieved higher profitability levels and growth rates than investment banks. In addition, they were more oriented to attract deposits. Conversely, investment banks were more oriented to use due to banks to finance loans.

Chapter seven displayed the in-depth interviews results. The most important variables which discriminate between large and small banks were identified. It was evident that large commercial banks were more successful in managing their operations than small banks.

With respect to investment banks, they carried out the same operations as JVCB especially financing international trade and short term loans. Additionally, they did not succeed in introducing new operations that

could fit the Egyptian investors' activities.

Finally, in chapter eight a linear programming model for JVCB was constructed. It succeeded in explaining how banks selected their portfolios and justified their attitude towards placing FC deposits abroad.

9.2. Major Findings

This section details the analysis' major findings and answers the study's objectives questions stated in the introduction¹.

With regard to placing FC funds with other banks abroad, the analysis showed that :

1. The in-depth interviews revealed that the short term nature of their FC deposits and the foreign exchange risk forced them to place these funds with overseas banks.

Additionally, the credit ceiling percentage, which applied to both total LC and FC loans portfolio base, encouraged banks to allocate the maximum levels of their LC funds as loans because it was difficult to manage their LC funds liquidity. In contrast, the existence of efficient international money markets encouraged banks to place FC funds abroad.

2. Commercial banks' LP model showed that local currency operations were more profitable than foreign currency ones. In particular, allocating funds as LC loans was more profitable than allocating funds as FC loans. Furthermore, the optimal way to invest FC funds was to place it with other banks as "due from banks".

It is worth noting that both the accounting data analysis and the LP model showed that JVCB which deal in both LC

and FC were more profitable than JVIB which deal in FC only.

3. Lack of projects with export targets to earn foreign currency income led to banks being very cautious in granting FC loans.
4. Lack of local instruments to mobilize banks' FC funds led to the funds being placed abroad.

The question asked was why banks concentrate on providing short term loans and financing international trade, and why they are cautious regarding lending medium and long term loans? The analysis revealed that:

1. Banks found that financing short term loans was more profitable and less risky than granting medium and long term loans. In addition, it was found from the questionnaires analysis that short term loans were more attractive for banks because of the possibility of increasing loans turnover and charging their clients fees and expenses which increase their profitability.
2. The present LC interest rate structure does not differentiate between loans maturity. This discouraged banks from financing medium and long term loans. Moreover, the low interest rates for industrial and agricultural sectors, the main customers for term loans, also prevented banks from granting term loans to these sectors.
3. Political and economic instability increased the risk involved in lending term loans. In particular, the frequent changes in laws and economic decisions and the CBE regulations led to

banks being less confident in the local market and consequently reduced their long term commitments.

4. A high proportion of the deposits (in LC and FC) supplied to JVB were of short term. Obviously, it was difficult to allocate such funds as term loans.
5. The introduction of the credit ceiling percentage and the credit expansion instructions discouraged banks from financing medium and long term loans.
6. Bankers complained about the lack of good feasibility studies and bankable projects. Most of the applications for medium and long term loans need further study, investigation and data collection to assess projects' expected success.

Most of the interviewed banks, especially small banks, did not have qualified credit officers to conduct project appraisal studies.

9.3. Recommendations

In the light of the study's findings, this section presents possible solutions and changes to increase the JVB participation in developing the Egyptian economy.

9.3.1. Recommendations Regarding The CBE Regulations

Most of the suggestions in this part concern the CBE regulations which govern the JVBs' operations.

1. Credit Control Regulations:

The following are alternative solutions to revise the credit control regulations. It is important to relax these constraints in order to encourage banks to

allocate more FC loans locally and to finance medium and long term loans.

1. Medium and long term loans in both LC and FC, with a specific minimum limit of maturity, could be excluded from the total loans base when calculating the credit ceiling percentage.

2. Banks could be allowed to use their interbank borrowings to finance medium and long term loans with a specific limit to prevent excessive exposure for specific client or sector.

In this context, the CBE could introduce new regulations to examine banks' capital adequacy in order to cover the risk associated with lending and financing risky assets. This suggestion will be referred to later in this section.

3. The credit ceiling percentage (65%) could be calculated separately for LC and FC operations. This might encourage banks to grant more FC loans instead of placing these funds with overseas banks. Furthermore, the credit ceiling percentage could be applied only for LC loans to leave banks free to allocate their FC funds as loans.

This suggestion is very important to give commercial banks an equal chance, regarding FC operations, with investment banks which deal in FC only and the credit control regulations do not govern their operations. The CBE can only restrict the allocation of FC loans to the commercial sector to encourage granting FC loans to other productive sectors such as industry and agriculture.

4. The CBE should apply the same regulations which govern commercial banks' operations to investment banks. The

latter recently obtained permission to deal in LC. The reasons for this recommendation are :

- a. There is not much difference between commercial and investment banks operations; and
 - b. To give JVCB an equal chance to compete in the local market.
5. Non-governmental securities could be excluded from total loans portfolio when calculating the credit ceiling percentage as long as the government would like banks to increase their equity and securities investments.
6. The CBE should develop new criteria to differentiate between banks' performance when applying the credit control regulations. In this context, individual instructions for each bank could be issued according to the following suggested measures:
- Bank's participation in financing medium and long term loans and productive projects.
 - (Loans/deposits) ratio.
 - Bank's investments in equity and securities.
 - Bank's annual growth rate and branches expansion.
 - The (equity accounts/total loans) ratio.
 - The application of the CBE instructions and regulations.

The CBE could relax or tighten the credit ceiling and credit expansion instructions according to each bank's performance. The idea is to distinguish between banks and to employ positive incentives for those which participate in developing the economy and negative incentives for banks which infringed regulations.

2. Interest Rates for LC Operations

The low interest rates for LC deposits during the study period and the continuous increase of the international interest rates (1976–1981), particularly for US\$, had a serious impact on the private sector savings as detailed in chapter three. The CBE should introduce a flexible interest rates structure for local currency operations. The following are suggestions to develop the present interest rate structure..

1. The interest rates structure could be adjusted frequently to accommodate the following aspects:

- a. The Egyptian pound real value against other foreign currencies.
- b. Expected changes in the international interest rates.
- c. The inflation rate and the economic conditions.
- d. Interest rates must encourage savers to hold Egyptian pounds and to reduce the exchange of Egyptian pounds to FC, especially in the black market.
- e. To encourage savers to hold long term deposit accounts, in order to enable banks to finance

medium and long term loans.

2. Lending interest rates should differentiate between loans maturities to give banks good incentive to finance medium and long term loans.
3. In order to encourage banks to mobilize long term deposits, the CBE should allow banks to act as price maker for time and saving deposits with long maturities (for instance more than two years).

In addition, JVB should have equal rights to compete with the public sector banks regarding issuing saving and deposit certificates.

3. Reserves With The CBE In LC And FC

The CBE should relax the 25% required reserve in respect of the LC deposits for the following reasons:

1. The LP model showed that relaxing this constraint might encourage banks to finance FC loans.
2. Banks receive interest rates for their 15% FC deposits with the CBE while they do not receive interest rates for their LC reserves.
3. The model also showed that the existence of the credit control regulations, along with the required reserves in LC, forced banks to be fairly liquid. It is expected that banks will face problems regarding managing their LC liquidity because there is no money market for local currency funds.

On the other hand, relaxing and tightening the 15% required deposits in respect of the FC deposits will not encourage banks to allocate their FC funds as loans. Banks will continue to place their FC funds abroad.

In order to encourage banks to allocate FC funds as loans and to place less funds in the international markets, the CBE should exclude the following items from the deposits base when calculating the 15% :

- Balances of loans in FC.
- Funds allocated as investments in securities and equity.

Additionally, introducing a realistic foreign exchange system would help to reduce the foreign exchange risk associated in granting FC loans.

4. Capital Adequacy Regulations

It is suggested that the CBE should introduce new regulations regarding the bank's capital adequacy for both investment and commercial banks. The capital accounts (paid up capital + reserves + loans provisions) can be related to the bank's risk asset holdings (mainly loans). The standard fraction (equity accounts/risk asset) is $1/6^2$, but the CBE can choose this ratio according to banks' performance and to ensure that they are holding enough capital accounts to provide a buffer against the expected loan losses³.

This ratio is important because some JVB were not willing to raise their equity accounts. They distributed a high proportion of their net profits to their partners. Moreover, some banks were increasing their loan portfolio without raising their equity accounts.

The capital adequacy constraint is an alternative to credit control regulations. Banks can increase their loan portfolio as long as they adhere to the risk asset ratio. Alternatively, the CBE could introduce the capital adequacy

constraint, relax the credit ceiling percentage and credit expansion instructions.

In addition, the CBE must achieve the required stability regarding the regulations which govern the banking system. The frequent changes in the CBE regulations and instructions caused confusion and instability. Before introducing any new changes the CBE should study carefully its effect on banks' operations. It was noticed that changes are always introduced just to cover the system's shortcomings.

9.3.2. Recommendations For The Egyptian government

This category of recommendations deals with encouraging JVB to develop their services and to allocate medium and long term investments:

1. Achieving political and economic stability is essential to encourage both investors and banks to hold local financial assets and to finance long term productive projects.

In this context, the government should study carefully the required changes in laws and economic decisions before issuing such modifications to avoid confusion and to achieve stability.

2. Introducing a realistic foreign exchange system is necessary to get rid of the gap between official and black market rates.

To suggest specific solutions to develop the FES is far beyond the scope of this study. The following important remarks relate to the Egyptian government :

- a. The public sector banks were instructed by the government to purchase \$ from the Gulf financial markets to mobilize Egyptian workers remittances

according to exchange rates equivalent to the local black market rates. At the same time, the public sector companies financed their imports needs through the black market.

The evidence is that the government can not ignore the existence of the black market dealers and an official organized free market may help to achieve the required stability in the foreign exchange transactions.

- b. It is clear that the government can not afford floating the Egyptian pound in the local and international markets for political and social reasons.

3. The government agencies have to provide both investors and banks with accurate and reliable market data concerning the main economic sectors and international trade.

In this respect, it is suggested that the Investment Authority should establish a computerized data information system. The Authority can offer the information services to help investors and financial institutions to conduct feasibility studies and to investigate investment opportunities.

4. The government can encourage the banking system to finance medium and long term loans through the following suggested policies:

- a. The Investment Authority and the Ministry of

Planning should carry out detailed studies covering major economic and industrial sectors according to the state economic plans priorities. Such studies should be made available for both investors and the banking system to encourage them to finance productive projects.

- b. The government should promote the establishment of the vital productive projects. Financial institutions, especially banks, could be invited to participate in financing such projects along with the Egyptian government.

5. In order to mobilize banks' liquid assets in LC and to encourage them to allocate FC funds locally, the Egyptian government can issue floating rate bonds in both Egyptian pound and US dollar. The interest rates must be attractive and higher than the time deposits interest rates.

These bonds might help to solve banks' liquidity problems and to increase the number of issues that could be traded in the stock market.

6. Activating the stock market and establishing a working money market are essential aspects for the banking system's efficiency. The financial market must be prepared to accommodate the banking system liquidity needs. In this context, the CBE discount rate must play a role to activate the LC interbank transactions. Banks could be encouraged to place their LC liquid assets with the CBE according to the

declared discount rate.

9.3.3. Recommendations For JVBs' Management

These suggestions deal with improving the JVB's operations management:

1. Joint venture banks should create and develop new saving instruments in both LC and FC to mobilize medium and long term deposits. These funds might enable them to allocate term loans and to participate in financing productive and investment projects.

2. The linear programming approach could be a useful technique to assist the JVB in setting up their asset/liability portfolio composition. The model could be developed in the light of banks' internal policy and could be easily adjusted to changes in regulations, market constraints and the cost and return associated with each decision variable.
 Additionally, the model optimal solution can serve as a guide for taking the banks' decisions. Comparing the model solution with their actual portfolios will help to develop their targets and planning levels.

3. Special attention has to be given to recruit and train credit officers, particularly for small banks. The hard competition between banks in Egypt leads to a need for qualified credit officers. They can use the marketing approach to contact their clients.

In this context, training is required in the areas of: project evaluation, marketing studies, project financing and

feasibility studies

4. It is important for banks to concentrate on branches expansion in order to increase their total size growth rates and their deposit base to face the hard competition.
5. The joint venture investment banks are advised to develop their operations and to introduce new activities which could fit the Egyptian financial system.

In conclusion, what are the possibilities of introducing the previous suggestions and recommendations? It is essential to note that the government will face a difficult task. Some solutions could be applied, particularly those related to the CBE regulations, after in-depth study to its expected consequences.

With reference to other suggestions related to market mechanism and structure (for instance: foreign exchange system, money and stock markets), the government will find it difficult because of the expected political and social reactions. However, gradual rational changes are essential to achieve stability.

References

1. See above, pp. 3-4.
2. Beazer , p. 64.
3. Ibid, p. 28.

APPENDICES

APPENDIX "A" :

Central Agency for Public Mobilization and Statistics [CAPMS] Decree (No.47 of 1983)

Central Agency for Public Mobilization and Statistics (CAPMS)

Decree No. 47 of 1983

- Regarding Mr Osama Abdel-Khalik El-Ansary - governmental mission member in the United Kingdom - to carry out the required research for his doctoral degree about "Modelling the Operations of Egyptian Joint Venture Banks".

The CAPMS Chairman:

- After having pursued the presidential decree No. 2915 of 1964, concerning the CAPMS establishment and organization;
- And the CAPMS chairman's decree No. 231 of 1968, regarding conducting surveys, interviews, referendums and censuses;
- And the (Educational) General Mission Department letters dated 22/11/1982 and 29/12/1982.

Decreed

Article I: Mr Osama Abdel-Khalik El-Ansary can carry out the above mentioned research.

Article II: The research is to be conducted with the following interviewees in the sample banks; as listed in the enclosed appendix "A":

- 1) The general manager
- 2) The loan manager
- 3) The deposit manager
- 4) The investment manager
- 5) A sample of 60 interviewees of the banks' clients; five clients for each bank.

Article III: Data required for this research should be gathered according to the approved questionnaires by the CAPMS, within four months and conditioned to the banks and the clients approval, without having accession to the balances, or loans, or

deposits, or personal accounts etc....

Article IV: This decree is to be published in the Official Gazette
(Issued 25 January 1983).

Dr. Awad Mokhtar Halowada

Appendix "A" For the CAPMS Chairman Decree

No. 47 of 1983

List of the Egyptian Joint Venture Banks

1. Chase National Bank/Egypt.
2. Misr International Bank.
3. The Egyptian American Bank.
4. Misr Romanian Bank.
5. Banque Du Cairo Et Du Paris.
6. Misr America International Bank.
7. Alexandria Kuwait International Bank.
8. Cairo Fareast Bank.
9. Misr Iran Development Bank.
10. Cairo Barclays International Bank.
11. Societe Arabe International De Banque.
12. Credit International D'Egypte.

Source: Arabic Republic of Egypt, Official Gazette (Al-Waqa Al-Misryya), No.62, March 13, 1983, pp. 36-37, (In Arabic).

Appendix "B" :**The Sample Banks**

APPENDIX B1
Commercial Banks' Sample

Bank Code	Bank Name	Operating Year*	Years Since Operating	Total Assets In 1982 LE Thousands	Paid Up Capital In 1982 LE Thousands	Egyptian Partners	Foreign Partners	Number of Shares in 1982	Share Nominal Value	Number of Branches in 1982	Governorate Coverage
1	Chase National Bank (Egypt)	1976	7	561,116	10,000	- National Bank of Egypt	- The Chase Manhattan Bank	100,000	LE 100	9	3
2	Misr International Bank	1977	6	540,646	10,876	- Bank Misr	- First National bank of Chicago - Banco Di Roma SA Luxembourg - UBAF Bank London - Others	1,500,000	\$ 10	6	2
3	Egyptian American Bank	1977	6	381,731	10,000	- Bank of Alexandria	- American Express International	1,000,000	LE 10	9	2
4	Misr Romina Bank	1978	5	194,206	3,452	- Bank Misr	- Romanian Bank for Foreign Trade, Bucharest - Bank for Agriculture and Food Industry, Bucharest - Investment Bank, Bucharest	5,000	\$ 1,000	2	2
5	Misr America International Bank	1978	5	141,115	4,000	- Development Industrial Bank - Misr Insurance Company	- Bank of America - First Arabian Corporation - Kuwait Real Estate Bank	40,000	LE 100	4	3
6	Cairo Far East Bank	1979	4	78,305	7,000	- Banque Du Cairo - Al CharK Insurance Co. - Dr. Ahmed Abo Ismail	- Korea Exchange Bank - The Commercial Bank of Korea - Hamil Bank - The Cho-Heung Bank Ltd - Others	10,000	\$ 1,000	1	1
7	Alexandria Kuwait International Bank	1980	3	237,054	15,400	- Bank of Alexandria - The Principal Bank for Development and Agriculture Credit - Individuals working in Kuwait	- Individuals, Mostly Kuwaiti Businessmen - Sharjah Group - Egyptian Kuwait Real Estate Development Company	1,000,000	\$ 20	1	1
8	Banque Du Cairo Et Du Paris	1978	5	64,295	7,000	- Bank du Cairo	- Banque Nationale du Paris	10,000	\$ 1,000	2	2

* First published financial statements.

APPENDIX B2

Joint Venture Commercial Banks Sample

Large Banks				Small Banks			
Bank Code	Bank Name	Total Assets in 1982 LE Millions	Number of Branches in 1982	Bank Code	Bank Name	Total Assets in 1982 LE Millions	Number of Branches in 1982
1	Chase National Bank	561	9	4	Misir Romanian Bank	194	2
2	Misir International Bank	540	6	5	Misir America International Bank	141	4
3	Egyptian American Bank	381	9	6	Cairo Fareast Bank	78	1
7	Alexandria Kuwait International Bank*	237	1	8	Banque Du Cairo Et Du Paris	64	2

* First Financial Statement was published in 1980.

- Large banks total assets > LE 200 millions.

- Small banks total assets < LE 200 millions.

APPENDIX B3

Investment Banks Sample

Bank Code	Bank Name	Operating* Year	Years Since Operating	T. Assets in 1982 \$ Thousands	Paid Up Capital in 1982 \$ Thousands	Egyptian Partners	Foreign Partners	No of Shares In 1982	Shares Nominal Value	No of Branches In 1982	Governorate Coverage
1	Cairo Barclays International Bank	1976	7	169,374	10,000	- Bank De Cairo (Egypt)	- Barclays Bank International Ltd (UK)	100,000	\$100	2	2
2	Societe Arabe International De Banque	1977	6	179,122	16,000	- National Bank of Egypt - Misr Insurance Company - Osman Ahmed Osman & Co (The Arab Contractors)	- Compagnie Arabe de Financement International (CAFI) Company	16,000	\$1,000	3	2
3	Credit International D'Egypte	1978	5	77,781	10,000	- National Bank of Egypt	- Credit Commercial de France - Berliner Hanel- und Frankfurter Bank	10,000	\$1,000	1	1
4	Misr Iran Development Bank	1976	7	319,842	40,000	- Bank of Alexandria - Misr Insurance Company	- Bank Melli Iran - Industrial and Mining Development Bank of Iran	400	\$100,000	1	1

* First published financial statement.

Appendix "C" :**Criteria Used to Compute The Principal Components Analysis**

Criteria Used to Compute The Principal Components Analysis

The following are the important criteria used to compute PCA:

1. Number of factors to be extracted: principal components with eigenvalue greater than one.¹
2. Extraction method: The SPSSX² package subprogramme factor and the extraction method principal components analysis was used based on the method outlined by Harman.³
3. Calculating factor scores for each case: the regression method⁴ provided by the SPSSX package was used by applying the standardized data for each variable.⁵
4. Rotation method: the SPSSX package default VARIMAX method was used.⁶
5. Principal components significance: there are three different criteria to test the factor matrix loadings significance.⁷ The common criterion is to consider the significance only of those loadings which have a value greater than +.30, provided that the sample contains at least 50 observations.⁸ In the analysis no criterion was used regarding the factor loadings significance for the following reasons:-
 - a. The number of cases in the sample were very limited.
 - b. All the variables used in the analysis represent very important decisions regarding JVBs' operations and it was important to keep all the

balance sheet variables in the model.

References To Appendix "C"

1. This is the SPSSX package criterion, see SPSS Incorporation, p. 653. Also, for more detail see, Koutsoyiannis, pp. 433-434; and Hair, pp. 231-234.
2. SPSS Incorporation, p. 653.
3. For more detail see Harry H. Harman, Modern Factor Analysis, (Chicago: The University of Chicago Press, 1976).
4. SPSS Incorporation, p. 655.
5. For a detailed discussion concerning calculating factor scores for each principal component using regression method see N. Nie, etal., Statistical Package for Social Science (SPSS), 2nd ed., (New York, McGraw-Hill, 1975), pp. 487-490; and Paul E. Green, Analysing Multivariate Data, (Illinois, The Dryden Press, 1978) pp. 354-358.
6. For more detailed discussion regarding rotation method see, Stopher and Myburg, pp. 249-254; Green, p. 371; and Dennis Child, The Essentials of Factor Analysis, (London: Holt, Richard and Winston, 1970), pp. 51-53.
7. For more discussion regarding loadings tests of significance see Hair, pp. 234-235; Koutsoyiannis, pp. 431-433; and SPSS Incorporation, p. 652.
8. Hair, p. 234.

Appendix "D" :**The Questionnaires**

University of Edinburgh

Department of Business Studies

EGYPTIAN JOINT VENTURE BANKS STUDY

THE DEPOSIT MANAGER INTERVIEW

1. Deposits Management

1.1. What are the important types of foreign currency the bank accepts as a deposit?

- All foreign currencies.
- US Dollar.
- Pound Sterling.
- Others (Specify)

1.2. What are the deposit accounts the bank offers its clients?

- Demand deposits.
- Time deposits.
- Saving deposits.
- Others (specify)

1.3. Does the bank offer interest rates for demand deposits in foreign currency?

- yes
- no

1.4. If yes, how does the bank set the interest rates for demand deposits in FC?

1.5. Did the bank issue deposit or investment certificates?

- yes
- no

1.6. If yes, would more branches help you to sell more?

- yes
- no

1.7. Do you have to obtain permission to issue these certificates?

- yes
- no

1.8. Does this permission prevent you from issuing as many certificates as you wish?

- yes
- no

1.9. What are the most important categories of the bank's depositors?

Local Clients:

- Public sector companies.
- Private sector companies.
- Public sector banks.
- Private sector banks.
- Individuals.
- Others (specify)

Foreign Clients:

- Foreign banks.
- Foreign companies.
- Foreign individuals.
- Others (specify)

- Deposits in foreign currency

Types of deposits

Bank's restrictions

1.18. Do you have targets (planned levels) for each type of the bank's deposit accounts at the beginning of the planning period?

() - yes

() - no

1.19. If yes, how do you decide these targets?

1.20. Do you accept deposits if they exceed your planned maximum targets?

() - yes

() - no

1.21. If yes, to what extent is the bank able to expand in accepting deposits for more than its maximum levels in both local and foreign currencies?

1.22. Do you sometimes fail to reach your targets?

() - yes

() - no

1.23. If yes, what do you do?

2. Liquidity Management

2.1. How do you decide the required vault cash for the bank's liquidity?

2.2. What are the types of short term liquid assets does the bank hold for liquidity management?

2.3. How do you decide the proportion of these liquid assets out of the total assets?

2.4. Do the cash reserves in LC and FC with the CBE restrict the bank's investment policies?

2.5. According to the bank's past experience, in your opinion, how could the required cash reserves regulations be changed to increase the bank's efficiency?

2.6. How do you decide the interbank balances in both local and foreign currencies?

2.7. Why do Egyptian joint venture banks allocate a high proportion of their FC funds as placings abroad?

2.8. Are there any additional points of interest related to this interview that you would like to add?

University of Edinburgh

Department of Business Studies

EGYPTIAN JOINT VENTURE BANKS STUDY

THE INVESTMENT MANAGER INTERVIEW

1. What are the types of the bank's investments in securities?

Egyptian Securities Security Name

- Shares
- Bonds
- Government bonds
- Other (specify)

Foreign Securities Security Name

- Shares
- Bonds
- Others (specify)

2. Does the lack of activity of the stock exchange affect your willingness to invest in securities?
- () - yes () - no
3. If yes, what is the impact of the stock exchange on the bank's investment decisions?
4. In your opinion, how can the government reactivate the stock exchange to encourage joint venture banks to allocate their funds as securities?
5. What are the problems and the risk involved in allocating the bank's funds as securities in the local market?
6. Did the bank participate in financing Egyptian companies' equity and establishing new projects?
- () - yes () - no
7. If yes, do you ask to participate in management as a condition of financing companies' equity?
- () - yes () - no
8. What were the projects which the bank directly financed through equity? (Kindly supply us with a copy of these projects list).
9. Do you sometimes ask for equity investment as a condition of granting loans?
- () - yes () - no
10. Which of the following factors restrict the bank's policies in financing projects' equity and establishing new projects in the Egyptian market?
(please tick the important factors).
- () - Low rate of return on investment in the local market.
 - () - Lack of viable projects and good investment opportunities.
 - () - Lack of well trained bankers to investigate and study investment opportunities and to prepare feasibility studies.

University of Edinburgh

Department of Business Studies

EGYPTIAN JOINT VENTURE BANKS STUDY

THE GENERAL MANAGER INTERVIEW

1. General Information Concerning The Bank

1.1. When did the opportunity come up to establish the bank?

1.2. Who promoted the bank's establishment?

() - The Egyptian side.

() - The foreign side.

() - The Government.

() - Others (specify)

1.3. Who set up the establishment arrangements?

1.4. What was the gap in the Egyptian financial market that the bank was established to cover, and what are the financial operations you believe that the bank was especially established to provide?

1.5. When were the bank's first financial statements published?

1.6. Number Of The Bank's Branches

No.	Branch Name	Location	Operating Date
.....
.....
.....
.....

1.7. Do you plan to open new branches in the future?

() - yes

() - no

1.8. If yes, approximately, how many branches does the bank plan to open, and what are the geographical areas the bank expects to cover?

1.9. Do you need to obtain permission from the Central Bank to open new branches?

() - yes

() - no

1.10. If yes, does this permission restrict the bank's expansion plans?

() - yes

() - no

1.11. Did the bank send some bankers to be trained abroad?

() - yes

() - no

- 1.12. If yes, do they go to your foreign partner's country or other countries? (Please specify)
- 1.13. What is the management structure between the foreign and the Egyptian partners?

2. The Bank's Capital And Equity

- 2.1. Who are the bank's Egyptian and foreign founders?

Egyptian Founders Name Portion of Capital %

- Public sector banks.
- Private sector banks.
- Public sector companies.
- Private sector companies.
- Individuals.
- Others (specify)

Foreign Founders Name Nationality Proportion of Capital %

- Foreign banks outside Egypt.
- Foreign banks in Egypt.
- Foreign companies
- Individuals.
- Others (specify)

- 2.2. Did the bank issue shares for public subscription?

() - yes () - no

- 2.3. If no, go to question 2.9.

- 2.4. If yes, what are the categories of the bank's shareholders?

- () - Public sector banks %
- () - Private sector banks %
- () - Branches for foreign banks %
- () - Joint venture banks %
- () - Public sector companies %
- () - Private sector companies %
- () - Individuals %
- () - Others (Specify) %

- 2.5. What are the minimum number of shares held by each shareholder?

- 2.6. Are the bank's shares listed in the stock exchange?

() - yes () - no

- 2.7. If yes, when was it listed?

- 2.8. If no, why did not the bank list its shares on the stock exchange?

- 2.9. Did the bank increase its capital or make a new issue of shares during the past years?
(From 1975 to 1982)

() - yes () - no

- 2.10. If yes, how was the capital increase financed?
(Please specify)
- 2.11. Do you have plans to increase the bank's capital in the future?
(Please specify)
- 2.12. What are the government restrictions regarding capital expansion?
- 2.13. What are the equity accounts the bank holds other than the paid up capital?
- Reserves
 -
 -
 - Provisions
 -
 -
 - Others (Specify)
- 2.14. What are the bank's external long term sources of funds other than equity accounts and time deposits in local and foreign currencies?

3. Other Questions

- 3.1. What are the important special services the bank offers for its clients?
- () - Technical and financial advice.
 - () - Feasibility studies.
 - () - Information services.
 - () - Others (specify)
- 3.2. Does the bank have a special business appraisal system to help in evaluating the investment opportunities?
- () - yes () - no
- 3.3. If no, what are the important sources of information the bank depend on?
- 3.4. What is the impact of the foreign exchange system on the bank's operation? (Please mention your opinion, and any alternative suggestions you may have for developing the foreign exchange market in Egypt)
- 3.5. In your opinion, what is the expected future for joint venture commercial banks in Egypt?
- 3.6. Are there any additional points of interest related to this interview that you would like to add?

University of Edinburgh

Department of Business Studies

EGYPTIAN JOINT VENTURE BANKS STUDY

THE LOAN MANAGER INTERVIEW

1. What are the important types of foreign currency the bank lends to borrowers?
 - () - All foreign currencies.
 - () - US Dollar.
 - () - Pound sterling.
 - () - Others (specify)

2. What are the types of loans the bank issues to its clients?
 - () - Short term loans.
 - () - Medium term loans.
 - () - Long term loans.
 - () - Others (specify)

3. **Short Term Loans** (Loans which are less than one year maturity)
 - 3.1. Types of short term loans the bank issue:

(Please rank them in descending order of importance)

 - () - Overdraft facilities.
 - () - Loans secured against bills.
 - () - Loans secured against securities.
 - () - Loans secured against merchandise.
 - () - Commercial loans (financing letters of credit).
 - () - Consumer loans.
 - () - Short term advances.
 - () - Others (specify)

 - 3.2. What are the most important categories of the bank's borrowers for short term loans?
 - () - Public sector companies.
 - () - Private sector companies.
 - () - Individual establishments.
 - () - Others (specify)

 - 3.3. Do you always welcome new borrowers, or are there times when all the bank's available funds are taken up by old customers?

 - 3.4. What are the policies the bank adopts to attract borrowers for short term loans?
 - () - Advertising.
 - () - Direct contact with old clients.
 - () - Sending letters to expected clients.
 - () - Less charges for the loan services expenses.
 - () - Others (specify)

 - 3.5. What are the difficulties the bank face in collecting and following up the short term loans repayment?

 - 3.6. What are the problems and the risk associated with making short term loans in the local market?
(Explain according to your bank's past experience)

 - 3.7. How can the borrower approach the bank to ask for short term loans?

- Seeking advice first from the loan manager or the branch manager.
- Filling in an application form as the first step.
- Others (specify)

3.8. What are the important documents the borrower has to provide with his application form to your bank, in order to, evaluate his financial position?

Documents Required from
Individuals and
Unincorporated businesses

-
-
-

Documents Required from
Stock Companies

-
-
-

3.9. What are the kinds of securities and guarantees required from the bank's clients as condition of granting short term loans?

3.10. How long does it take (on average) to estimate the borrower's ability to repay the short term loans?

3.11. How long does it take (on average) to finish the loan administrative arrangements and to give the approval for the client's application?

3.12. What are the bank's covenant terms associated with lending short term loans?

3.13. Does the bank charge its clients for expenses other than the interest rates?

- yes

- no

3.14. If yes, what are these expenses, and how do you estimate them?

3.15. Which branch has the authority to take the short term loan decisions?

- The head office only.
- All the bank's branches.
- Some branches only.
- Others (specify)

3.16. Who has the authority to take short term loan decisions and what is the allowable limit for each level?

Allowable limit (LE)

- The board of directors -
- The bank's loan committee -
- The loan manager -
- Branch manager -
- Credit officer -
- Others (specify) -

3.17. What are the important regulations and restrictions which limit your bank's ability to allocate as much short term loans as the bank wishes?

3.18. Does the interest rate structure for loans in LC prevent you from lending as much short term loans as you would like?

- yes - no

3.19. If yes, what are your suggestions to change the present interest rate structure for loans in LC?

3.20. How do you set the interest rates for short term loans in FC?

4. Medium* And Long Term Loans**

* From one year to five years.

** More than five years.

4.1. What are the types of medium and long term loans allocated to the bank's clients?

<u>Loan Types/Sectors</u>	<u>Medium/long term</u>
<input type="checkbox"/> - Industrial loans
<input type="checkbox"/> - Agricultural loans
<input type="checkbox"/> - Mortgage loans
<input type="checkbox"/> - Others (specify)

4.2. What are the most important categories of the bank's borrowers for medium and long term loans?

- Public sector companies.
 - Private sector companies.
 - Foreign companies.
 - Others (specify)

4.3. What are the policies the bank adopt to attract borrowers for medium and long term loans?

- Advertising.
 - Direct contact with old clients.
 - Direct contact with expected clients.
 - Promoting good investment opportunities between clients.
 - Opening offices with countries which have direct investment in Egypt.
 - Better loans terms than other banks (fees, interest rates, expenses, commissions)
 - Client introduction by foreign partner.
 - Client introduction by Egyptian partner.
 - Others (specify)

4.4. What are the difficulties the bank face in collecting and following up the term loans repayments?

- 4.5. How can the borrower approach the bank to ask for medium and long term loans?
- Seeking advice first from the loan manager or the branch manager.
 - Filling in an application form first as the first step.
 - Others (specify)
- 4.6. What are the important documents the borrower has to provide with his application form to your bank in order to evaluate his financial position?
- 4.7. What are the kinds of securities and guarantees required from the bank's clients as a condition of granting medium and long term loans?
- 4.8. How long does it take (on average) to estimate the borrower's ability to repay back?
- 4.9. How long does it take (on average) to finish the loan administrative arrangements and to give the approval for the client's application for medium and long term loans?
- 4.10. What are the bank's covenant terms associated with lending medium and long term loans?
- 4.11. Does the bank charge its clients for expenses associated with medium and long term loans other than the interest rates?
- 4.12. If yes, what are these expenses, and how do you estimate them?
- 4.13. Which branch has the authority to take medium and long term loans decisions?
- The head office only.
 - All the bank's branches.
 - Some branches only.
 - Others (specify)
- 4.14. Who has the authority to take the medium and long term loan decisions and the allowable limit for each level?
- Allowable Limit (LE)
- The board of directors.
 - The bank's loan committee.
 - The loan manager.
 - Branch manager.
 - Credit officer.
 - Others (specify)
- 4.15. What are the important regulations and restrictions which limit your bank's ability to grant medium and long term loans?
- 4.16. Does the interest rate structure for loans in LC prevent you from lending as much medium and long term loans as you would like?
- yes
 - no

4.17. Do you have a minimum amount for medium and long term loans that the bank will consider?

- yes - no

4.18. If yes, what is the minimum amount?

- For medium loans in LC
 - For medium loans in FC
 - For long term loans in LC
 - For long term loans in FC

4.19. How do you set the interest rates for medium and long term loans in FC?

(Please explain according to the loan maturity and the borrower's activity nature)

4.20. Which of the following factors, in your opinion, are the most important reasons which limit the bank's ability to allocate medium and long term loans in the local market?

- Lack of well studied projects presented to the bank.
 - High risk associated with lending medium and long term loans.
 - A limited demand for medium and long term loans.
 - The client does not always provide the required guarantees.
 - Social and political instability.
 - Lack of trained loan officers to evaluate clients' applications.
 - Frequent changes in laws, regulations, and economic decisions.
 - The interest rates which could be charged for term loans are very low.
 - Others (specify)

5. Do you have targets (planned levels) for each type of the loan portfolio at the beginning of the planning period?

- yes - no

6. If yes, how do you decide these targets?

- As a certain proportion of total assets.
 - As a certain proportion of total deposits.
 - According to the loan demand forecast study.
 - Annual maximum levels.
 - Others (specify)

7. Is it easy to lend more than your targets?

- yes - no

8. If yes, to what extent the bank is able to expand its lending above the planned targets?

9. Do you sometimes fail to reach your targets?

- yes - no

10. If yes, what do you do?
11. What are the bank's parameters and criteria regarding lending to your clients?
12. Are you able to recruit and train the number of loan officers you need, or is there a lack of well trained loan officers?
13. How do you assess the expected default risk associated with lending each type of loans?
14. Do you raise equity or hold reserves equal to a certain proportion of your risky assets?
 - yes - no
15. If yes, how do you decide this proportion?
16. Do you have provision for bad and doubtful debts?
 - yes - no
17. If yes, how do you allocate this provision?
18. Which categories of your loans require the highest provisions (proportionately) for bad and doubtful debts (please specify)?
19. Under the Egyptian law, what will happen if the borrower fails on repayment?
20. Does the bank have a special formula to estimate the expected cost associated with each type of loans?
 - yes no
21. If yes, how do you establish this formula?
22. In your opinion, how can the government encourage the Egyptian joint venture banks to lend medium and long term loans in the local market?
23. Are there any additional points of interest related to this interview you would like to add?

BIBLIOGRAPHY

Bibliography

Books And Articles

- Abdel-Hamiad, Talaat Isaid. Banking Management. Cairo: Rose El-Yousif, 1981, (In Arabic).
- Abdel-Khalek, Gouda, and Robert Tignor, eds. The Political Economy Of Income Distribution In Egypt. New York: Holmes and Meier, 1982.
- Abdel-Magid, Moustafa F., "The Theory of Islamic Banking: Accounting Implications". The International Journal of Accounting: Vol. 17, No. 1, Full 1981, pp. 79-101.
- Adar, ZVI, Tamir Agmon, and Yair E. Orgler. "Output Mix And Jointness In Production In The Banking Firm". Journal of Money, Credit, and Banking: Vol. 7, May 1975, pp. 235-243.
- Allen, Muriel. "New Import Regulations Introduced". Cairo Today, Vol. 3, No. 5, May 1982, p. 21.
- Anderson, Leonall C., and Albert E. Burger. "Asset Management and Commercial Bank Portfolio Behaviour: Theory and Practice". Journal of Finance: Vol. 24, May 1969, pp. 207-222.
- Balbirer, Sheldon, and David Snow. "An Application of Linear Programming To Bank Financial Planning". Interfaces: Vol. 11, No. 5, October 1981, pp. 77-82.
- Baltensperger, Ernst. "Alternative Approaches To The Theory Of The Banking Firm". Journal of Monetary Economics: Vol. 6, 1980, pp. 1-37.
- Baltensperger, Ernst. "Costs of Banking Activities- Interactions Between Risk And Operating Costs". Journal Of Money, Credit, and Banking: Vol. 4, August 1972, pp. 595-611.
- Banker Research Unit, ed., Banking Structure And Sources Of Finance In The Middle East. 2 ed., London: Financial Times Business Publishing, 1980.
- Bank of England. Quarterly Bulletin. (London: Bank of England, 1975, 1976, 1977, 1978, 1979, 1980, 1981, 1982).
- Beazer, William F., Optimization Of Bank Portfolio. Toronto: D.C. Heath, 1975.
- Benston, G. , and C. W. Smith. "A Transactions Cost Approach To The Theory Of Financial Intermediation". Journal Of Finance: Vol. 31, May 1976, pp. 215-231.
- Booth, G. Geoffrey. "Programming Bank Portfolios Under Uncertainty: An Extension". Journal Of Bank Research: Vol. 3, No. 4, Winter 1972, pp. 28-40.
- Bowey, Angela M. , etal., "Effects of Incentive Payment Systems: United

- Kingdom (1977-1980)". Department of Employment, Research Paper No. 36, London, 1982.
- Broadus, John A. , A Stochastic Model Of Individual Bank Behaviour Ph.D. Dissertation, Indiana University, 1972.
 - Campbell, Tim S., and William A. Kracaw. "Information Production, Marketing Signalling, And The Theory Of Financial Intermediation". Journal of Finance: Vol. 35, No. 4, September 1980, pp. 863-882.
 - Capital Market Authority. "A Brief Note On The Capital Market Authority In Egypt". Paper presented at the International Conference On Capital Market Development, Cairo , May 1983.
 - _____. "Highlights Of The New Corporate Law; In Comparison With The Provisions Of The Investment Law". Paper presented at the International Conference On Capital Market Development, Cairo, May 1983.
 - _____. "Structure Of The Financial Market In Egypt". Paper presented at the International Conference On Capital Market Development, Cairo, May 1983.
 - Caselli, Clara. "The Development Of The Banking System And Monetary Policy In Egypt In The Context On The Open Door Policy". Finafrica Quarterly Review: No. 4, 1980, pp. 320-340.
 - Central Agency For Public Mobilization And Statistics, Statistical Year Book, Cairo: CAPMAS, 1975, 1976,1977, 1978, 1979, 1980, 1981, 1982.
 - Central Bank of Egypt. "Balance of Payments Developments (1952-1978)". Economic Review: Vol. 21, No. 1, 1981, pp. 1-28.
 - _____. "Development Of Egypt's Foreign Trade During The Period (1952-1978)". Economic Review: Vol. 19, Nos. 3 & 4, 1979, pp. 233-255.
 - _____. "Organization Of Foreign Exchange Dealings". Economic Review: Vol. 16, Nos. 3 & 4, 1976, pp. 164-166.
 - _____. "Structural Changes In The Egyptian Economy Since 1952/1983". Economic Review: Vol. 18, Nos. 3 & 4, 1978, pp. 191-217.
 - _____. "The Unification Of Foreign Exchange Rates". Economic Review: Vol. 19, No. 1, 1979, pp. 12-13.
 - Chambers, D. , and A. Charnes. "Inter-Temporal Analysis And Optimization Of Bank Portfolios". Management Science: Vol. 7, July 1961, pp. 393-410.
 - Chen, Andrew H. Y. , "Optimal Bank Portfolio Management". In Application Of Management Science In Banking And Finance, pp. 137-148. Edited by Samuel Eilon and Terence R. Fowkes. Essex: Gower Press, 1972.
 - Child, Dennis. The Essentials Of Factor Analysis. London: Holt, Richard and Winston, 1970.

- Cohen, Kalman J. , and David P. Rutenberg. "Toward A Comprehensive Framework For Bank Financial Planning". Journal Of Bank Research: Vol. 1, Winter 1971, pp. 41-57.
- Cohen, Kalman J. , and Frederick S. Hammer. "Linear Programming And Optimal Bank Asset Management Decision". Journal of Finance: Vol. 22, No. 2, May 1967, pp. 147-165.
- Cohen, Kalman J. , and Frederick S. Hammer. "Linear Programming Models For Optimal Bank Dynamic Balance Sheet Management". In Mathematical Methods In Investment And Finance, pp. 387-413. Edited by Giorgio P. Szegö, and Karl Shell. Amsterdam: North-Holland Publishing Company, 1972.
- Cohen, Kalman J. , and Sten Thore. "Programming Bank Portfolios Under Uncertainty". Journal Of Bank Research: Vol. 1, Spring 1970, pp. 42-61.
- Crane, Dwight B. , "A Stochastic Programming Model For Commercial Bank Bond Portfolio Management". Journal of Financial and Quantitative Analysis: Vol. 6, June 1971, pp. 955-976.
- Day, R. E. , LPEVAL; Linear Programming (Two- Phase). Edinburgh: University of Edinburgh, Business Studies Department, March 1982.
- Dessouki, Ali E. Hillal. "The Politics of Income Distribution in Egypt". In The Political Economy of Income Distribution In Egypt, pp. 55-87. Edited by Gouda Abdel Khalek and Robert Tignor. New York: Holmes and Meier, 1982.
- Draper, Dennis W. , and James W. Hoag. "Financial Intermediation And The Theory of Agency". Journal of Financial and Quantitative Analysis: Vol. 13, No. 4, November 1978, pp. 595-611.
- El-Akhbar. September 24, 1984, (In Arabic).
- El-Sayed, Salah. Egypt Strategies For Investment. Cairo: Academy for International Business, Middle East, 1977.
- Field, Peter, and Alan Moore. Arab Financial Markets. eds., London: Euromoney Publications, 1981.
- Financial Times. February 22, 1985.
- Financial Times. "Financial Times Survey: Arab Banking". October 15, 1984.
- Financial Times. October 26, 1984.
- Foda, Ahmed S. , "Banking Sector Survey". Unpublished study. Cairo, June 1982.
- Fortson, James C. , and Robert R. Dince. "An Application of Goal Programming to Management of Country Bank". Journal of Bank Research: Vol. 7, No. 4, Winter 1977, pp. 311-319.
- Fried, Joel . "Bank Portfolio Selection". Journal of Financial and

Quantitative Analysis: Vol. 5, June 1970, pp. 203-227.

- General Petroleum Corporation. Petroleum Bulletin. 1975, 1976, 1977, 1978, 1979, 1980, 1981, 1982.
- Goldfeld, Stephen M. , "Comment on Modelling The Banking Firm : A Survey". Journal of Money, Credit, and Banking: Vol. 16, No. 4, part 2, November 1984, pp. 609-611.
- Goniam, Emad. The Egyptian Pound In The Money Market. Al-Ahram Iktisadi: No. 746, May 2, 1983, pp. 24-27, (In Arabic).
- Goodhart, C. A. E. , Money, Information and Uncertainty. London: The Macmillan Press, 1975.
- ✓ - Green, Paul E. , Analysing Multivariate Data. Illinois: The Dryden Press, 1978.
- Guardian. April 1, 1985.
- ✓ - Hair, Joseph F. , et al., Multivariate Data Analysis, Oklahoma: Petroleum Publishing Company, 1979.
- ✓ - Harman, Harry H. , Modern Factor Analysis. Chicago: The University of Chicago Press, 1976.
- Hart, Oliver D. , and Dwight A. Jaffee, "On The Application of Portfolio Theory To Depository Financial Intermediaries". Review of Economic Studies: Vol. 41, January 1974, pp. 129-147.
- Hester, Donald D. , and James L. Pierce. Bank Management and Portfolio Behaviour. New Haven: Yale University Press, 1975.
- Hyman, D. N. , "A Behavioural Model for Commercial Banking". Ph.D. dissertation, Princeton University, 1969.
- Hyman, D. N. , " A Behavioural Model For Financial Intermediation". Economic and Business Bulletin: Vol. 24, Spring-Summer 1972, pp. 9-17.
- Ibrahim, Mohamed Nabil. The Potentials of Egypt as a financial centre for the Middle East and Africa. Paper presented at the International Conference On Capital Market Development, Cairo, May 1983.
- Ingram, Simon. "The Banks Role". Cairo Today, Vol. 4, No. 2, February 1983, pp. 25-32.
- International Bank For Reconstruction And Development. Egypt, Economic Management In A Period Of Transition. by Khalid Ikram. Coordinating Author. Baltimore: The Johns Hopkins University Press, 1980.
- Jick, Todd D. , "Mixing Qualitative and Quantitative Methods: Triangulation in Action". Administrative Science Quarterly: Vol. 24, No. 4, December 1979, pp. 602-611.
- Kane, E. J. , and E. G. Malkiel. "Bank Portfolio Allocation, Deposit

Variability, and the Availability Doctrine". Quarterly Journal of Economics: Vol. 79, February 1965, pp. 113-134.

- Karsten, Ingo. "Islam and Financial Intermediation". International Monetary Fund, Staff Papers: Vol. 29, No. 1, March 1982, pp. 108-142.
- Kerr, David W. , "Survey Of The Securities Market In Egypt". Paper presented at the International Conference On Capital Market Development, Cairo, May 1983.
- Klein, Michael A. , "A Theory of the Banking Firm". Journal of Money, Credit, and Banking: Vol. 3, May 1971, pp. 205-218.
- / - Koutsoyiannis, A., Theory of Econometrics. 2nd. ed., London: Macmillan Press, 1977.
- LeLand, Hayne E. , and David H. Pyle. "Informational Asymmetries, Financial Structure, and Financial Intermediation". Journal of Finance: Vol. 32, No. 2, May 1977, pp. 371-387.
- McDermott, Anthony. "Changing Relationships In Egypt". The Banker: December 1981, pp. 107-114.
- / - Maddala, G. S. , Econometrics. New York: McGraw-Hill Book, 1977.
- Markowitz, Harry M. , Portfolio Selection: Efficient Diversification of Investments. New York: John Wiley and Sons, 1959.
- / - Massy, William F. , "Principal Components Regression In Exploratory Statistical Research". Journal Of The American Statistical Association: Vol. 60, March 1965, pp. 234-256.
- Michaelsen, J. B. , and R.C. Goshay. "Portfolio Selection In Financial Intermediaries: A New Approach". Journal of Financial and Quantitative Analysis: Vol. 2, No. 2, June 1967, pp. 166-199.
- Miller, Stephen A. , "A Theory of the Banking Firm: Comment". Journal of Monetary Economics: Vol. 1, January 1975, pp. 123-128.
- Mingo, John and Benjamin Wolkowitz. "The Effects of Regulation on Balance Sheet Decisions". Journal of Finance: Vol. 32, No. 3, December 1977, pp. 1605-1616.
- Mokhtar, Ibrahim. Investment Banks. Cairo: Dar Wahdan, 1982, (In Arabic).
- Monti, M. , "Deposit, Credit and Interest Rates Determination Under Alternative Bank Objective Functions". In Mathematical Methods In Investment and Finance, pp. 430-454. Edited by G.P. Szego, and K. Shell. Amsterdam: North-Holland Publishing Company, 1972.
- Myer, Ann Elizabeth. "Islamic Law And Banking In The Middle East Today". Middle East Executive Report: Vol. 2, 1979, pp. 2, 11-12.
- National Bank of Egypt. "Development Of Exchange Rate System in Egypt 1947-1978". Economic Bulletin, Vol. 33, No. 1, 1980, pp. 5-27.

- _____ . Economic Bulletin. various issues, (1975, 1976, 1977, 1978, 1979, 1980, 1981, 1982, 1983).
- _____ . "Evolution of Exchange Control in Egypt With Special Reference To Law No. 97/1976". Economic Bulletin, Vol. 30, No. 1, 1977, pp. 5- 27.
- _____ . "Main Laws And Economic Legislation". Economic Bulletin: Vol. 35, No. 1, 1982, pp. 59-66.
- _____ . "The Main Economic Laws and Legislation". Economic Bulletin: Vol. 34, No. 3, 1981, pp. 185-190.
- Niehans, Jürg. "The Theory of Money". Baltimore: John Hopkins University Press, 1978.
- ✓ - Nie, N., etal., Statistical Package For Social Science [SPSS]. 2nd ed., New York: McGraw-Hill, 1975.
- ✓ - Norusis, Marija J. , SPSSX Introductory Statistics Guide. New York: McGraw- Hill Book, 1983.
- O'Hara, Maureen. "A Dynamic Theory Of The Banking Firm". Journal of Finance: Vol. 38, No. 1, March 1983, pp. 127-140.
- ✓ - Pidot, George B. , Jr., "A Principal Components Analysis Of The Determinants Of Local Government Fiscal Patterns". The Review of Economics and Statistics: Vol. 51, 1969, pp. 176-188.
- Porter, Richard C. , "A Model of Bank Portfolio Selection". Yale Economic Essays: No. 1, 1961, pp. 323-359.
- Pringle, John J. , "A Theory of the Banking Firm: Comment". Journal of Money, Credit, and Banking: Vol. 5, November 1973, pp. 990-996.
- Pringle, John J. , "The Imperfect-Markets Model of Commercial Bank Financial Management". Journal of Financial and Quantitative Analysis: Vol. 9, January 1974, pp. 69-87.
- Pyle, David H. , "Descriptive Theories of Financial Institutions Under Uncertainty". Journal of Financial and Quantitative Analysis: Vol. 7, December 1972, pp. 2009-2029.
- Pyle, David H. , "On The Theory of Financial Intermediation". Journal of Finance: Vol. 26, June 1971, pp. 737-747.
- Rahman, Afzalur. Economic Doctrines of Islam: Banking and Insurance. Vol. 4, London: The Muslim Schools Trust, 1979.
- Robertson, J. M. , "A Bank Asset Management Model". In Application of Management Science in Banking and Finance, pp. 149-158. Edited by Samuel Eilon and Terence R. Fowkes. Essex: Gower Press, 1972.
- Santomero, Anthony M. , and R. D. Watson. "Determining an Optimal Standard for the Banking Industry". Journal of Finance: Vol. 32, September 1977, pp. 1267-1282.

- Santomero, Anthony M. , "Modelling The Banking Firm: A Survey". Journal of Money, Credit, and Banking: Vol. 16, No. 4, Part 2, November 1984, pp. 577-602.
- Saving, T. , "A Theory of Money Supply With Competitive Banking". Journal of Monetary Economics: Vol. 3, July 1977, pp. 289-303.
- Sealey, C. W. , Jr., "A Further Reconsideration of Optimal Reserve Management at Commercial Banks". Southern Economic Journal: Vol. 44, July 1977, pp. 117-124.
- Sealey, C. W. , Jr., "Deposit Rate-Setting, Risk Aversion, And The Theory Of Depository Financial Intermediaries". Journal of Finance: Vol. 35, No. 5, December 1980, pp. 1139-1154.
- Sealey, C. W. , Jr., and J. T. Lindley. "Inputs, Outputs, and a Theory of Production and Cost At Depository Financial Institutions". Journal of Finance: Vol. 32, No. 4, September 1977, pp. 1251-1266.
- Siddiqi, Muhammed Nejatullah. Banking Without Interest. Leicester: The Islamic Foundation, 1983.
- _____. Issues in Islamic Banking. Leicester: The Islamic Foundation, 1983.
- SPSS Incorporation. SPSSX User's Guide. New York: McGraw-Hill Book, 1983.
- Stillson, Richard T. , "An Analysis of Information and Transaction Services in Financial Institutions". Journal of Money, Credit, and Banking: Vol. 5, No. 4, November 1974, pp. 517-535.
- Stopher, Peter R. , and Arnim H. Myburg. Survey Sampling and Multivariate Analysis For Social Scientists and Engineers. Toronto: Lexington Books, 1979.
- Taggart, Robert A. , and Stuart I. Greenbaum. "Bank Capital and Public Regulation". Journal of Money, Credit, and Banking: Vol. 10, No. 2, May 1978, pp. 158-169.
- Thore, Sten. "Programming Bank Reserves Under Uncertainty". The Swedish Journal of Economics: Vol. 70, September 1968, pp. 123-137.
- Towey, Richard E. , "Money Creation and the Theory of the Banking Firm". Journal of Finance: Vol. 29, March 1974, pp. 57-72.
- Williams, H. P. Model Building In Mathematical Programming. Chichester: John Wiley and Sons, 1978.
- Wohlers-Scharf, Traute. Arab and Islamic Banks. Paris: Organization For Economic Cooperations And Develop, 1983.
- World Bank. World Debt Tables. Washington, D. C. : World Bank, various issues, (1979-1984).

Reports And Official Publications

- Alexandria Kuwait International Bank. Annual Report. 1980, 1981, 1982.
- Arabic Republic of Egypt. Official Gazette (Al-Waqai Al-Misriyya): No. 62, March 13, 1983, (In Arabic).
- Banque Du Cairo Et Du Paris. Annual Report. 1978, 1979, 1980, 1981, 1982.
- Cairo Barclays International Bank. Annual Report. 1977, 1978, 1979, 1980, 1981, 1982.
- Cairo Fareast Bank. Annual Report. 1979, 1980, 1981, 1982.
- Central Bank of Egypt. Annual Report, Cairo: CBE, 1978, 1979, 1980, 1981, 1982/83, 1983/84.
- _____. "Credit Ceiling Regulations". A letter sent to all Commercial Banks, October 1981. (In Arabic).
- _____. "Deposits With CBE in Foreign Currency". Circulars No. 251, July 1980; and No. 252, September 1980, (In Arabic).
- _____. "Liquidity Ratio". Circular No. 11, April 1958. (In Arabic).
- _____. "Liquidity Ratio". Circular No. 261, March 1981 (In Arabic).
- _____. "Required Cash Reserves". Circular No. 264, November 1981, (In Arabic).
- _____. "Securities Investment Regulations". Circular No. 240, November 1978, (In Arabic).
- _____. "US\$ 200,000,000 Stand By Revolving Credit". Placement Memorandum. Cairo, March 1982.
- Chase National Bank (Egypt). Annual Report. 1976, 1977, 1978, 1979, 1980, 1981, 1982.
- Credit International D'Egypte. Annual Report. 1978, 1979, 1980, 1981, 1982.
- Dar Al-Maal Al-Islami Trust. Annual Report. 1982
- Egyptian American Bank. Annual Report. 1977, 1978, 1979, 1980, 1981, 1982.
- Egyptian Government. "Law No. 120 of 1975 Relating to the Central Bank of Egypt and The Banking System". 1975, (In Arabic).
- Faisal Islamic Bank of Egypt. Annual Report. 1979, 1980, 1981, 1982.
- International Monetary Fund. "Annual Report on Exchange Arrangements and Exchange Restrictions". Washington, DC., IMF, 1981, 1982.
- Misr America International Bank. Annual Report. 1978, 1979, 1980, 1981, 1982.

- Misr International Bank. Annual Report. 1977, 1978, 1979, 1980, 1981, 1982.
- Misr Iran Development Bank, Annual Report. 1976, 1977, 1978, 1979, 1980, 1981, 1982.
- Misr Romanian Bank, Annual Report. 1978, 1979, 1980, 1981, 1982.
- National Bank of Egypt. "Guaranteed Floating Rate Serial Notes 1987". Placement Memorandum, June 1983.
- Societe Arabe International De Banque. Annual Report. 1977, 1978, 1979, 1980, 1981, 1982.
- World Bank. "Arab Republic of Egypt: Domestic Resources Mobilization and Growth Prospects for the 1980's". Unpublished report. December 1980.
- World Bank. "Recent Economic Development: Egypt". Unpublished report. May 1982.