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Direct foreign investment in developing economies

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DIRECT FOREIGN INVESTMENT IN DEVELOPING ECONOMIES: CASE STUDY FROM EGYPT

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I. INTRODUCTION

International investments have grown remarkably in the last few years. An important portion of these investments is of direct foreign investment by multinational corporations[1]. Multinational corporations[2] have come to be an important area of discussion and development in the theory of foreign investments. We cannot deny their role in the development of a number of industrialized countries although they are accused of, especially in developing countries, influencing the host country's economic and foreign policy .

Multinational corporations engaged in Direct Foreign Investment (DFI) operate at a disadvantage relative to their host countries competitors in a number of ways such as incurring additional costs associated with management of an enterprise at a distance, and incurring political risks. Therefore, there should be an advantage for the investor over local corporations, which possess innate strengths such as knowledge of the local environment, market and business conditions, to outweigh these costs. The advantage to the source country firms may be in the form of economies of scale, proprietary informations, certain secrets, certain patents, know-how, marketing, and managerial skills[3].

Developing countries, including Egypt, are seeking foreign investment. In some cases this has taken the form of pharmaceutical companies investing in 3rd world countries. Host countries may formulate the types of investment incentives

to guide foreign investment to those fields which are deemed consistent with the objective of social and economic development plans. However, multinational corporations' investment in developing countries is considered to be sluggish except for the pharmaceutical industry which is more international[4].

Multinational corporation might prefer investment in the more developed countries. The profits are more easily repatriated to the home country and the infrastructure is in a far better position. However, the market size, competition level, and labor cost may induce foreign investment to the developing countries. The primary question the theory of DFI should answer is the reason behind foreign investment. For example, why is the drug industry extensively international? and why is there a substantial rise in foreign capital inflow to the manufacturing sector in a country like Turkey and a slow one in a country like Egypt? Once we are able to identify the factors affecting the decision of DFI, Egypt could formulate and organize its development plans to include these factors to attract DFI. Moreover, once we are able to define Egypt's economic disadvantages and advantages, from a multinational approach, will be in a better position when bargaining and negotiating with the multinational corporations. This will also help Egypt to offer incentives that have major effect on multinational decision on investment.

Objective and Methodology

The purpose of the study is to identify and investigate the factors affecting the decision of DFI with special attention to the case of Egypt as a developing country. The thesis analyzes various facilities and incentives that Egypt offers to attract foreign investment, and also looks into various laws and regulations governing and controlling DFI in Egypt. The study uses an adapted model and applies it to a case study on a multinational investing in Egypt. The adapted model includes political risk as a factor affecting the decision of DFI. The study also evaluates the financial performance of the multinational operating in Egypt and calculate the gains from investing in Egypt to be compared with the gains from investing in another country. The financial performance of the enterprise is analyzed using the financial rate of return (FRR) and other financial ratios.

To achieve the above mentioned objective the thesis is divided into the following chapters.

Chapter II

Investment In Egypt: An Overview

This chapter includes a description of laws and regulations on investment in Egypt, the incentives offered under various laws with special attention to the Open Door Policy and its effect on the Egyptian economy. The chapter also comprises a comparison between the various incentives offered under the investment laws. We divided the incentives offered to the investor in Egypt in two: direct incentives stated in the

investment laws, and indirect incentives resulting from the country's political, economic and social conditions. The chapter ends by demonstrating the problems faced by investors in Egypt. This chapter covers the period from 1952 to 1989.

Chapter III

Factors Affecting the Decision of Direct Foreign Investment

In this part, the study defines different views concerning the factors affecting DFI decision, the contribution of different authors to this discussion, and how relevant these factors are to the decision of multinational investments in Egypt. A model was chosen and adapted to include political risk as a major factor affecting the decision of foreign investments. The study also includes a comparison between risk of lending and risk of direct investment. This chapter describes a linear programming model testing the profitability of a project when investing against exporting or investing in another country.

Chapter IV

Application of the Model

Using data gathered from a multinational which invested in Egypt, the model is applied as a case study. A review of past financial performance of the company is undertaken and various financial indicators are calculated. A financial projection for the period 1990 - 1995, based on the company's historical performance, is presented. The results

are then used in calculating the market value of shares. Sensitivity analysis help us to test the different factors affecting the decision of DFI included in our adapted model. A linear programming model is used to calculate the gains to the multinational from investing in Egypt. Our results are then analyzed and interpreted.

Chapter V

Evaluating Foreign Investments

Chapter V presents some theoretical considerations on aspects of DFI neglected in our model. The chapter discusses briefly how we can evaluate multinational corporation investments.

Chapter VI

Conclusion

In this chapter we review the conclusions at which we arrive after our case study. The relevance of this work to Egypt, and to the theory of DFI is discussed. Finally, we discuss some potential areas for future research.

The Data Base

The data base used for this study relies on the following sources

1. The General Authority For Investment (GAFI) annual reports were used in estimating the importance of investment lows.

2. Pancras J.Nagy and the International Country Risk Guide

of April 1989 are the main sources of data in calculating Egypt political risk rating.

3. G.M.E. annual reports 1986 - 1989 were the basic source of information for the case study.

4. Interviews with G.M.E. managers clarified some points not included in published company informations.

NOTES TO INTRODUCTION

1- Direct investment is distinguished from portfolio investment by the extent of control over the firm's decisions exercised by the investor.

2- There is more than one definition for multinational corporation. However, throughout our study, we define the firm which owns outputs of goods or services originating in more than one country as a multinational.

3- These advantages are not all normally available to the host country firms on the same price and terms as to the source country firms.

4- Robert Aliber, "A Theory of Direct Foreign Investment" The International Corporation ed. C.P.Kindleberger. Cambridge, Mass., MIT Press, 1970, p. 18.

CHAPTER II

INVESTMENT IN EGYPT: AN OVERVIEW

1.Introduction

Changes in a nation's policy or ideology are often reflected by changes in the legal framework. The result is felt in various ways depending on the scope of the laws. In this chapter we are going to look into the historical development of investment in Egypt from 1952 up to today. Moreover, we will try to analyze the incentives offered for investors in Egypt.

2. The Period 1952 - 1971

Before 1952 the role of the state was confined to investment in infrastructure and social services. The main productive services, such as agriculture, industry, internal and foreign trade, banking, and insurance, were managed by private owners. The private sector accounted for about 87% of G.N.P., while the public sector provided the rest. However, the absence of any trade restrictions on the direct export of finished products to Egypt made local production unattractive. Most multinational corporation supplied the Egyptian market with exports from industrialized countries.

President Nasser went through a dramatic shift in ideology. The aim of Nasser's policies was rapid development. This led to changes in laws and regulations.

In the period of 1952 to 1956, the Egyptian government tried

to attract Direct Foreign Investment (DFI). However, the nationalization of the Suez Canal in 1956, as a result of a Western consortium led by the U.S. declining to construct the Aswan High Dam, and the war that followed inaugurated a new stage of government control. The beginning was the nationalization of all British and French companies. The year 1961 witnessed the nationalization of all remaining large and medium sized domestic companies virtually eliminating the private sector. In December 1961, the Supreme Council for Public Organizations was established to supervise 38 public organization comprising 367 companies. By 1967, this had become 48 organization with 382 affiliated companies[1].

A National Charter was proclaimed in 1962 indicating that the government would set the specific limits within which foreign capital would be allowed to act in the government's best interest. The Charter assigned the highest priority to unconditional foreign aid, followed by unconditional foreign loans. Foreign private investments ranked third[2].

The 1967 war coupled with political instability made Egypt a place of considerable risk for direct foreign investment. During the period from 1952 to 1970, the Egyptian government depended mainly on the public sector in achieving government development plans, while the local private sector had a minor role, and DFI received a modest amount of attention. Foreign investments, when they occurred, however, were channeled into healthy productive industries. In the 1960's three pharmaceutical multinationals established subsidiaries

in Egypt. The expected gains from that investment covered any costs or risk associated with it. Market and economic condition were favorable and the gains depended on who would get there first.

3. The Open Door Policy:

In 1964 president Nasser laid the foundations for privatization by permitting a number of nationalized contractors to manage their companies more autonomously. In fact construction was one of the sectors which were allowed to be privately owned in the established National Charter (1962)[3]. After the 1973 War, President Sadat embarked on new economic policy, the goal was (again) development, which has come to be called the Open Door Policy (ODP).

The internal political leverage of the war enabled President Sadat to pursue a peace settlement with Israel, and thus political stability needed for the flow of direct foreign investment. Moreover, the internal pressure of the private sector elites (e.g. Osman Ahmed Osman), on President Sadat was one factor in favor of opening up the economy[4]. The ODP was a formula for economic liberalization and had major implications for the course of economic strategy. The new policy required a major overhaul in the law books and in the basic business premises of the nation. These policies as reflected in the laws of liberalization were aimed at opening up the economy to accelerate investment. There was the stress that the goal was to revive the private sector, not as a substitute for the public sector, but a strong partner

that would assist in speeding the process of economic development. The government would institute policies and offer incentives to encourage the in-flow of direct foreign investment and modern technology needed for the benefit of the national economy.

3.1. Law No. 43 of 1974

On the basis of the liberalization aim, Egypt underwent attempts to improve the legal framework in an effort to attract potential investors both foreign and domestic. One aspect of these new business laws in the shift to an open market economy was reflected in the laws governing investment in Egypt.

In 1974, Law No. 43 was announced (a joint venture Law) with high expectations that it would pave the way for foreign mobilization of investment funds. There were two basic objectives to Law No. 43 1) Stress on the encouragement of export-oriented industries, although this did not preclude the development of import substitution industries. Most potential investors in Egypt were interested in Egypt as a potential market and not as an export base however, thus the original obvious bias against import-substitution was seen as an impediment. 2) Encouragement of the transfer of modern appropriate technology was the second objective of Law No. 43. There was also encouragement of investment in the area of tourism as a potential generator of foreign currency[5].

In 1977 Law No. 43 was amended by Law No. 32 of 1977 offering various incentives, privileges and exemptions which fall into various categories: Guarantees against expropriation;

exemption from certain labor, business, and other laws; privileges with respect to exchange controls and repatriation of funds; exemption from taxation and custom duties; and special procedures for settlement of investment disputes. The amendments also ensured that the same privileges offered by the law to foreigners were extended for the first time to Egyptians. In addition it was made clear that the stress on encouragement of export-oriented industries, did not shut out the development of import-substitution industries[6].

3.2. Law No. 159 of 1981

President Sadat signed in 1981 Law No. 159 known as the Companies Law (a joint stock Law) to improve and replace Law No. 26 of 1954. The law was promulgated as a result of the recognition that the majority of investments under Law No.43 were made by Egyptians, and taking into account the importance of creating a national private sector capable of participating in new projects. Law No. 159 contains many liberalizing concessions:

- It introduced to the Egyptian companies the concept of authorized and issued capital contrary to Law 26 which requires all the capital be subscribed upon formation.
- A complete framework for mergers and liquidations of companies was introduced. The law also includes protection for merged company shareholders rights.
- A presidential decree is no longer required to create publicly companies.
- The right for shareholders to dismiss any or all of the

board of directors and inspect company records.

- No requirement for electing labor representatives in the board of directors.

- Salaries of company executives are not limited to L.E. 5,000.

- No restriction on board members acting as proxy for one another.

- Board members were allowed to serve on other companies subject to the approval of the boards of the companies involved.

- The amount of net profit to be distributed to workers is reduced from 25% to 10% of total annual salaries.

- The law reduces the number of founders required from seven to two.

No prohibition of board members serving after the age of 60. The low also includes provisions protecting company officers against the action of creditors[7]. But, what are the difference between the incentives offered under each liberalization Law?

3.3. Direct Incentives Under Law 43 and Law 159

Both laws were meant to encourage private investors to invest in Egypt. However, companies established according to Law No.43 are regarded as foreign investment even if they are owned by Egyptians, while companies established under Law No.159 are regarded as local companies even if the majority of the shares belong to foreign investors. Investors were confused about the incentives offered under each system. The following table summarize the main incentives

offered under each law.

Table 1

Comparison Between Incentives of Laws 43, and 159

Law 43	Law 159
Capital	
No obligation on Foreign %	49% should be Egyptian
Not less than 2 subscribers.	Not less than 3 subscribers to share companies; 2 subscribers to limited companies.
Shares are negotiable at any time	shares are negotiable, after publishing 2 B.sheets covering 2 yea
Repatriation of capital & profits is acceptable.	is not acceptable.
Board Members (BM)	
No limit on the number of proxies among the BM.	Only up to one third of the membe may be represented by proxy.
No limit on remuneration or fringe benefits for board members.	
Salaries have no legal limit	Limited to a max. decided by Gov.
No Egyptian majority on the board	Egyptians majority on the board
Appointing a foreigner in 2 or more companies as a BM.	Foreigners should be BM of only o company.
A managing director can head more than one company	A managing director may only head companies,provided that the genera meetings of both companies agree.
A BM can do any job in any co.	A BM may only be employed with the approval of the general meeting o the company.
Labor Force Laws	
Exempted from the labor laws.	The company is subject to labor laws.
The company is not obliged to distribute a fixed % of net profit.*	10% of net profit is to be distributed with a maximum per capita of one year wages.
Exchange Control Laws	
Exempted from stipulations and rules of foreign exchange laws.	Subject to exchange control rules and regulations.
Exempted from export and import license system.	Subject to export and impor license system.
Taxes	
Tax holiday from trading and industrial taxes, also taxes on co. and income for five years.	For shares stock companies, to be registered in the stock exchange tax relief on income on shares and interest on stock is equal to interest rates paid by banks. Also 50% of the income derived from shares or stocks is tax free.
Under presidential decree, capital equipment is imported duty free.	The General Customs Law is to be applied.

Source: Egyptian British Trade "Policies and Measures Designed t Stimulate Investment in Egypt" April, 1984.

3.4. Indirect Incentives

Egypt's economic system and conditions offers foreign investors some indirect incentives the most important of which are; (1) The large amount of capital held by Egyptians either in time deposits or as hoarding and looking for profitable investment options. This provides a source of fund available for investors.

(2) According to official statistics, consumer prices (urban areas) in January 1990 were 26.5% above those of the previous year. At the same time the loan interest rate reached an average of 17% and hence a negative real interest rate on loans. Some of the foreign Investment companies used this gap in the economy to finance themselves depending on local bank loans, and they used their own capital as deposits earning interest in foreign currency.

(3) indirect subsidies to foreign investment in the form of subsidized energy prices through the Egyptian government pricing policy of fuel oil, electricity (for power plants), and diesel (for heavy transport). Oil product subsidies are by far the most expensive subsidy provided by the Egyptian government and encourage excessive consumption.

(4) subsidized loans from foreign governments, for example the Private Investment Encouragement Fund (PIE) utilizing dollars available under the U.S. Agency for International Development (AID) is supplying some of the American projects in Egypt with foreign loans. The loan is repayable in Egyptian pounds at a fixed exchange rate.

(5) The strategic location of Egypt and the Suez Canal.

(6) The large domestic market of approximately 56 million inhabitants and high disposable income.

(7) An abundance of skilled and unskilled labor with low wages comparatively[a].

In addition to Law No. 43, and Law 159, other laws existed for investment in the "new communities", in hotels and tourism and in land reclamation.

One of the recurring complaints of potential foreign investors was the confusing multiplicity of Egyptian investment laws, regulations, and administrative authorities and procedures. It was in this context that Egypt enacted Law No. 230 of 1989, known as the new Investment Law.

Law No. 230, replaced Law No. 43 of 1974, and article 183 of the Law on joint-stock companies, partnerships and limited liability companies promulgated by Law No. 159 of 1981. Implementing regulations for Law No. 230 were issued in early December 1989. The law revised various section of Law No. 43 of 1974. The main distinction the new investment Law have from Law No. 43 is the provision requiring companies to distribute 10% of profits to their employees. This provision was regarded as a disincentive specially by the petroleum companies, which earn high profits.

The new law does attempt to remedy some of the deficiencies of the earlier investment law, primarily by increasing the responsibilities (review and approval) of the Investment Authority at the Ministry of Economy and Foreign Trade. In an attempt to make the Investment Authority a one stop department. Moreover, different policies and measures have

been carried out by the Egyptian government in order to encourage investment. Work method were reviewed so as to eliminate obstacles faced by investors[9]. In the following part we try to analyze the response of direct foreign investment to the ODP policy and to the incentives offered under the investment laws.

4. The Response to The Open Door Policy:

The response since 1974 has gone through periods of fluctuations, however, on the whole, the number of projects actually implemented has fallen short of expectations. Despite the extensive incentives involved in Laws No. 43, 159 and 230. Nevertheless, some authors argue that the Law 43 has been responsible about half of aggregate private investment outside agriculture and successful in bringing the private sector back to force[10].

4.1. The ODP and Law No. 43

The financial incentives offered by Law No. 43 of 1974, and its amendments, encouraged the growth of the private sector. The number of investment projects approved under the investment Law numbered 1,689 as of june 30,1989, with a total capital of L.E. 8.6 billion. Approximately two third of these projects are either under implementation or in production. The following table illustrates the distribution of equity by nationality up to mid-1989.

Table 2
Distribution of Equity by Nationality Mid-1989

	Approved (L.E. Million)	%	In Production or under Implementation (L.E. Million)
Egyptians	5,394	62.9	3,596
Arab	1,644	19.2	1,096
U.S.A.	412	4.8	275
EEC	492	5.7	328
Others	636	7.4	424
Total	8,578	100.0	5,719

Source: American Embassy Report, Cairo December 1989.

Egyptian wholly own 100% of 694 projects, with an equity of L.E. 3 billion. Egyptians are partners with foreigners in another 778 projects, with an equity of L.E. 1.92 billion. Total value of the investment projects including equity and working capital is L.E. 15.3 billion. Total foreign investment is L.E. 3.2 billion, of which the U.S. share is 12.9%, and total Western investment is L.E. 830 million, of which the U.S. share is 46%[11].

These figures do not include foreign investment made under Law 159 and other commercial statutes, or the petroleum operating companies.

The high response of the Egyptian investors since the adoption of the ODP is very clear. One of the factors behind that is the relaxation of foreign exchange controls in 1976. This allowed Egyptians to freely hold foreign currency deposits, which increased the proportion of domestic liquidity held in both foreign and local currency deposits. Since 1976 foreign and local currency deposits have grown on an annualized basis and are now estimated to be U.S. $ 11.1 billion. Private companies and individuals have an estimated

additional L.E. 35 billion in current accounts in commercial and investment banks[12]. These figures reflect the extremely high level of liquidity in the Egyptian economy which represent continues pressure on consumption and inflation. At the same time, however, they indicate to us two main points, the substantial rise in the pool of funds available for investments if properly guided towards viable investment opportunities, and that Egypt does not need the capital as badly as it needs the technology, know-how and experience. Law No. 159 was formed to absorb the high level of liquidity in the Egyptian banks and is concentrating on Egyptian investors.

4.2. The ODP and Law No. 159

If we would compare the attractiveness of the features of Law 159 as opposed to Law 26, it would seem that the former is more successful in mobilizing investment funds, The following table illustrates the number of companies under each law.

Table 3
Comparison of Law No. 26 With Law No. 159

	No. of Co.
* No. of companies under Law No. 26 of 1954	90
- Companies left after nationalization	30
- Companies established during 1960'S	4
- Companies established between 1971-82	56
* No.of projects approved under law No. 159 until 30/6/1983	86

Source: Investment Authority - Annual Report 1982-83, page 45.

It is obvious that during the 60's only four projects were approved while during the 70's, and before Law 159, 56 projects were established, under the same Law. This leads us to say that there is more involved here than the legal

structure. One could say that the investment condition of the 60's were not inviting to direct foreign investment when compared with that of the 70's. Therefore, there is a definite distinction between the liberal Laws and the general economic attitude toward investment. It seem that the entire environment has a major effect on the course of investment. From the time of Law 159 implementation in November 1982 to June 1983, 86 projects were approved with a total capital of L.E. 51 million, six months later in December 1983 the number of approved projects reached 167 with a total capital of L.E. 289 million[13]. The magnitude and quantity of projects has increased, but what are the results of the ODP policy on the economy?

4.3. Results of the ODP Policy

The Egyptian government hoped that the ODP policy would overhaul prices, management, marketing, employment and investment. However, the performance has fallen short of expectations. Industry did not take the lead, as planned, the growth of G.D.P. came from investments in banking, construction, and tourism. Private capital, as a rule, shunned long-term investment and steered capital flow in trade, service, basic industries and agribusiness joint venture projects. However, Economists argues that Law 43 is the one responsible about the bulk of investments and that almost 85 percent of the aggregate private sector investment in manufacturing is under Law 43[14].

A decade after the promulgation of Law 43 of 1974, 1,608 projects had been approved by the government, involving

capital of $ 11.6 billion; but foreign capital involved accounted for less than 10% reaching $951.6 million and very little went to industry. This clearly illustrates the unproductive destination of the investments. As a percentage of G.D.P., the export of goods and services rose from 14.6% in 1972-3 to 43.8% in 1979-80. Over the same period the percentage of imports of goods and services rose from 21% to 53%. Moreover, Egypt limited foreign exchange was drained by imports of luxury items and Loans with low interest rate were granted to enterpreneurial investors gaining easy money by importing consumer goods. To add a further dimension to this picture a report prepared and published in june 1986 by the Shura Council showed how the ODP had failed to live up to the expectations and had had a negative impact on the country balance of payments. During the four-year period up to 1984-5, ODP projects had generated a total of L.E. 68.8 million in export, while requiring imports of L.E. 2.3 billion. In addition repatriated profits for foreign investors plus salaries during 1976-85 amounted to L.E.370 million[15]. Indeed the ODP has shown to be a net drain. The result of the ODP policy were reversed instead of capital inflow capital outflow dominated the period. The inflation rate reached its highest levels with no accurate calculation of it whatsoever. Moreover, the ODP was unable to generate the lasting jobs and economic infrastructure that had originally been envisaged.

The benefits of the ODP policy failed to materialize. The gap between Egypt's rich and poor widened, with the share of

lowest 20% of the population dropping from 7% of the national income in 1965 to 5.1% by the late 1970s. The income of the highest 5% climbed from 17.4% in 1960 to 22% of national income after several years of the ODP policy[16]. In other words, the poor became poorer and the rich became richer. The divisive social effects of creating literally thousands of millionaires (speculators, middleman, and merchants) aside, has made only a superficial contribution to the economy and hardly changed its fundamental make-up at all. Low salaries, compared to other sectors and prices, made it inevitable that the civil servants would seek second jobs in the private sector: moonlighting became a way of life. Almost 89% of the civil servants were involved in extra employment as an economic necessity. This sort of activities meant that the energies of civil servants and their concentration were impaired, and low worker productivity became one major ills besetting the Egyptian economy today[17]. Finally, we have to note here that the bulk of investment activities during the seventies were being made in quick-return projects, mainly consumer products, trade and service activities, not in the heavy industrial projects. The ODP opened a new avenues and people grabbed the opportunity to make a quick "pound". But why are investors mainly concerned with consumer goods and service projects?. The following part tries to find an explanation.

4.4. The ODP and Consumer Goods and Services

A) The high level of tariffs on non-essential consumer goods in relation to capital equipment, induced foreign investment

in domestic industry. These foreign companies producing non-essential consumer goods were thus able to take advantages of a high rate of protection[18].

B) Another reason for the concentration of consumer products industries, rather than the high-technology industries needed for the development plans, is the incentives offered. The main incentive is that profits will be exempted from various taxes for five to eight years.

The impact of the above incentive on direct foreign investment was quite disappointing.

Tax holidays may have a strong bias in favor of projects which are characterized by short-term high growth rate of cash in-flow, and low cost of capital. The project's economic life appears to be the dominant factor in maximizing the foreign investor's benefits from tax holidays. Hence foreign investors may have been encouraged to invest in projects producing consumer goods such as food processing and services. These projects are characterized by achieving short pay-back period and low cost of capital.

Foreign investors were not ready to invest large amounts of capital in Egypt. Therefore, we can say that the direct incentives attracted projects that have a low capital cost mainly in consumer durable goods and not in high-technology projects which needs a large amount of capital to be invested in the country. Observation also indicated that most of investment projects depended mainly on local capital and loans for financing rather than capital in-flow, which leads us to the next reason of the effect of proliferation of

private banks[19].

C) Private banks were allowed to operate in Egypt in 1974, Thereby reversing the nationalization of the banking system enacted in 1960. Joint venture commercial banks have responded very strongly to the opening up of the economy to private banks in 1974. Out of the L.E. 2.1 billion capitalized in in-country projects by the end of 1985, 52 percent was concentrated in banking and related financial services, while 24 percent only went to industry, 19 percent to construction and services sector, and 5 percent to agriculture. By mid-1985 69 bank were in operation, of which 22 were branches of foreign banks, 21 were joint venture banks, 18 were investment banks, and 8 were fully Egyptian banks. The market power of the Big Four (The National Bank of Egypt, Banque Misr, Bank of Alexandria, and Banque du Caire.) is no longer as it used to be in the 1960's and early 1970's[20].

Egypt economic system relies on banks through two main important instruments, credit allocation, and foreign exchange controls. The high concentration of investment in banking and related financial services redirected the financial system's flow of credit towards the private sector.

The big four directed their loans towards industrial projects either public or private. The private banks, especially the joint ventures and the foreign branches, were interested in extracting foreign exchange remittances from Egyptians depositors for profitable placement abroad than in investing in Egypt. In 1981 Egyptian residents held 94.5 percent of the foreign exchange deposits. Of these, 53.8

percent were placed with branches and corresponding banks abroad. The financial institutions established under the ODP policy attracted Egyptian money and deposits more than foreign ones. Sayyid Al-Bawab conducted a study in 1985 on how much foreign exchange could be extracted from Egypt for each dollar deposited by a foreigner. The answer was very clear. In mid-1981 investment and business banks extracted $5.65 for every foreign dollar deposited. The joint venture banks did even worse extracting $22.42 for every foreign dollar deposited[21]. The return to investors and banks from heavy industrial projects is below the return from foreign deposits or investment in consumer goods and service industry.

D) One more reason for the concentration of consumer products and service industries, is that the ability of different private banks was restricted from offering full banking services. By mid-1983, out of the 69 bank operating in Egypt, only 49 were allowed to take deposits and grant loans in local currency. Therefore, private banks tended to focus on attracting foreign currency deposits, on which interest rates are unregulated, and provision of specialized banking services for example; opening import letters of credit, issuing contract performance bonds, and personal portfolio management. In other words, they were focusing on high income low risk banking services away from the Egyptian government regulations[22]. However, In the recent years the Egyptian government started to put restriction on the operations of fully-owned branches, which led to the withdrawal

of a number of foreign banks in the last couple of years.

E) Cautions as well doubts about Egypt long-term economic prospects, economic and political conditions, specially in the late 1970s and early 1980s during Arab economic sanctions, clouded and affected the decision of investors to shift, if existing, to less capital intensive projects or to real estate such as hotels and commercial centers.

F) The investment authority in Egypt approves a project based on the feasibility study submitted by the investor. The projects are also analyzed with respects to their compatibility with the country five-year plan. However, in reality the decision is unavoidably a political one, based on consideration of numbers of approved projects rather than economic factors. Recent attempts at liberalization of the investment regime, according to the Structural Adjustment Program's agenda, promises to go away with government constraint on foreign investment.

G) The last reason is that loan rates has been differentiated since 1983 according to the economic sector in an attempt to support/subsidize the productive sector of the economy. The commercial and household sector were, at the time of writing (beg. of 1991) charged a minimum of 18% with no maximum, the services sector is currently charged a 15-19%, and the productive sectors, agriculture and industry, are charged 13-17% only. This discrimination discouraged banks to give loans to the productive sector in favor of sectors with high interest on loans[23]. Since mid 1991, however, interest rate determination has been liberalized

and left to market forces.

5. Problems Faced by the Investor

Despite the incentives offered investors still point to various environmental shortcomings.

Bureaucratic procrastination, interference, corruption and inadequate communications, infrastructural deficiencies, frequent tendency to change laws and regulations making planning ineffective and discouraging for long-term investment, problems with the Social Insurance Law specially when agreement has to be made between the social insurance authorities and the foreign company, and bank guarantees (letters of credit) are some times abused by the government beneficiaries, are some of the main problems faced by investors in Egypt.

One particular section of the Egyptian bureaucracy is the Customs Department. In recent years, customs issues have been the primary topic at many meetings of the American Chamber of Commerce in Egypt, established in October 1982 today has 440 member companies, and the American Businessmen's Group.

A few years ago, the Egyptian Businessmen's Association (EBA) prepared a memorandum on problems that its members experienced with the Customs Department. These Egyptian businessmen emphasized, among other things: failure of the Customs Department to provide justifications for its administrative decisions, failure to recognize and accept the stated invoice value of imports, failure to announce new ad-

ministrative circulars and instructions, insufficient numbers of responsible officials to meet the work load, complicated and unclear custom categories and sub-categories for imported products[24].

Problems over contract interpretation are to be expected when at least one of the parties is working in a foreign language. These problems are exacerbated in Egypt, where many contracts are poorly written, the ambiguities, contradictions, doubtful economic conclusions and omissions constituting common hazards. This state of affairs result in inevitable delays, protracted disputes, and additional costs to all parties[25].

Another shortcoming is the lack of specific guidelines for decision making resulting in conflicting interpretations, lack of coordination, and discrepancy between various investors. Moreover, a developed stock market where shares can be bought and sold at a fair market value is missing.

The absence of any accurate statistics about Egypt economic or social condition is considered another obstacle facing investors. The Central Agency for Public Mobilization And Statistics (CAPMAS), should with its long installed computers be the heart of economic information for the state as a whole and for foreign investors. However, CAPMAS produce reports with out-of-date figures and misleading economic calculation. The result was that investors either calculated their own figures, with Lack of co-ordination between them and the investment authority, or used the inaccurate calculation of the CAPMAS. This has had damaging effects on

planning and monitoring of the economy for investments.

One Very important obstacle facing investment in Egypt lies in the rapid depreciation of the Egyptian pound. This has resulted in a decrease in the real value of the projects due to foreign exchange.

Despite the shortcomings mentioned above the general consensus by investors is that the legal framework was no longer a serious impediment to the entry of direct foreign investment as it used to be before the 1970s.

6. Conclusion

Egypt pre-eminent economic challenge is to increase the efficiency of use and productivity of its abundant resources. In order to achieve this the Egyptian economy and society have undergone radical changes within a very short time. Egypt shifted from a socialist ideology (not fully implemented) in the 1950s and early 1960s into partially liberalized economic strategy in the early 1970s which remains the basis of the Egyptian government today. Recently, there has been a market shift to market-oriented policies (1991). These shifts affected the laws and regulation governing investments.

Investment, either foreign or local, did not realize the goals of the open door policy. President Sadat's plan was to bring together the Arab capital, Egyptian labor, and Western technology. However, the one obvious characteristic of the whole liberalization formula is the concentration of investments in quick return projects.

The fact that the United states contributes only to 5% to total capital investment with the EEC countries comprising only and additional 6% must be viewed as a shortcoming.

It was in part the failure of Egypt to attract investors that forced it to rely so heavily on continuing international credit, and in particular, on the flow of U.S. government aid. Moreover, we can say that this aid has been influenced, if not at times dictated, by American politics, and USAID activities favoring American corporate involvement has sought to establish Egypt as a long term market for commodities and technology[26].

Egypt after 1973 has committed itself to an international market solution that can not now be easily discarded, Egypt had already made a heavy political and economic investment in the belief that prosperity within the global economy's is predicated on comparative advantage and interdependence.

Egypt has gone far in offering incentives for direct foreign investment. One can say that there has been more economic activity during the 70's as compared to the 60's, whether this activity has been productive to the overall development of the economy or not is doubtful. Investment during the ODP policy period was concentrated in projects which are characterized by short-term, high growth of cash inflow, and low cost of capital. It would be a serious mistake, however, to conclude that the malfunction is due to foreign private investment. The failure lies with investment trends in general, whether foreign or domestic. These arguments make it important to try to define the factors affecting the

decision of FDI in LDC

decision of direct foreign investment into LDCs.

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CHAPTER III

Factors Affecting the Decision of Direct Foreign Investment

1. Introduction:

Different views have been proposed concerning the factors affecting the decision of direct foreign investment (DFI). In the following pages an attempt is made to survey different contributions to the theory of DFI. We will then choose a model and adapt it to include the various factors affecting the decision of DFI to be applied on Egypt. We are concentrating our analysis on the manufacturing sector of multinational corporations.

2. Literature Review

Some mainstream economists such as Hymer and Kindleberger argue that the multinational corporations main objective is profit maximization. In order for multinational firms to compete with indigenous firms and achieve profit they should possess a compensating advantage. These profits should be seen as higher profits and benefits than those achieved in case of domestic investment. Hymer and Kindleberger also dispute that direct investment will be preferred to either exporting or licensing. Exporting will in many cases be excluded by higher tariff and transport costs barriers, while DFI is preferred to licensing due to the higher profits achieved in case of DFI. DFI is frequently preferred by multinationals which posses an internally transferable advan-

tage which could be used by the licensees in ways which were not paid for[1]. Some of the licensees use the machines (hardware) or applications (software) in producing similar products under different brand names. Roy J. Ruffin and Farhad Rassekh agree with the Hymer and Kindleberger argument. However, they state that the establishment of a multinational corporation is explained by numerous microeconomic factors dealing with the economics of industrial organization. Similarly, the financial decisions of multinational corporations will involve a host of microeconomic variables involving the details of corporate finance[2]. This took DFI away from the theory of capital movement into the theory of industrial organization. Their argument is based on the fact that multinationals can always find means of financing in the host country.

Michael Spence argues that the policies that influence multinational industries decision of investment are 1) policies that operate on domestic industry structure horizontal concentration, vertical integration, specialization, 2) export promotion and designation of authorized exporters, 3) import restrictions, 4) restrictions on foreign direct investment flow in and out of a country, 5) policies affecting inter firm transfers of technology, and uses and protection of intellectual property, 6) policies that operate on costs or input prices, including interest rates, costs of capital, risk-spreading, investment subsidies (including those to R&D), 7) various other features of the tax system, and 8) coordination or convergence of expectations among com-

petitors within an industry and with government[3].

A variant of the Hymer-Kindleberger approach, suggested by Robert Aliber tells us that the decision of a firm on how best to exploit a patent for a foreign market depends on the size of the market and the height of the tariff. Aliber says that, below a certain market size multinationals will be better off when they are exporting than when they are investing or licensing. The crossover between investment and exports is affected by market size and the level of tariff. Higher level of tariff will shift the crossover point to a lower market size and a higher price[4].

Others such as Heba Handoussa explain the factors which influence a multinational company's decision on the location and extent of operation in any particular country. These are mainly external to the firm itself; market size, trade regulations, registration requirements and political conditions in the market. Handoussa also emphasizes time as factor affecting the decision of multinational corporation. The opportunity of entering the market first might not be available always[5].

The product cycle model associated with Raymound Vernon explains to us the development of multinational corporation, and how does a firm decide to become a multinational. The model suggests that new unstandardised products would appear first in the most advanced countries. subsequently, the product begins to develop. The possibilities of economies of scale lead to expansion in production matched with increasing demand as the product becomes cheaper. Markets in other

advanced countries begin to appear and are supplied through exports. Cost factors affect the decision of the advanced countries to service these markets by local production in addition to the pressure by indigenous producers. Finally, on the basis of price competitiveness, after the product is standardized, production of labor-intensive stages are carried out in LDCs with cheap labor supply through DFI*.

None of the above explained the reason for Japanese direct investment. Kiyoshi Kojima proposed alternative explanations specifically related to Japanese conditions. Kojima built up his model based on the Hecksher-Ohlin theory. Capital flows from the capital rich country to the capital poor country. He argues that Japanese firms' comparative advantage lies in the combination of internationally mobile inputs transferred by foreign investment, such as: managerial and organizational skills and guaranteed access to the Japanese markets and distribution network, together with locationally immobile inputs, mainly cheap labor. Kojima added that Japanese DFI search for specific inputs, locational criteria (the chosen location should be near to market and raw material inputs), relatively cheap labor cost, low transport costs from the near labor intensive countries to Japan or to any near market. In other words Japanese firms apply the Hecksher-Ohlin theory by producing labor intensive commodities or parts in labor intensive countries, and capital intensive commodities in capital intensive countries. The market should be available in one country or in both and low transport cost between the two countries should be an

advantage[7].

Another contributor to the theory of DFI is Stephen J.Kobrin. He defines the relation between developing host countries and multinational corporations by antipathy and mutuality of interest. When conflict and compatibility coexist, a range of mutually satisfactory agreements are possible, and the actual bargaining power is a function of 1) Resources controlled by one party and demanded by the other 2) constraints that prevent potential power from being implemented; and 3) The ability of either party to limit the behavior of the other directly[8].

There are now several approaches to the theory of multinational DFI. However, we can say that the main aim remains to be profit maximizing. For example, the product cycle model is based on economies of scale and standardization of the product. Labor intensive stages of production are held in cheap labor intensive countries and hence minimizing cost and increasing profits of the multinational.

Trade regulations affect the profit of multinationals investing or exporting, usually by increasing profit when investing and decreasing it when exporting. Multinational DFI will take their decision of either investing or exporting depending on the profits achieved in each case.

Japanese DFI depend on the transportation cost to and from the markets of inputs and outputs. In addition to the cost of immobile labor in the host country.

Agreement between multinational and the host country is reached when both reach the point of maximizing their

benefits and minimizing their cost.

Finally, we can say that the theory of DFI is the intersection of three theories, 1)the theory of international firm, 2) the theory of international capital markets, 3) the theory of international trade. Each of these theories acting alone might not explain DFI investment. However, integration of all three theories provides answers to various issues connected with DFI's.

2.1.Alasdair Smith Model

Our next task is to explain how, or why, a foreign firm operating in a host market might choose to become a direct investor (a multinational) rather than exporting its product. This is best seen in the Alasdair Smith model.

The Smith model offers an extremely simple characterization of the technological advantage that a multinational may possess over a host country rival.

The model is a profit maximization one, which can be adapted to include special factors affecting the decision of multinational investment in Egypt (political risk).

Linear programming will also be applied to the model after adaptation. The linear programming technique has the advantage of allowing us to test the project profitability and the major factors affecting that profit.

The Smith model will be used after adaptation to include the factors behind direct foreign investment, which are (in no order): Market size, level of tariffs and transportation cost, investment cost, expected gains (profit), opportunity cost, incentives offered either direct or indirect, and

political risk.

2.1.1.Model Assumption and Limitations

Multinational corporations tend to operate as oligopolists when their ownership of a trade secret, patent, level of know-how or brand-name allows them to take advantage of a barrier to entry. Multinational corporations, in this context, would not enjoy this barrier to entry under condition of perfect information. However, they are important participants in different markets better described by oligopolistic then competitive behavior. The model is going to discuss two cases, one with the multinational corporation as a monopoly the second as duopoly. In its home country the multinational has a plant where it has incurred a firm specific sunk cost and a plant specific sunk cost. It produces output at constant average variable cost "C". If it exports its output to the host country, a constant transport cost of "S" per unit must also be incurred. If the multinational establishes a plant in the host country, it must incur the plant specific fixed cost "G", but not the firm specific fixed cost "F". We are assuming for simplicity that F is the cost of R & D, and the marginal cost of output in this plant will also be constant and equal to "C". We study the effect of trade policy; which is modeled as a per unit import tax "t".

The model has some limitations.

1) The possibility that any of the host country firms, if any enters production, will then export to the multinational home market or even become a multinational by establishing a

plant in the multinational home market is not considered here.

2) There is only one multinational corporation in the market. This assumption will be relaxed after the model is adapted to be applied to oligopolistic investment.

3) The possibility of licensing as an alternative to foreign direct investment is not considered in the model[10]. We shall relax this assumption in our application to Egypt.

2.1.2.The Multinational as a Monopoly

The Smith model argues that in case of monopoly the investment decision will depend on the profit achieved in either exporting or investing, and the multinational will choose DFI if and only if

$$P(X_H)X_H - CX_H - G \rangle P(X_E)X_E - (C+S+t)X_E,$$

where P = Price of unit of output which is function of X

X_H = Volume of sales when investing

X_E = Volume of sales when exporting

C = Variable cost associated with each unit of sales

G = Plant Specific sunk cost

S = Transport cost

t = Per unit import tax (tariff)

The choice will be influenced by the balance between G and $(S+t)X$. Exporting will be preferred when $G \rangle= (S+t)X$ and vice versa. The investment decision will depend on the profit achieved in either exporting or investing[11].

2.1.3.The Multinational as a duopoly

In the case of duopoly, Smith disputes that, the investment decision will depend on a multistage game. It is natural to model firms entry decision as being sequential, and it is important, in doing this, to observe that a decision by a multinational to export or by host firm not to enter is a decision that could be reversed after the rival firm has made its entry decision. The pay off to the various decisions are derived from the post entry games. The effect of a tariff increase on the market equilibrium will depend on which equilibrium is chosen[12].

With the assumption that it will never lose interest in the market, the multinational will choose between exporting and DFI by comparing the profits achieved under each case. The height of the tariff and the size of the market will be the factors affecting the decision of multinational. Several cases could take place depending on the market size, tariff level, and the competitors decision.

One of the cases that might induce investment is when the cost of establishing a subsidiary by the host firm is higher than the gains to the firm from establishing that subsidiary, and the multinational is a monopoly and exporting to the market. After the imposition of higher tariff, multinational profits will be reduced and the host government will gain tariff revenue. The tariff may push the multinational to switch from exporting to investment. The same can take place in case of oligopoly with the condition that the market size is available for multinational investment. We

have to add here that the multinational which will enter the market first will have a higher share of the market either when exporting or direct investment and in the latter case might prevent other companies from entering the market. For example, when the domestic firm can achieve profit only when the multinational is an exporter, a higher tariff might induce the multinational to switch to investment and thus preventing any domestic firm from entering the market. The result of tariff is deterring entry by domestic firms in small sized markets[13].

A tariff might not have any effect on investment. One case is when the multinational is achieving higher profits from exporting than from investing even with very high tariffs. This might be the case in small market size. This also might be the case with very low transportation cost to the host market. In such cases of small market size, tariffs may or may not induce foreign investment, they may or may not change the market structure, and they may have a pro- or anti-competitive effects. Therefore, a higher tariff is not always the solution for increasing DFI[14].

3.Model Adaptation

For the purpose of our study we have chosen to adapt the Smith model. Our adaptation take into account the political risk factor. This is because Egypt is considered a high risk country. Government incentives for DFI are also considered in our adaptation. The effect of higher tariff on the decision of DFI is not considered in our study since Egypt, un-

til recently restricts imports of any goods manufactured in the country when the market is saturated.

The probability of any political risk in the host country affects the multinational corporation decision of direct foreign investment.

The World Bank established two international organizations,to accomplish its objectives of stimulating foreign investment; The International Center for Settlement of Disputes (ICSOD), and the Multilateral Investment Guarantee Agency (MIGA). The first provides facilities for conciliation and arbitration of investment dispute, the other will issue guarantees for investment against noncommercial and political risks. Investment in LDCs, however, is still slow[15].

3.1.Direct Foreign Investment Risk and Country Risk

The risk of direct foreign investment is usually called political risk because it is mostly caused by political events. However, what are the difference between this risk and risk of lending abroad (Country Risk)?

In principle the difference is hardly significant. P.J.Nagy defines country risk as the exposure to a loss in croos-border lending, caused by events in a particular country. These events must be, at least to some extent, under the control of the government of that country; they are definitely not under the control of a private enterprise or individual. Changing only a few words in the definition of country risk, one can define the risk of direct foreign investment as exposure to a loss of real asset or business

abroad as well as to a loss by a business abroad, caused by events that are, at least to some extent, under the control of the government of the host country but definitely not under the control of the owners of the asset or managers of the business[16].

In practice, however, there are some differences. The following table demonstrates both kinds of risk:

Table 4.
Risk of Lending and Risk of Direct Foreign Investment.

	Lending
What is at Risk?	- Money - Ability to service the debt
Max.T.horizon	- 12 years
What can go wrong?	- Destruction of debtor's assets - Interruption of production (Caused by war, revolution, occupation by foreign power) Major concern in case of unguaranteed private debt where it can result in partial or complete write-off of claim. Rarely leads to the write-off of public sector debt. With regard to disorders and strikes, only if they are countrywide affect the P.S. debt servicing ability. - Expropriation, indigenization of Debtor's assets Minor concern only in case of unguaranteed private debt. New owner normally honors obligations of previous owner. - Impossibility of transferring funds. (Because of imposition of exchange controls by government) Major concern only in case of unguaranteed private debt. - Fall of earnings, bankruptcy of debtor (Caused by mismanagement of the economy, credit squeeze, long-term slowdown in GNP growth, strikes, rapid rise in production costs, etc) Major concern but only in case of unguaranteed private debt. - Deterioration of the balance of payments of debtor/host country - Overextension in external borrowing by debtor/host country (These can be caused by a number of political, social and economic factors) Major concern in case of public debt. Concern in case of ungranteed private debt only in as much as it can lead to exchange controls-see above.
Probability of losses	- Could be significant-for both capital losses and losses of expected earnings-in case of unguaranteed private debt. In case of public debt probability of capital loss is negligible. That of expected earnings could be higher but it is usually less than in case of unguaranteed private debt.

Direct Investment

What is at Risk? - Real assets and money
- Ability of plant to produce and/or sell product

Max.T.horizon - 30 years

What can go wrong?
- Destruction of subsidiarys' assets
- Interruption of production
  (Caused by war, revolution, occupation by foreign power)
  Major concern. May result in partial or complete write-off of assets, severe losses of income, and bankruptcy.
- Expropriation, indigenization of subsidiary
  Major concern. May result in substantial capital losses as well as loss of expected earnings.
- Impossibility of repatriating capital and/or remitting earnings.
  (Because of imposition of exchange controls by government)
  Major concern.
- Fall of earnings, bankruptcy of subsidiary
  (Caused by mismanagement of the economy, credit squeeze, long-term slowdown in GNP growth, strikes, rapid rise in production costs, etc)
  Major concern only if plant produces mainly for the host country market.
- Deterioration of the balance of payments of debtor/host country
- Overextension in external borrowing by debtor/host country.
  (These can be caused by a number of political, social and economic factors).
  Concern only in as much as it can lead to exchange controls.

Probability of losses - Could be significant for both capital losses and losses of expected earnings.

Source: P.J.NAGY Country Risk p. 3.

The main difference between lending and direct foreign investment is the time horizon. Direct investors have a longer time horizon than lenders. That is why direct foreign investment is mainly concerned with a limited number of political variables. The lenders' time horizon is shorter. That is why they have to look at all political, social and economic variables that may affect the country debt servicing ability. Difference in time horizons and in concerns mean that country risk evaluation from the point of view of direct investors is of limited use to lenders and vice versa. Therefore, we can find some countries with good risk for setting a plant but not quite so good for commercial bank lending and vice versa. There are other differences concerning the reaction taken to identified risk and the need for risk evaluation[17].

3.2.The Reaction to Identified Risk

Before a loan is granted, or an investment effected, the lender/investor has to decide whether to grant the loan/go ahead with the project as planned;cancel the project; redesign the project to minimize the impact of perceived risk. However, if the loan has been granted, or the investment effected, the lender will virtually have no possibility of minimizing the risk of outstanding loans. The investor can adopt suitable strategies to minimize risk[18].

3.3.The Need for Risk Evaluation

The lender can perform close to the market average.There is an international financial market and a market consensus on country risk. The direct foreign investor has to do his own

risk evaluation. There is no international market for direct investment and no market consensus on political risk[19].

3.4.Political Risk Calculation

Based on our discussion on political risk above we used the International Country Risk Guide (ICRG) April 1989 as a source for Egypt's political risk.

The ICRG indicate 13 political factor to be identified for each country.

a. Economic expectations vs. reality	12 points
b. Economic planning failures	12 points
c. Political leadership	12 points
d. External conflict risk	10 points
e. Corruption in government	6 points
f. Military in politics	6 points
g. Organized religion in politics	6 points
h. Law and order tradition	6 points
i. Racial and nationality tensions	6 points
j. Political terrorism	6 points
k. Civil war risks	6 points
i. Political party development	6 points
m. Quality of the bureaucracy	6 points
	100 points

Source: Int. Country Risk Guide (ICRG) April 1989 p.118 (S1)

The ICRG also provides economic and financial risk rating which take the following factors into consideration.

Financial Risks:	
a. Loan default or unfavorable loan restructuring	10 points
b. Delayed payment of suppliers' credits	10 points
c. Repudiation of contracts by governments	10 points
d. Losses from exchange controls	10 points
e. Expropriation of private investments	10 points
	50 points
Economic Risks:	
a. Inflation	10 points
b. Debt service as a percent of exports	10 points
c. International liquidity	5 points
d. Collection experience	5 points
e. Current account deficit as a % of exports	15 points
f. Foreign exchange (parallel market indicators)	5 points
	50 points

Source: Int. Country Risk Guide (ICRG) April 1989 p.119 (S2)

In calculating the aggregate political, financial and economic risk, the following formula is used.

CPFER (country X) = 0.5(PR + FR + ER)

where

CPFER = Composite political, financial and economic risk rating

PR = Total political risk indicators

FR = Total financial risk indicators

ER = Total economic risk indicators[20]

In this Thesis, however, we are only using the political

risk factor as economic and financial risk are taken into account in our calculation of the discount factor.

The highest overall rating (theoretically 100) indicates the lowest risk, and the lowest score (theoretically 0) indicates the highest risk. The risk ratings are taken as probabilities of losing an investor's capital. e.g. a risk rating of 70 points represent a probability of 0.3 of losing the capital invested due to political factors.

The individual risk value of particular countries can be estimated using the following fairly broad categories:

		Frequency 89
Very high risk	0.0 to 49.5 points	49
Moderately high risk	50.0 to 59.5 points	29
Moderate risk	60.0 to 69.5 points	22
Low risk	70.0 to 84.5 points	20
Very low risk	85.0 to 100.0 points	10
		130

Egypt is ranked number 99 out of 130 countries in the composite political, financial and economic risk rating. The following table illustrates Egypt risk ratings[21].

3.5.Egypt Risk Ratings

	Rank	Weights	1989	Previous Year	Change	Previous Month	Change	6 Month Forecast	Chang
Polit.		100	44.0	42.0	+2.0	42.0	+2.0	43.0	-1.0
Finan.		50	20.0	21.0	-1.0	19.0	+1.0	21.0	+1.0
Econ.		50	24.0	24.0	0.0	23.5	+0.5	25.5	+1.5
Comp.	99		44.0	43.5	+0.5	42.5	+1.5	45.0	+1.0

Source: International Country Risk Guide (ICRG) April 1989 p. 47.

Note: that the weights used in arriving at the composite

rating are 100 points for political risk, 50 points for financial risk and 50 points for economic risk.

Egypt falls within the category of very high risk countries. This compares with other countries in the region illustrated as follows.

Country	Syria	Jordan	Israel	Morocco	Turkey
Political risk	40	37	37	57	46
Financial risk	16	18	28	27	20
Economic risk	21.5	36.5	34	30.5	27.5
Composite rating	39	46	49.5	57.5	47

Source: International Country Risk Guide (ICRG) April 1989 p. 26 - 28 (S9 - S11).

Note: that Egypt's political risk rating is higher than Syria, Jordan and Israel. However, it is lower than that of Morocco and Turkey.

The composite rating is affected by economic and financial risk. Thus, ranking Israel in a higher position than that of Egypt and Turkey.

Appendix 3 gives the composite risk rating for 130 countries.

4.Conclusion

Profit is the main factor affecting the decision of direct foreign investment. However, how a multinational corporation calculate that profit to come to the decision of either investing in one country and not the other?

Using the Smith model as our base for methodology, assumption, and limitation, the multinational corporation will decide to invest in country A rather than country B if and only if:

$$P_{2a}X_a - P_{1a}X_a - B_a(N_a) > P_{2b}X_b - P_{1b}X_b - B_b(N_b)$$

Where P_{2a} = Expected market price per share in country A

P_{1a} = Actual market price per share in country A

X_a = Number of shares in country A

B_a = The probability of any political risk in count. A

N_a = Losses when political risk take place in count. A

P_{2b} = Expected market price per share in country B

P_{1b} = Actual market price per share in country B

X_b = Number of shares in country B

B_b = The probability of any political risk in count. B

N_b = Losses when political risk take place in count. B

The above equation simply compares the expected market value per share against the nominal value per share. We also introduced political risk as a factor affecting the decision of DFI. The result of country A gains is then compared with that of country B.

In order to calculate the expected market value per share, based on dividends distributed and the residual value of the project, a financial projection has to be made to calculate the project expected profits. Each corporation will have its special case, we can not generalize here. For that reason we have a case study when applying the model.

The financial projection mainly include all the factors affecting the profit of the project, market size (expected level of output), tax holidays, and any kind of

direct/indirect subsidies given to the company in the host country.

The above equation could also be adapted to compare profit from direct investment with that of exporting. Simply changing the right hand side of the equation to be

$$P_{2m}X_m - P_{1m}X_m - B_m(N_m) \rangle PX_E - (C_E+S+t)X_E$$

where P = Price of unit of output which is function of sales volume (market size).

X_E = Volume of sales when exporting

C_E = Variable cost associated with each unit at the source country

S = Transport cost

t = Per unit import tax (tariff)

Linear programming also offers to us the method to choose between investment projects in different countries when we have funds limitations. We can use linear programming to compare the two cases of direct investment and exporting as follows.

Direct investment

Maximize profit = $PX_H - C_HX_H$

subject to X_H >= minimum output level

X_H =< market size

X_H =< maximum output level

where X_H = Volume of sales when investing

C_H = Variable cost associated with each unit at the host country

Exporting

Maximize profit = $PX_E - (C_E+S+t)X_E$

Subject to X_E =< market size

$(C_E+S+t)X_E$ =< G

where G = Plant specific sunk cost

The above two equations are computed for a period of n years indicating the profit achieved annually. The Net Present Value (NPV) of that profit is than calculated. In case of direct investment, the plant specific sunk cost (G), and the probability of any political risk are deduced from the NPV_I as shown by the following equation.

$$NPV_I - G - B_m(N_m)$$

Linear programming could also be used to compare the expected gains from investing in two countries.

In the next chapter we will apply the model we discussed in the previous pages on multinational corporation investment in Egypt.

NOTES TO CHAPTER III

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CHAPTER IV

Application of The Model

We have chosen General Motors Egypt (S.A.E.) as a case study for the application of our model. General Motors Egypt is one of the largest multinational corporations in Egypt.
In the following section we will calculate the profit of General Motors from investing in Egypt, a financial projection for the coming five years will be used to calculate the expected fair market value of G.M.E. shares.

1.Background

General Motors Egypt (G.M.E.) is an Egyptian joint stock company established in 1985 under the investment law No. 43 of 1974 and its amendments. The object of the company is the assembly manufacture of light and medium trucks, buses eventually, passenger cars. Production, in 6 October City, started in July 1985.
G.M.E. is capitalized at L.E. 25 million. The capital was fully paid up in US $ during 1985. In addition, G.M.E. has received loans of L.E. 25 million and a US$ 5 million.
The company's 30'000 shares, with a nominal value of L.E. 840 each, are divided as follows:

	(L.E. ,000)		
Foreign Participation	No of shares	Value of Shares	Percentage
General Motors Corporation	9,300	7,812	31
Isuzu Motors Limited	6,000	5,040	20
Total Foreign Participation	15,300	12,852	51
Saudi Investors	4,800	4,032	16
Egyptian Investors	9,900	8,316	33
Total	30,000	25,200	100%

G.M.E. currently sources all components for its trucks from Isuzu Motors Ltd. in Japan. These trucks are being sold with Isuzu, Chevrolet and Bedford badges. The company produces the 24 seat minibus chassis assembled by the Cairo Trade Company, G.M.E. contract assembler, and 16 seat microbus on Isuzu chassis. The following table illustrates the development of production during 1986 - 1989:

Table 5
Development of G.M.E. Production (1986 - 1989)

Trucks	1986	1987	1988	1989
* 1 Ton trucks	4,956	5,800	4,190	5,416
3.5 Ton trucks	1,139	857	868	972
6 Ton trucks	70	1		
Buses				
24 Seat minibus		152	239	209
16 Seat microbus			117	150
Total	6,165	6,810	5,414	6,747

Source: G.M.E. Annual Reports
* Includes the double cabin trucks

All trucks and buses produced by G.M.E. are sold through franchised dealers. The following table illustrates the development of the company's deliveries to dealers (1986 - 1989)

Table 6
Development of G.M.E. Deliveries to Dealers (1986 - 1989)

Trucks	1986	1987	1988	1989
* 1 Ton trucks	4,987	5,502	4,526	5,416
3.5 Ton trucks	1,162	820	930	972
6 Ton trucks	70	(1)	3	
Buses				
24 Seater minibus		150	239	210
16 Seater microbus			117	149
Total	6,219	6,471	5,815	6,747

Source: G.M.E. Annual Reports
* Includes the double cabin trucks

According to G.M.E. officials the company's market share of trucks and buses has increased from 43.2 percent in 1988 to 49 percent in 1989 thus positioning G.M.E. as market leader. To increase the 40% local content achieved by the end of 1988, G.M.E. increased the number of its local suppliers of component parts from 36 in 1988 to 62 by the end of 1989. At the end of December 1989, G.M.E.'s employees numbered 515 Egyptians; six managers are seconded by General Motors corporation and Isuzu Motors company under the management and technical assistance agreement.

2.Review of Past Financial Performance

The development of the company's revenues and profits during the past four years is presented in the following table:

Table 7
Development of Company,s Revenues and Profits (1986 - 1989)

(L.E. 000's)	1986*	1987	1988	1989
Net Sales	104,520	113,119	132,527	174,227
Gross Profit	20,904	17,455	20,542	30,406
** EBDIT	13,560	10,691	15,602	25,046
Less				
Depreciation	2,492	2,157	2,272	2,660
Interest Exp.	8,446	8,131	7,886	9,277
Prior Year Adj.		1,755	(570)	
Net Profit	2,622	2,158	4,874	13,109
Av. Price (L.E.)	16,998	17,478	22,802	25,823

* For 17 month ending Dec. 31, 1986.
** Earning Before Depreciation Interest & Taxes
Source: G.M.E. Annual Reports

The value of sales is net of any fiscal burden. There is a fixed surtax levied on G.M.E. products. This surtax is equivalent to an added L.E. 200 on vehicles with any engine capacity above 1500 c.c. (i.e. all G.M.E. products). The tax is paid by the buyer and is collected by G.M.E. in a special account.

The company was exempted from any consumption tax except for the double cabin truck, which paid a 20 percent consumption tax. This tax was treated in the same way as the surtax.

In May 1991 the consumption tax was replaced by a sales tax which imposes a 10 percent tax on all G.M.E. products except for the double cabin truck, which pays a 20 percent sales tax[1].

The above table illustrates the significant increase in revenues and profits achieved during the past two years. In 1987, the continuing strength of the Japanese Yen and the devaluation of the Egyptian pound resulted in a substantial increase in G.M.E.'s costs. The weakness of the economy and

lack of purchasing power meant that G.M.E. was unable to fully recover these cost increases by raising prices. However, in 1988 G.M.E. raised its selling price by about 30% which resulted in increasing sales revenue by 17%, and decreasing sales volume by 10%. This tells us how much demand is elastic on G.M.E. product relative to its prices. During 1988 and 1989 the US.$ / Japanese Yen exchange rate remained relatively stable. Moreover, G.M.E.'s management implemented a cost reduction program including the reduction of material inventory, improvement in productive labor hours and reduction in maintenance expenses. The company succeeded in achieving high profits in 1988 and 1989. G.M.E.'s profit distribution during the period 1986 to 1989 is presented in the following table:

Table 8
Profit Distribution (1986 - 1989)

(L.E. 000's)	1986	1987	1988	1989	Total
Legal Reserve	131	108	244	655	1,138
Employee Share		51	218	528	797
Ret.Earnings	2,491	1,747	1,388	4,366	9,992
Shareholders, D.					
Foreign Part.		129	1,542	3,855	5,526
Saudi Inv.		40	484	1,210	1,734
Egyptian Inv.		83	998	2,495	3,576
	2,622	2,158	4,874	13,109	22,763

Source: G.M.E. Annual Reports

G.M.E. management decided to distribute a dividend pay-out ratio of 30% of capital in 1989, while 4% of profit (2% of capital) were distributed to the employees. During the period of 1986 - 1989 43% of paid up capital was distributed to shareholders'. This percentage is considered a very high

ratio achieved during such a short period of time keeping in mind that the project started in 1985. We can say that the project pay-back period is very short[2].

2.1.G.M.E. Debt Position

In October 1985, G.M.E. signed a syndicated loan facility (L.E. 25 million) with a group of seven banks for a period of six years. Another U.S.$ 5 million loan is provided by the Private Investment Encouragement fund (P.I.E.). This additional loan is repayable in Egyptian pounds at a fixed exchange rate (L.E. 1 = U.S.$ 1) over the same period as the syndicated loan[3]. The P.I.E. fund assist American companies only.

The company's working capital loan is a facility for one year renewed annually on a revolving basis for six years starting in 1985. The aggregate principal amount of the loan is L.E. 20 million and the maximum commitment of the loan is L.E. 30 million. The following table illustrates the company debts position during the past four years:

Table 9
G.M.E.'s Debt Position (1986 - 1989)

(L.E. 000's)	1986	1987	1988	1989
P.I.E. Fund	4,740	5,000	3,875	2,625
Construction Debt	25,000	25,000	19,375	13,125
Long Term Debts	29,740	30,000	23,250	15,750
Curr.Liab. Excl. Shareholders' D.	65,170	70,895	38,524	47,159
Total	94,910	100,895	61,744	62,909
Less Cash, T.D. & L/C's M.	34,386	32,562	24,240	38,909
Total Debts	60,524	68,333	37,534	24,742

Source: G.M.E. Annual Reports

2.2.Financial Indicators

The good financial performance is essential for the healthy operation of an enterprise. The company could use the retained earnings for financing necessary expansions. In our case G.M.E. has sought to diversify its activities to include the assembly of a passenger car, starting from 1992. The expansion will depend mainly on self-finance, no additional capital will be requested from the shareholders as indicated by the company's plan for the passenger car project.

Financial ratios summarize large quantities of financial data into short statements analyzing the company financial performance. Financial ratios fall into four groups; leverage ratios, liquidity ratios, profitability ratios or efficiency ratios, and market value ratios[4]. Some key financial indicators of G.M.E.'s financial performance during the period 1986 to 1989 are presented below:

Table 10
Key Financial Indicators

	1986	1987	1988	1989
Fin. R. of Ret.*	12.0%	6.6%	16.9%	31.8%
Debt Ratio	74.9%	77.1%	65.9%	63.5%
Debt/Equity R.	1.78	1.68	1.45	1.23
Current Ratio	1.48	1.43	1.69	1.54
Quick Ratio	0.94	0.88	0.88	0.94
Net Profit Margin	10.4%	7.1%	9.9%	12.8%
Book V.of share	927	989	1,053	1,232

For more details please refer to appendix I
* FRR calculated at book value.

2.2.1.Financial Rate of Return: (FRR)

The FRR is defined as the ratio of cash surplus to capital

employed, where cash surplus is obtained as the sum of net surplus from operations net of all expenses including depreciation but excluding interest payment and capital charge and other income, capital employed is defined as the sum of net fixed assets and inventories. The high FRR is an indicator of the ability of the company to finance itself, and to contribute to the Treasury in the form of profit tax after the company's ten year tax holiday runs up. It is also an implication for employee and shareholders profit distribution.

2.2.2. Debt Ratio and Debt to Equity Ratios:

Debt ratio is the ratio of liabilities to total assets. While the debt to equity ratio, which is the most commonly used, is the total debt to equity. The two measures convey the same message from the table both ratio indicate that the debt of the company is decreasing (a higher financial performance).

2.2.3. Return on Equity:

This is calculated as the ratio of net income to equity of the previous year. It tells us how much is earned from that equity. G.M.E. high financial performance is very clear from that ratio.

2.2.4. Liquidity Ratios:

Current ratio is calculated by dividing current assets by current liabilities. The quick ratio is calculated by dividing current assets of the firm to meet short term obligations. the higher the ratios, the greater the ability of the firm to pay its bills. The quick ratio is a more severe

measure of liquidity than does the current ratio as it excludes inventory, the least liquid portion of current assets. G.M.E. is able in both ratios to pay its bill as indicated by the result in the above table.

2.2.5. Net Profit Margin.

This is one of the profitability ratios that help ask the important questions rather than answer them. The ratio is calculated by dividing earning before interest and after taxes by sales. This ratio helps to find the proportion of sales that finds its way to net profits[5]. In G.M.E. case it guide us to ask about the reason for the decrease in net profit in 1987 compared to the other years, which we already answered above.

2.2.6. Book Value of Share:

This is equity divided by the number of shares. Therefore, with the increase in retained earnings reserves the book value per share increase, giving us another indicator of the high financial performance of G.M.E. in the last four years.

3.Financial Projection

3.1.General

Various factors are taken into consideration when determining the expected profits (market value of share) including the following:

a. The company's historical financial performance.(in case of G.M.E.)

b. The project capital expenditure (general case)

c. Working capital requirements.

d. Repayment of loans.

3.2.Assumptions for Financial Projections

Sales Volume: On the basis of actual sales figures achieved by G.M.E. during the first half of 1990, it was assumed that 1990 sales volume would be 19% higher than that of 1989. In subsequent years, a reserved 4.6% annual growth rate was assumed. This figure is based on historical performance of G.M.E.

Operating Costs: According to historical data, we assumed that the company's operating costs are 83% of sales revenues throughout the financial projection.

Passenger Car Project: G.M.E. intends to start producing the passenger car in 1992. Sales volume used is presented below

	1992	1993	1994	1995
Passenger Car	960	1'500	2'000	2'600

Based on the production plan of G.M.E.

Operating costs for the passenger car is assumed to be equal to 93% of sales revenues in 1992 and decrease with the in-

crease in sales volume to reach 92% by 1995.

A fixed investment cost of L.E. 6.7 million is to be incurred in 1991 in conjunction with the passenger car project.

Local content: we supposed that the local content of G.M.E. products will continue to increase gradually by 5%. The local material for trucks and buses will reach 60% in 1993 and will be fixed thereafter. The passenger car local material will reach 28% by 1995.

Inflation: Our projection used real terms, no inflation, assuming that any increase in production costs would be passed on to the consumer in the form of higher selling prices.

Taxation: The company ten year holiday runs up to December 31, 1995. The company enjoy the incentive of investment in the new communities (6 October city).

Repayment of loans: is expected to continue according to the company loan agreements.

Other Expenses: The historical performance of the company in the last four years was used as an average for our projections.

Profit Appropriation: We assumed that the company profit will be distributed as follows:

Legal reserve 5% of profit, Employees' share in profit is 5%, Shareholders' dividends

	1990	1991	1992	1993	1994	1995
% of Capital	60%	70%	80%	90%	90%	90%

3.3.Results of Financial Projections

Using the previously mentioned assumptions, we arrived at the following results.

Table 11
Profit Distribution (1990 - 1995)

(L.E. 000's)	1990	1991	1992	1993	1994	1995	Total
Legal Reserve	1,411	1,127	1,173	1,294	1,385	1,543	7,933
Employees Share	1,411	1,127	1,173	1,294	1,385	1,543	7,933
Retained Earnings	10,272	2,653	949	610	2,256	5,089	31,821
Shareholders' Div.							
Foreign Particip	7,711	8,996	10,282	11,567	11,567	11,567	61,690
Saudi Investors	2,419	2,822	3,226	3,629	3,629	3,629	19,354
Egyptian Inv.	4,990	5,821	6,653	7,484	7,484	7,484	39,916
Net Profit	28,213	22,548	23,454	25,877	27,707	30,854	158,653

For more details please refer to appendix I

The extremely high performance of the company is obvious and G.M.E. will distribute very high profits to its shareholders. To calculate the gains of multinational corporations from investing in Egypt, we have to calculate the expected market share of G.M.E.

4.Computation of Share Value

We must distinguish between the book value per share, which is the owners' equity as we mentioned above, and the fair market value, that value which is justified by facts; e.g., assets, earnings, dividends ....It is the price at which the share could be sold in the market. One of the efficient methods used in calculating the market share value is the present value of future dividends[7].

4.1.Present Value of Future Dividends

When computing the share value by using the present value of

future dividends method we take into consideration the following two factors:

a. Present value of the dividends to be declared during the projected period. In our case study we used the present value of actual dividends distributed by G.M.E. in the period 1986 - 1989 and the dividends to be declared during the projected years 1990 - 1995.

b. The present value of the residual value (book value) per share in the last year of projection (PVBV/S). computed as follows:

1) The Book Value per share in the last year of projection = Equity calculated in the year n divided by the No of shares.

2) PVBV/S = The Book Value per share in year n divided by a discount rate (%).

Finally, to put it in a simple equation, the fair market value per share could be computed as follows:

$$MV = \frac{d_1}{(1+K_e)^1} + \frac{d_2}{(1+K_e)^2} + \frac{d_3}{(1+K_e)^3} + \ldots + \frac{d_n}{(1+K_e)^n} + \frac{PVBV/S_n}{(1+K_e)^n}$$

Where

MV = Market value per share

d_1 = Dividends distributed in year 1

K_e = Discount factor

$PVBV/S_n$ = Present Value of Book Value per share in year n

n = Year n in the financial projection.

The basic discount factor used in our study is 22 percent taking into account bank interest rate financial and

economic risk. The discount factor used is therefore higher than the bank rate to account for risks of operating in Egypt. However, sensitivity analysis is performed for this discount factor table 11 (case 2) in appendix 1 covers a range of 12 - 22 percent discount factor.

We have to note that, in case of new investment the multinational should perform a 10 year financial projection, based on a market study and the project capital expenditure. The fact that we used actual performance of G.M.E. does not affect, whatsoever, the model itself.

Based on the above method and our financial assumption, G.M.E. fair market share value is expected to be L.E. 1,395 compared with nominal share of L.E. 840.

The next table demonstrates the net gains to G.M.E. when investing in Egypt. We applied the model using the calculated market value, and Egypt risk rating demonstrated in the previous chapter as our base. We also used more than one value for risk in order not to be biased and to be able to identify the highest level of risk G.M.E. can accept.

Table 12 Net Gains To G.M.E. Investors (L.E.,000)

	*Egypt Risk Ratings	*B of Egypt	Net Gains
	48.00	52.00	3,548
	46.00	54.00	3,044
Base case	44.00	56.00	2,540
	42.00	58.00	2,036
	40.00	60.00	1,532
	38.00	62.00	1,028
	36.00	64.00	524
	34.00	66.00	20
Break Even P.	33.92	66.08	0
	33.00	67.00	(232)

* Points are calculated on a scale of 100.

The above table informs us that, the net gains to G.M. from

investing in Egypt is L.E. 2.54 million. This value is reached by multiplying the calculated market value by the number of shares, which is equal to market value of equity in 1986. Subtract from it both the nominal value of equity (i.e. actual price per share multiplied by the number of shares) and the probability of any political risk which is equal to 1 - Egypt risk rating (i.e. 0.56) multiplied by the capital invested (L.E. 25200 thousand). Please refer to p.52 in chapter III.

The highest level of risk G.M.E. can accept is about 33.92 points out of 100 (i.e. 0.66). Below this level of risk the result of investing in Egypt would be negative and the investor will export or forget about the market.

4.2.Sensitivity Analysis

Before the company decide to invest it want to know what will happen if one of the key assumptions used in the financial projection changed. And even if the company decides that the project is worth going ahead on the basis of the present information, the company does not want to be caught by surprise if things subsequently go wrong. The company want's to know the danger signals and the actions it should take when these danger takes place. Therefore, whenever a company is confronted with a financial projection, the sooner it can identify what can go wrong, the better. Sensitivity analysis will help the company to answer the questions of what if something goes wrong[5]?

In our case we performed a sensitivity analysis for a

decrease in sales volume growth rate, starting from 1991 (actual performance in 1990 was used), ranging from 0% to 4.5% and using more than one discount rate ranging from 22% to 12%. We also used different percentage for the cost of finished products. Finally, we calculated the net gains to investors using the sensitivity analysis results and the base case level of risk. Table 11, and 12 in appendix I respectively illustrates our results.

The two tables illustrates the high sensitivity of the project to the change in cost of finished products. This is highly affected, in G.M.E. case, by the exchange rate of the U.S. dollar, Japanese Yen and the Egyptian pound. Any increase in the cost of production will have a negative effect on G.M.E. gains. The highest average cost of production G.M.E. can accept is 83.8% of sales revenues, any increase in cost above that level should be absorbed by an increase in per unit price. The lowest acceptable market size by G.M.E. in 1990 is 7,190 units, this is slightly higher than a 10% decrease in sales volume from the projected one. Any decrease in sales volume below this level will have a negative effect on the net gains to G.M.E. Moreover, the lowest acceptable market value per share for G.M.E. is L.E. 1310.4, below this value the result of DFI would be negative on G.M.E. We have to note that the level of political risk affects G.M.E. gains and hence any change in it will affect our calculation.

As we stated earlier the multinational gains from investment in country A are compared with its gains from exporting or

investing in country B. The higher the gains in either case will affect the decision of the multinational. In G.M.E.'s case, exporting of cars to Egypt was banned since 1984, before the project started operations. This did not allow us to calculate the gains from exporting in order to be able to compare it with DFI. The ban also acted as a pressure and incentive for G.M. to get to the Egyptian market first.

Using the Storm program, actual and expected output level as calculated in our financial projection, the Linear programming model was used to calculate the gains to G.M.E. from DFI. The following table demonstrates our results.

Table 13
Net Gains To G.M.E. Investors Using Linear Programming

		(L.E.,000)
*Egypt Risk Ratings	*B of Egypt	Net Gains
48.00	52.00	6,046
46.00	54.00	5,633
Base case 44.00	56.00	5,220
42.00	58.00	4,807
40.00	60.00	4,393
38.00	62.00	3,980
20.00	80.00	262
Break Even P. 18.73	81.27	0
18.00	82.00	(151)

* Points are calculated on a scale of 100.

The linear programming model only uses the main factors affecting the decision of multinational corporation, mainly political risk, market size, and level of tariff, it does not include other factors affecting the decision of DFI. However, it can be used as a quick indicator about the profitability of a project, and will help the investor to decide to go ahead with the project on broad line basis or not. This decision could be reversed after a complete study

of the project takes place using the first model.

The principal conclusion that emerges from the above tables and models is that, multinational corporation decision of investment is a global one, it is not affected by economic condition of one country, but the economic condition of one country against others. Moreover, political risk and market size are two main key factors affecting the decision of multinationals[19].

Once a multinational has calculated its net gains from investing in different countries and decided on investment in one country, a bargain between the multinational and the host country starts over a wide range of issues, including local component level, employment of local nationals, value added locally, and location of research and development facilities.

The shift in the bargaining power to the host country is most likely to occur in relatively low technology industries that are not integrated globally. While the change in the bargaining power of the important industries that are characterized by innovation, intensive technology and global integration may be almost completely out of the developing host country control. In fact some economist argue that after entry the foreign firms become entrenched, its network of relationships with labor suppliers, local inputs vendors, distributors, and customers may actually enhance their bargaining power over time. Other argue that the shift in the relative bargaining power will depend on whether the rate of technological and managerial development in the host country

is greater than the rate of innovation in the industry. This appears to be unlikely in most developing countries except for those characterized as newly industrialized[1] (for example, the Four Tigers, Turkey).

The host country can take steps to improve its position when bargaining with multinationals. It can develop its resources through educational efforts, implement initiatives to gain industry specific expertise or even try to contact the multinational world competitors to reach a better agreement with the foreign investor. However, we can finally say that the shift in the bargaining power is most likely to take place in the natural resource - extractive industries not in the high technology manufacturing industries.

One important factor in the negotiations between the host country and the multinational corporations is the effective rate of protection (ERP) given to the multinational when operating domestically. After all, by setting up operation in the home country, the multinational has effectively taken advantage of the tariff barrier. One way of calculating the gains to multinationals from protection, is to compare the revenues lost from tariffs imports and the tax revenue gained from level of production in the host country[2].

The next table illustrates for us local retail prices, C.I.F. prices of G.M.E. products and government revenues in each case.

Table 14
Government Revenues From Taxes and Tariffs (May 1991 Prices) (L.E.)

Product	*Retail Price Taxes		**C.I.F. Price	***Tariffs
1 Ton Trucks	38,600	3,860	30,590	6,118
2.5 Ton Trucks	43,180	4,318	44,887	8,977
3.5 Ton Trucks	56,800	5,680	47,978	9,596
16 Seat Microbus	66,975	6,697	54,096	16,229
24 Seat Minibus	99,500	9,950	73,030	21,909

* Retail prices excluding sales tax
** Exchange rate used is US$ 1 = L.E. 3.22
*** Tariff imposed are 20% on trucks and 30% on buses.
Source: Field Survey and G.M.E. Dealers

Government revenues is lower in case of local production even after the new sales tax is imposed. This could be compensated if we consider the customs paid be the company on imported parts as a revenue from local production.

G.M.E. is benefiting from the ban on imports by charging local production prices which are higher than imported products prices.

The above table show us how G.M.E. is benefiting from the tariffs and ban imposed on its products. Recent structural adjustment applied in Egypt promised to decrease the high protection on imported products and hence will affect G.M.E. In the next chapter we will discuss briefly how can we evaluate the effects of multinational corporations on the host country development, and the effects of DFI on the developing country foreign policy.

NOTES TO CHAPTER IV

1- Based on interviews conducted with G.M.E. managers and dealers May 1991.
2- The pay-back period is calculated using, the net profit flow, to be almost 6 years, based on actual performance and financial projection.
3- Note that the benefits from that exchange rate are considered very high, an indirect incentive to G.M.E. (the expected exchange rate at the end of the loan period is L.E. 3.4 = U.S.$ 1).
4- Richard A.Brealey, Stewart C.Myres, Principles of Corporate Finance. McGraw-Hill Book Co., Singapore, 1988, p. 651.
5- Other profitability ratios such as; sales to total assets, sales to net working capital, and inventory turnover could help us to ask the right questions about the company performance.
6- For more details about the financial assumptions used in our financial projection please refer to appendix I.
7- Richard A.Brealey, Stewart C.Myres, Principles, op cit., p. 52.
8- Ibid, p. 208.
9- The ban did not include the importing of trucks and busses by the public sector companies, hotels, and tourism companies.
10- We did not include the cost of production as a key factor, since we assumed that any increase in cost of production will be transferred to a price increase. Hence, the result will have an effect on the sales volume.
11- Stephen J. Kobrin, "Testing The Bargaining Hypothesis in The Manufacturing Sector in Developing Countries" International Organization. Autumn 1987, p. 614.
12- We could not calculate the ERP since the data needed for that were not available for us. Mainly customs paid by the company on imported parts.

Chapter V

Evaluating Foreign Investments

1. Introduction

There are several debates among economist on the effects of multinational corporations on the host country development. Some regarded them as hindering development, while others praised them as an important tool to pull developing countries out of their economic problems. Project appraisal is used in evaluating foreign investments. However, few economist accept the application of the evaluation models used for private domestic firms on multinational corporations[1]. They regard multinational corporations as a source for cash outflow in the form of dividends repatriated profits, royalties, and expatriate salaries.

In most cases of project appraisal scarcity and biased data have the upper hand, and hence government tend to use different methods in calculating economic gains according to the data available. This defect might be the reason for the debate among economists concerning the evaluation of multinational corporations. There should be a more serious attempt to assess the economic impacts of multinational corporations through the use of a single, consistent set of measures[2]. In our case scarcity of data was the main reason for not calculating the economic rate of return and other economic indicators to Egypt from G.M.E. investments[3].

2. Problems of Evaluating Foreign Investments

A number of economists agree that the best way to evaluate a project is through a standard social cost-benefit analysis, by defining the benefits of a project to be in its contribution to national income, increase in consumption, investment, and exports, while its costs to the national economy consist of resources used. These include domestic labor, local capital, and locally purchased goods and services, in addition to a range of foreign-exchange costs, imported raw materials, components machinery, foreign share of dividends, royalties, interest, debt repayment, and technology fees[4]. The project might have an external effects on other host country concern for example, there might be a range of costs to society, including pollution, and loss of local investment. The external effects might also include benefits, such as training of workers, or signaling other investors to follow in the same investment field[5]. These and other effects of the project could switch an attractive project to be unattractive. While some projects which do not contribute directly to national production might become attractive when taking into consideration these other factors. These factors are not easy to calculate and seems to depend on the success of the project.

Direct foreign investment in developing countries can best be described as a mixed bag of both harmful and beneficial investments. It is the responsibility of the host country government to accept high value and reject low value projects. The rejection of the low value project can take

place in two ways. 1- Policies could be changed so that the price of inputs and outputs of the project match their relevant social cost. 2- The host country government can screen out or reshape through negotiations the projects that are likely to be harmful to the economy[4].

The most important change in policy to bring local market prices to the social prices would be lowering its effective rate of protection and eliminating major subsidies. If the investor had to compete with imports, all socially unattractive projects would be unattractive to the private investor also. The World Bank would generally consider the reduction of effective protection, changes in the pricing of domestic resources, and increase effective domestic competition as the first solution to the problem of eliminating bad investments[7]. However, policy makers and economists in developing countries regard these reforms as highly costly and possibly resulting in a downturn of the economy. The only solution left is the screening of proposals and eliminating those likely to be harmful to the economy and then negotiating with the investor to bring social returns above the minimum cutoff. Knowing the factors behind choosing the country for investment will help government authorities to highlight the strong and attractive points to the investor. The government authorities should also be able to promote foreign investments in those desirable high technology industries.

The establishment of an effective mechanism for attracting potential investors, screening their proposals, negotiating

entry terms, administering the agreements just negotiated, and promoting DFI have proved to be extremely difficult. Recent debate in Egypt on the effectiveness of GAFI is evidence of such difficulties. First to attract DFI the authorities should be aware of the factors affecting the decision of investment the strong and weak points their country posses. Screening project-by-project is not easy. the social and economic evaluation using cost benefit calculation is always not possible for different reasons such as, the scarcity of skilled personnel able to perform the task, and the difficulty in assembling adequate data[8]. Moreover, some ministries often refuse to cooperate in coordination with the goal when needed.

To overcome some of the problems, governments have established a separate type of centralized body with specialized expertise that covers only a single industry or a single type of investment. Another solution is to make a crude classifications about the types of investment proposed. For example, export oriented project could receive less attention than that given to projects serving the local market. A test for the energy used by the export project, if there are subsidized energy prices, would help in a quick decision about it. Special attention should be given to project serving the local market and with high rates of effective protection[9]. However, the best solution is through increasing the number of experts able to determine the factors affecting the investment decision and able to analyze the social effects of DFI. Moreover, the government should be able

to define the industrial sectors that need foreign investment to concentrate their promotion and evaluation.

3. Multinational Corporations and Foreign Policy

Another area of considerable discussion is the effect of foreign investment on the host countries' foreign policy. There are three basic conceptions of the effects of DFI on the developing countries foreign policy. One, labeled the Trojan Horse model, regards multinational corporations as similar to the story of the wooden figure that was used to penetrate and then capture from within the ancient walled fortress. The second, the Scapegoat model, accuses governments in developing countries of blaming foreign investors and their home states for the social and economic ills found in the host society. The third model, is the non-Foreign Entity model, which regards foreign investors as seeking to hide their foreign origins and as having little effect on foreign policy, except in creating interdependence between the home and host countries[19].

According to the Trojan Horse approach, a nigh level of foreign investments creates what economist refer to as the "infrastructure of dependence," where the host state loses its ability to take independent action to the multinational home country. This may only happen under certain international conditions of severe depression or war among major industrial states. A second reason is a recessions in the developed countries. These conditions have a significant effect upon the degree of domination of developing countries.

A third possibility for the Trojan Horse model is the identity of the home state, the effects of foreign investment on foreign policy do indeed change according to the origin of the home country. The United States and the United Kingdom are accused by most economist of using foreign investment as an instrument of control over developing countries[11].

Economists often discuss the Scapegoat model by noting the tremendous problems confronting developing countries, their governments are trying to build a national consciousness among their people, to produce confidence in the government and increase its authority. These governments need to rally the people by giving them symbols to work for, or sometimes symbols to work against. Multinational corporations are regarded as introducing foreign values into the host society, thus undermining local culture and creating a host of social problems. They may also challenge the traditional elites of a certain industry by introducing to the society types of business practices and labor policies that threaten the prominent position hitherto enjoyed by this elite. Different economists argue that these factors lead developing hosts to resort to scapegoating at the expense of multinational corporations to relieve frustration, to distance themselves from the responsibility for social ills. and to rally the people against multinational corporations and foreign investment[12]. This is more common in poor countries with foreign investment originating from one country. Other developing countries could not just blame all multinationals despite their origins.

In the Non-Foreign Entity model foreign investments are seen as unable to rely upon their home country support. The model is based upon the conflict between the foreign investor and its home governments and on the competition between multinational corporations on market shares and resources in the host country. Thus it regards foreign investors as competitors, not formed from a single bloc seeking to dominate the underdeveloped host country, even when they share the same national origins.

The model argues that multinational corporations are engaged in business in order to secure a profit, they find it profitable to avoid the difficulties arising from getting involved in politics. Hence, they seek to hide their foreign origins, appearing either as a local corporation or as vague world entity. Such a behavior may have one of two possible effects on foreign policy behavior. One is that multinational corporations are so successful in hiding out their origins, and staying out of politics, that they do not affect foreign policy behavior. The second which is more likely to take place is that even though multinational corporations seek to disguise their national origins and attempt to steer clear of politics, a large stock of foreign investments create strong economic linkages and interdependence between the host and home countries that affect foreign policy behavior[13]. However, we expect that once the multinational corporations are more global in origin the interdependence will not be between two countries but will be global. The three models discussed above give us an idea

about how and why multinational might get involved in controlling foreign policy of host countries. We have not, in this study, discussed interdependence between multinational corporations and host countries. However, we can say that interdependence between home and host countries can not be explained by foreign investment only. There are other factors which explain interdependence. For example, foreign aid, geographical position, and mutual interests, could be other reasons for interdependence.

4. Technology Transfer

We cannot ignore technology transfer through multinational corporations when we are evaluating their performance in developing countries. Technology transfer occurs according to two basic types; first, production of new products and second, more efficient production of existing products. We have two channels of international technology transfer through multinational corporations. One is the transfer of technology from the parent multinational to its subsidiary in foreign countries. The second is the technology transfer in the form of externality from the subsidiary to the native firms in the host country. Multinational subsidiary determined higher prices on their technology in case of leakage from the subsidiary to the local firms than in the absence of learning on the part of native firms[14].

Developing countries should try and attract multinational corporations to their countries to gain from their technology. They can always benefit from the technology transferred

by multinational corporations to their subsidiaries. Local employees learning about the new technology will be able to apply it else were in the host country. local companies can learn about the technology from the subsidiary through government regulations and competition and then start applying it in their firms. and hence the local country will benefit from the new technology at a lower cost then that of multinational when investing in research and development. Technology is one major key to development, multinational corporations could be used by developing countries as a means of transformation to a higher level of technology, especially in industrial projects demanded by the developing countries.

In the next chapter we are going to conclude our study by stating the factors affecting the decision of DFI, and the type of incentives that have proven important in attracting one multinational corporation, our case study, to Egypt.

NOTES TO CHAPTER V

1- Dennis J.Encarnation and Louis T.Wells, Evaluating Foreign Investment. - N.P. 1989, p. 62.
2- These difference in analytical techniques might not have a strong impact on the evaluation results as the biases and scarcity in the data analyzed.
3- We were intending to compare the FRR with ERR of G.M.E.
4- International prices should be used to reflect the opportunity cost of the resources to the national economy. Therefore, if energy could be exported for more than the project paid under government price polices, the international price will be above the market price and vice versa.
5- Dennis J.Encarnation and Louis T.Wells, Evaluating, op cit., p. 64.
6- Ibid, p. 69.
7- Ibid, p. 70.
8- Ibid, p. 82.
9- Ibid, p. 83.
10- John M.Rothgeb,Jr., "Trojan Horse, Scapegoat, or Non-Foreign Entity, Foreign Policy and Investment Penetration in Poor Countries" Journal of Conflict Resolution. June 1987, p. 228.
11- Ibid, p. 230.
12- Ibid, p. 233.
13- Ibid, p. 235.
14- Sanghamitra Das, "Externalities and Technology Transfer Through Multinational Corporations" Journal of International Economics. 22 1987, p. 181.

Chapter VI

Conclusion

The basic conclusion of this study is that DFI is highly affected by three major factors, political risk, market size. and level of tariff. Political risk and market size lead investors to prefer one country to another. while the level of tariff and market size induces foreign investments to shift from exporting to direct investment.

In our thesis, the case of G.M. investment in Egypt was used to illustrate this point. From our analysis of G.M.E. in Egypt, the following conclusions stand out.

a) The legal structure in Egypt governing foreign investment is favorable.

b) Since the multinational have the choice of exporting or investing. The investment option advantage should be highlighted to attract multinationals.

c) Egypt's large market size is a strong inducement for multinationals. This market size is important enough to overcome any legal restrictions or risk associated with investment in Egypt. For example, long before Law 43 pharmaceutical multinational found it profitable to invest in Egypt.

d) Political risk is an important factor affecting multinational decision of investment from one country to another. The size of the market and the expected sales volume, however, can outweigh that risk.

e) An inducement used by the Egyptian government for G.M.E. has been tariff protection and import restrictions. The import restrictions, however, represent a cost to the domestic economy, which provides an implicit subsidy, in the form of lost customs duties. to the multinational. A suitable fiscal policy (a sales tax for instance) may go some way towards compensating the government for its lost customs revenues. This level of protection, however, should not lead to inefficiencies in company operations.

A higher tariff or a ban on imports will persuade a multinational to invest locally if the market size is reasonable and above the profitable levels. The effective protection by higher tariffs will also induce multinational to get to the market before other local and foreign competitors do to benefit from the privilege of market protection. Moreover, a number of multinationals might demand a monopoly in certain small markets to build a subsidiary.

Other factors such as the labor cost, other variable costs, and governments incentives, which are mainly offered by most developing countries, are calculated for in the decision of multinational corporations. However, their effect on the decision might have a minor role[1].

f) Finally, profit maximization remains the main factor affecting multinational decision of investment in Egypt. The attractiveness of profit is even greater than risk of investing in LDCs. The various factors affecting profit affect also the decision of investment.

There are several areas of future research suggested by this

study. These areas of future research should cover neglected issues in our study.

1) The gains to multinational from intrafirm transaction was not accounted for in our model. To calculate such gains a detailed analysis of the cost of production of the imported material and its price should take place. We cannot ignore such profits by assuming that the multinational will gain these profits wherever the subsidiary is located. However, due to scarcity of data we could not calculate the gains to G.M. and Isuzu from intrafirm transactions with G.M.E.

The above fact could explain the extensive spread of international drug companies in developing countries, since most multinational drug companies restrict their subsidiaries from buying any raw materials except from the mother company or a nominated supplier. For example, Ciba-Geigy and Sandoz-Wander forbid their branch in Egypt (Swisspharma) from using any raw materials which could be imported except from the mother company.

2) Our model proved to us that the calculation of the profits is highly sensitive to both the market size and political risk. A gap in the application of our model is the lack of comparison between the gains from exporting or investing in another country with the gains from investing in Egypt. However, this gap does not affect our model or the results we reached.

3) We tried to get over the problem of using a static model by performing sensitivity analysis for the market size. Nevertheless, a dynamic model should be able to analyze the

decision of multinational as a reaction to both local and foreign competitors entry to the market and to any change in the tariff level. The reaction of multinational to these changes could best be studied through a decision tree.

4) Egypt, like most developing countries, needs DFI not only to benefit and use the large labor force she has but also to learn about advanced technology. In our case, 40% of G.M.E. inputs are provided by local suppliers. The benefits, costs of these suppliers and the linkages of vertical integration effects on G.M.E. investment in Egypt are areas for future research.

5) Finally, one area of research is in studying the effects of multinationals in Egypt on relevant industrial sectors. Have there been any effects from G.M.E., in our case, investment on levels of profit, technology, labor skills, efficiency, to the domestic sector as a whole or is the multinational isolated from local industries.

These studies should prove useful for increasing the ability to explain and understand DIRECT FOREIGN INVESTMENTS INTO LDCS.

NOTES TO CHAPTER VI

1- With the high level of technology in manufacturing, communications and transportation, the effect of the above mentioned items will have a minor role on the project profits and hence, the multinational corporation's decision.

APPENDIX I

FINANCIAL PROJECTION TABLES

Table 1 Assumptions For Financial Projections

	1990	1991	1992	1993	1994	1995
Sales Volume						
Trucks						
1 ton trucks	19%	4.64%	4.64%	4.64%	4.64%	4.64%
3.5 tontrucks	19%	4.64%	4.64%	4.64%	4.64%	4.64%
Buses						
24 seater minibus	19%	4.64%	4.64%	4.64%	4.64%	4.64%
16 seater microbus	19%	4.64%	4.64%	4.64%	4.64%	4.64%
Passenger car				56%	33%	30%
Sales Prices						
Average sales price	0%	0%	0%	0%	0%	0%
Passenger car	0%	0%	0%	0%	0%	0%
			0.0%	0.0%	0.0%	0.0%
Operating Costs	83%	83%	83%	83%	83%	83%
Growth Rate						
Wages and salaries	0.70%	0.70%	0.70%	0.70%	0.70%	0.70%
Raw mat.local	35.00%	35.00%	35.00%	35.00%	35.00%	35.00%
Raw mat.imported	55.00%	55.00%	55.00%	55.00%	55.00%	55.00%
0.Operating Costs	9.30%	9.30%	9.30%	9.30%	9.30%	9.30%
Passenger car (% OF SALS REV.)			93.40%	92.90%	92.40%	91.90%
			0.50%	0.50%	0.50%	0.50%
Replacment Trucks and Buses (%)						
Raw mat.local	5%	5%	5%	5%	0%	0%
Raw mat.imported	-5%	-5%	-5%	-5%	0%	0%
Replacment Passenger Car (%)						
Raw mat.local			5%	5%	5%	5%
Raw mat.imported			-5%	-5%	-5%	-5%
Marketing Exp. (% of sales Rev.)	10.0%	10.0%	10.0%	10.0%	9.5%	9.5%
Admin. Expenses (% of sales Rev.	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
Loss on Foreign Ex. Transaction	-6.6%	2.5%	2.5%	2.5%	2.5%	2.5%
% of Imported Raw Mat.						
Depreciation						
Land improvement	5%	5%	5%	5%	5%	5%
Buildings	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%
Machinery & Equipment	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%
Vehicles	20.00%	20.00%	20.00%	20.00%	20.00%	20.00%
Furniture & office Equip.	12.50%	12.50%	12.50%	12.50%	12.50%	12.50%
Passenger car project (Average)	13.00%	13.00%	13.00%	13.00%	13.00%	13.00%
Prov.for Contingencies (% of prev.year divid.)	10.00%	10.00%	10.00%	10.00%	10.00%	10.00%

CONT....

Working Capital						
Receivables are for 14 days	14	14	14	14	14	14
Inventories						
Raw mat.local 1 mon.	1.0	1.0	1.0	1.0	1.0	1.0
Raw mat.imported 3.5 mon.	3.5	3.5	3.5	3.5	3.5	3.5
Finished goods 14 days	14.0	14.0	14.0	14.0	14.0	14.0
L/C's Margin 35% of Imp.Inv.	35.00%	35.00%	35.00%	35.00%	35.00%	35.00%
Accounts payable local mat. 1 mo	1	1	1	1	1	1
Cash (% of T.operating exp.)	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%
Accrued exp.(% of T.operating ex	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%
Working capital loan repayment (% of excess cash previous year)		0.00%	0.00%	0.00%	0.00%	0.00%
Passenger car laon repayment (% of excess cash previous year)		0.00%	0.00%	0.00%	0.00%	0.00%
Dividends paid of net profit	60.00%	70.00%	80.00%	90.00%	90.00%	90.00%

ble 2

Sales Volume & Revenues Development of G.M.E. Products

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	TOTAL
cks											
ton trucks	4,987	5,502	4,526	5,416	6,422	6,720	7,032	7,358	7,700	8,057	63,721
5 tontrucks	1,162	820	930	972	1,153	1,206	1,262	1,321	1,382	1,446	11,653
ses											
8 seater minibus		150	239	210	249	261	273	285	299	312	2,278
8 seater microbus			117	149	177	185	193	202	212	222	1,457
ssenger car					0	0	960	1,500	2,000	2,600	7,060
tal Sales Volume	6,149	6,472	5,812	6,747	8,000	8,371	9,720	10,667	11,592	12,638	86,168
les Prices											
erage sales price (L.E. '000)	17	17	23	26	30	30	30	30	30	30	
ssenger car						0	55	55	55	55	

Sales Revenues Development of G.M.E. Products

her products	104,520	113,119	132,527	174,227	236,608	247,593	259,087	271,115	283,702	296,872	2,119,370
ssenger car					0	0	52,913	82,677	110,236	143,307	389,133
tal Sales Revenues	104,520	113,119	132,527	174,227	236,608	247,593	312,000	353,792	393,938	440,179	2,508,503

Table 3

Operation Cost Development

(L.E. '000)

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	TOTAL
Wages and salaries	841	664	731	939	1,375	1,439	1,505	1,575	1,648	1,725	12,442
Raw mat.local	75,748	95,172	28,215	51,619	77,572	81,173	84,942	88,885	82,415	86,241	751,983
Raw mat.imported			65,836	77,428	99,174	103,778	108,596	113,638	129,510	135,522	833,483
Other Operating Costs	8,180	7,173	9,852	12,900	18,264	19,112	19,999	20,927	21,899	22,916	161,221
Passenger car project											
Wages and salaries											
Raw mat.local							4,000	7,789	10,689	13,901	36,379
Raw mat.imported							27,400	41,031	54,055	69,810	192,298
Other Operating Costs							18,000	27,986	37,114	47,987	131,088
Total Operation cost											
Wages and salaries					1,375	1,439	1,505	1,575	1,648	1,725	9,267
Raw mat.local					77,572	81,173	88,942	96,674	93,104	100,143	537,608
Raw mat.imported					99,174	103,778	135,996	154,669	183,565	205,333	882,516
Other Operating Costs					18,264	19,112	37,999	48,914	59,013	70,903	254,204
Total operating costs	84,769	103,009	104,634	142,886	196,385	205,502	264,442	301,832	337,330	378,103	2,118,893

Table 4

FIXED ASSETS SUMMARY

(L.E. '000)

FIXED ASSETS SUMMARY	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
Land	4,234	4,234	4,234	4,234	4,234	4,234	4,234	4,234	4,234	4,234	4,234
Land improvement	2,820	2,820	2,089	2,089	2,089	2,089	2,089	2,089	2,089	2,089	2,089
Buildings	10,600	11,266	13,377	13,377	13,417	13,417	13,417	13,417	13,417	13,417	13,417
Machinery & Equipment	10,412	11,807	10,768	10,808	11,475	11,475	11,475	11,475	11,475	11,475	11,475
Vehicles	1,239	1,436	1,453	1,501	1,996	1,996	1,996	1,996	1,996	1,996	1,996
Furniture & office Equip	948	1,039	2,339	2,419	2,528	2,528	2,528	2,528	2,528	2,528	2,528
Passenger car project						0	6,700	6,700	6,700	6,700	6,700
T O T A L	30,253	32,602	34,259	34,428	35,738	35,738	42,438	42,438	42,438	42,438	42,438
ACCUM. DEPRECIATION SUMMARY											
Land improvement	47	188	241	346	450	555	659	763	868	972	1,077
Buildings	123	493	1,027	1,473	1,919	2,389	2,859	3,328	3,798	4,267	4,737
Machinery & Equipment	336	1,300	2,205	3,195	4,280	5,313	6,346	7,378	8,411	9,444	10,477
Vehicles	305	450	688	802	853	1,252	1,652	2,051	2,450	2,595	2,595
Furniture & office Equip	190	347	565	991	1,604	1,920	2,212	2,212	2,212	2,212	2,212
Passenger car project						0	0	871	1,742	2,613	3,484
	1,002	2,778	4,727	6,806	9,107	11,429	13,727	16,604	19,481	22,104	24,582
DEPRECIATION											
Land improvement		141	53	104	104	104	104	104	104	104	104
Buildings		370	534	446	446	470	470	470	470	470	470
Machinery & Equipment		964	905	989	1,086	1,033	1,033	1,033	1,033	1,033	1,033
Vehicles		145	238	113	52	399	399	399	399	145	0
Furniture & office Equipment		157	218	426	613	316	292	0	0	0	0
Passenger car project						0	0	871	871	871	871
TOTAL DEPRECIATION	0	1,776	1,949	2,079	2,301	2,322	2,298	2,877	2,877	2,623	2,478
NET FIXED ASSETS	29,251	29,824	29,531	27,621	26,631	24,309	28,711	25,834	22,957	20,335	17,857

INTEREST CALCULATION

(L.E. '000)

		1989	1990	1991	1992	1993	1994	1995
1) Long term loans								
1.1)Construction loan								
-BEG BALANCE		19,375	13,125	6,875	625	0	0	0
-INTEREST CHARGE	15.0%	2,906	1,969	1,031	94	0	0	0
-INTEREST PAYMENT		(2,906)	(1,969)	(1,031)	(94)	0	0	0
-LOAN REPAYMENT		(6,250)	(6,250)	(6,250)	(625)			
ENDING BALANCE		13,125	6,875	625	0	0	0	0
1.2)PIE fund								
-BEG BALANCE		3,875	2,625	1,375	125	0	0	0
-INTEREST CHARGE	15.0%	581	394	206	19	0	0	0
-INTEREST PAYMENT		(581)	(394)	(206)	(19)	0	0	0
-LOAN REPAYMENT		(1,250)	(1,250)	(1,250)	(125)			
ENDING BALANCE		2,625	1,375	125	0	0	0	0
Total long term loans								
-BEG BALANCE		23,250	15,750	8,250	750	0	0	0
-INTEREST CHARGE		3,488	2,363	1,238	113	0	0	0
-INTEREST PAYMENT		(3,488)	(2,363)	(1,238)	(113)	0	0	0
-LOAN REPAYMENT		(7,500)	(7,500)	(7,500)	(750)	0	0	0
ENDING BALANCE		15,750	8,250	750	0	0	0	0
2) Working capital loan								
-BEG BALANCE		30,000	30,000	30,000	30,000	30,000	30,000	30,000
-INTEREST CHARGE	15.0%	4,500	4,500	4,500	4,500	4,500	4,500	4,500
-INTEREST PAYMENT		(4,500)	(4,500)	(4,500)	(4,500)	(4,500)	(4,500)	(4,500)
-LOAN REPAYMENT		0	0	0	0	0	0	0
ENDING BALANCE		30,000	30,000	30,000	30,000	30,000	30,000	30,000
3) Passenger car project								
-BEG BALANCE			0	5,175	20,700	20,700	20,700	20,700
-INTEREST CHARGE	15.0%		0	776	3,105	3,105	3,105	3,105
-INTEREST PAYMENT			0	(776)	(3,105)	(3,105)	(3,105)	(3,105)
-LOAN REPAYMENT			0			0	0	0
ENDING BALANCE			0	5,175	20,700	20,700	20,700	20,700
Total working capital								
-BEG BALANCE			30,000	35,175	50,700	50,700	50,700	50,700
-INTEREST CHARGE			4,500	5,276	7,605	7,605	7,605	7,605
-INTEREST PAYMENT			(4,500)	(5,276)	(7,605)	(7,605)	(7,605)	(7,605)
-LOAN REPAYMENT			0	0	0	0	0	0
ENDING BALANCE			30,000	35,175	50,700	50,700	50,700	50,700
Grand Total								
-BEG BALANCE		53,250	45,750	43,425	51,450	50,700	50,700	50,700
-INTEREST CHARGE		7,988	6,863	6,514	7,718	7,605	7,605	7,605
-INTEREST PAYMENT		(7,988)	(6,863)	(6,514)	(7,718)	(7,605)	(7,605)	(7,605)
-LOAN REPAYMENT		(7,500)	(7,500)	(7,500)	(750)	0	0	0
ENDING BALANCE		45,750	38,250	35,925	50,700	50,700	50,700	50,700
INTEREST PAID ON OVERDRAFT	15.0%		617	0	0	0	0	0
INTEREST PAID ON OVERDRAFT INVENTORIES			2,128	1,659	830	1,820	2,770	3,850

PROFIT AND LOSS STATEMENT

Table 6 (L.E. '000

	ACTUAL					PROJECTED						
	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	TOTAL
Net Sales		104,520	113,119	132,527	174,227	236,608	247,593	312,000	353,792	393,938	440,179	2,508,503
Prod. Retained for The Co.		119	208	378	135							841
⊿ of Finished Prod. at		1,256	6,558	405	352							8,572
Net Sales		105,896	119,886	133,311	174,714	236,608	247,593	312,000	353,792	393,938	440,179	2,517,917
Cost of Sales												
Finished Prod. at Beg. of Year			1,256	6,558	405							8,220
Cost of Finished Prod.		83,422	99,931	104,634	142,886	196,385	205,502	264,442	301,832	337,330	378,103	2,114,468
Marketing Expenses		1,570	1,244	1,578	1,016	1,118	1,230	1,352	1,488	1,629	1,784	14,008
Total Cost of Sales	0	84,993	102,431	112,769	144,308	197,502	206,731	265,795	303,320	338,959	379,887	2,136,695
Gross Profit	0	20,904	17,455	20,542	30,406	39,106	40,861	46,206	50,472	54,978	60,292	381,221
		19.74%	14.56%	15.41%	17.40%	16.53%	16.50%	14.81%	14.27%	13.96%	13.70%	15.14%
Other Revenues												
Interest Income		2,886	3,705	1,818	627		1,557	590	1,383	1,092	838	14,496
Gain on Disposal of F.Assets		24	50									74
Total Revenues	0	23,814	21,211	22,360	31,033	39,106	42,419	46,796	51,855	56,070	61,130	395,793
General & Admin. Expenses		5,436	4,114	3,722	3,944	4,732	4,952	6,240	7,076	7,879	8,804	56,898
Loss on Foreign Ex.Trans.		3,104	4,903	1,505	19	(6,577)	2,594	3,400	3,867	4,589	5,133	22,536
Provision for Contingencies		560	688	717	734	809	1,653	1,877	2,133	2,397	2,407	13,975
Amortization of Charges												
Pre-operating expenses		1,123	792	792	1,255		200	400	600	500		5,662
Establishment expenses		31	22	22	35							110
Earnings B.Dep.Int. & Taxes	0	13,560	10,691	15,602	25,046	40,142	33,019	34,879	38,180	40,705	44,787	296,611
Depreciation		2,492	2,157	2,272	2,660	2,322	2,298	2,877	2,877	2,623	2,478	25,056
Interest Expenses		8,446	8,131	7,886	9,277	9,608	8,173	8,548	9,425	10,375	11,455	91,324
Net Profit for the Year	0	2,623	403	5,443	13,109	28,213	22,548	23,454	25,877	27,707	30,854	180,232
Prior Year Adjustments			1,755	(570)								
Profit (Carried to App. Acc.)			2,158	4,873	13,109	28,213	22,548	23,454	25,877	27,707	30,854	178,795
Legal Reserve (5%)		131	108	244	655	1,411	1,127	1,173	1,294	1,385	1,543	9,071
Shareholders' Dividends			252	3,024	7,560	15,120	17,640	20,160	22,680	22,680	22,680	131,796
Employees' Share in Profits			51	218	528	1,411	1,127	1,173	1,294	1,385	1,543	8,729
Retained Earnings		2,491	4,239	5,627	9,992	20,264	22,917	23,866	24,476	26,732	31,821	172,425
Shareholders' Dividends			252	3,024	7,560	15,120	17,640	20,160	22,680	22,680	22,680	131,796
GENERAL MOTORS CORP.	31%		78	937	2,344	4,687	5,468	6,250	7,031	7,031	7,031	40,857
FORD MOTORS LIMITED	20%		50	605	1,512	3,024	3,528	4,032	4,536	4,536	4,536	26,359
FOREIGN SHARES	51%		129	1,542	3,856	7,711	8,996	10,282	11,567	11,567	11,567	67,216
LOCAL INVESTORS	16%		40	484	1,210	2,419	2,822	3,226	3,629	3,629	3,629	21,087
EGYPTIAN INVESTORS	33%		83	998	2,495	4,990	5,821	6,653	7,484	7,484	7,484	43,493

Table 7 — WORKING CAPITAL CALCULATION AND PROJECTED CASH FLOW STATEMENT

(L.E. '000)

CURR.ASSETS	1990	1991	1992	1993	1994	1995	TOTAL
Inventories	46,109	56,574	65,135	74,869	83,344	89,212	415,242
L/C's Margin for Inventories	10,594	13,883	15,789	18,739	20,961	22,219	102,185
Trade & Other Receivables	9,075	9,497	11,967	13,570	15,110	16,884	76,103
Cash	9,819	10,275	13,222	15,092	16,867	18,905	84,180
LESS CURRENT LIAB.	75,597	90,229	106,114	122,269	136,281	147,219	677,709
Working Capital Loan	30,000	35,175	50,700	50,700	50,700	50,700	267,975
Accounts Payable	6,464	6,764	7,412	8,056	7,759	8,345	44,801
Accrued Exp. & O.Credit Bal.	7,855	8,220	10,578	12,073	13,493	15,124	67,344
	44,320	50,160	68,689	70,829	71,952	74,169	380,119
NET WORKING CAPITAL	31,277	40,069	37,424	51,440	64,329	73,050	297,590
INCREASE / DECREASE W.CAPITAL	(6,160)	8,792	(2,645)	14,016	12,890	8,720	35,612

PROJECTED CASH FLOW STATEMENT

(LE'000)

I N F L O W	1990	1991	1992	1993	1994	1995	
CAPITAL INCREASE							
NET PROFIT / LOSS	28,213	22,548	23,454	25,877	27,707	30,854	158,653
DEPRECIATION	2,322	2,298	2,877	2,877	2,623	2,478	15,474
Provision for Contingencies	809	1,653	1,877	2,133	2,397	2,407	11,276
AMORTIZATION		200	400	600	500	0	1,700
	31,343	26,699	28,608	31,487	33,227	35,738	187,104
O U T F L O W							
CAPITAL EXP.	(334)	6,700	0	0	0	0	6,366
INC./(DEC.) IN W.CAPITAL	(6,160)	8,792	(2,645)	14,016	12,890	8,720	35,612
PRE-OPERATING EXP. PASS.CAR	0	1,000	400	300		0	1,700
	(6,494)	16,492	(2,245)	14,316	12,890	8,720	43,678
NET BEFORE DEBT SERVICE	37,838	10,207	30,853	17,172	20,338	27,018	143,426
LOAN REPAYMENT	7,500	7,500	750	0	0	0	15,750
SURPLUS/(DEFICIT)	30,338	2,707	30,103	17,172	20,338	27,018	127,676
Employees' Share in Profits	(528)	(1,411)	(1,127)	(1,173)	(1,294)	(1,385)	(6,918)
DIVIDENDS to Shareholders	(7,560)	(15,120)	(17,640)	(20,160)	(22,680)	(22,680)	(105,840)
ACCUMULATED	22,250	8,427	19,762	15,602	11,965	14,918	92,923

Table 8

PROFORMA BALANCE SHEET

(L.E. '000)

	ACTUAL					PROJECTED					
	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
Fixed Assets											
Total fixed assets	30,253	32,602	34,259	34,428	35,738	35,738	42,438	42,438	42,438	42,438	42,438
Less: Accum. Depreciation	1,002	2,778	4,727	6,806	9,107	11,429	13,727	16,604	19,481	22,104	24,582
Net Fixed Assets	29,251	29,824	29,531	27,621	26,631	24,309	28,711	25,834	22,957	20,335	17,857
Construction Work in Process	163	493	49	475	334	0					
Current Assets											
Inventories	17,118	35,295	38,628	33,587	32,651	46,109	56,574	65,135	74,869	83,344	89,212
N.R.V.'s Margin for Inventories				14,576	24,279	10,594	13,883	15,789	18,739	20,961	22,219
Trade & Other Receivables	15,750	28,167	30,369	12,533	13,211	9,075	9,497	11,967	13,570	15,110	16,884
Due from affiliated co.	407	490	17	216	39						
Cash	3	9	10	3,177	8,159	9,819	10,275	13,222	15,092	16,867	18,905
Banks - Current Accounts	1,102	17,063	21,348	5,291	5,729						
Time Deposits	8,375	15,314	11,204	1,197		22,250	8,427	19,762	15,602	11,965	14,918
	42,755	96,337	101,576	70,577	84,068	97,847	98,655	125,876	137,871	148,247	162,137
Excess cash											
Less Current Liabilities											
Banks - overdraft	39,646	9,840	14,195	5,221	4,114	0	0	0	0	0	0
Working Capital Loan		20,000	20,000	22,790	30,000	30,000	35,175	50,700	50,700	50,700	50,700
Due to affiliated co.	2,585	17,426	26,885	4,911	2,285						
Accounts Payable	694	332	5,130	1,260	4,550	6,464	6,764	7,412	8,056	7,759	8,345
Appropriation Creditors			303	3,494	8,088	16,531	18,767	21,333	23,974	24,065	24,223
Accrued Exp. & O.Credit Bal.	5,301	17,573	4,634	4,123	5,681	7,855	8,220	10,578	12,073	13,493	15,124
	48,225	65,170	71,147	41,800	54,719	60,850	68,927	90,022	94,803	96,017	98,392
Net Working Capital	(5,470)	31,167	30,429	28,778	29,349	36,996	29,728	35,854	43,067	52,229	63,745
Deferred Expenses											
Establishment Exp. (net)	103	79	57	35							
Pre-operating Exp. (net)	3,632	2,839	2,047	1,255		0	800	800	500	0	0
Accumulated Exp.	15,814										
NET ASSETS	43,493	64,402	62,113	58,164	56,315	61,306	59,240	62,488	66,525	72,564	81,601
FINANCED BY :											
Capital Authorized & Paid	25,200	25,200	25,200	25,200	25,200	25,200	25,200	25,200	25,200	25,200	25,200
Reserves		131	239	759	1,775	3,185	4,313	5,486	6,779	8,165	9,708
Retained Earnings		2,491	4,239	5,627	9,992	20,264	22,917	23,866	24,476	26,732	31,821
NET EQUITY	25,200	27,822	29,678	31,585	36,967	48,649	52,430	54,552	56,455	60,097	66,728
Long Term Debts		4,740	5,000	3,875	2,625	1,375	125	0	0	0	0
SI Fund											
Construction Debt		25,000	25,000	19,375	13,125	6,875	625	0	0	0	0
Provisions		560	2,435	3,328	3,598	4,406	6,060	7,936	10,070	12,467	14,873
Reserve-Exchange Revaluation		6,279									
Accumulated Income	18,293										
Banks - overdraft											
TOTAL LIAB.	43,493	64,402	62,113	58,164	56,315	61,306	59,240	62,488	66,525	72,564	81,602

Table 9

CALCULATION OF ESTIMATED SHARE VALUE

	Present value L.E.	YEAR 1986 (1)	1987 (2)	1988 (3)	1989 (4)	1990 (5)	1991 (6)	1992 (7)	1993 (8)	1994 (9)	1995 (10)
DISCOUNT RATE	22%										
DIVIDEND PER SHARE L.E.	1,091	0	8	101	252	504	588	672	756	756	756
RESIDUAL VALUE OF SHARE L.E.	305										2,224
MARKET VALUE PER SHARE IN L.E	1,395.07										

Table 10

L.E. ('000)

SENSITIVITY ANALYSIS

BASE

NET GAINS TO G.M.E. INVESTOR	2,540

	POLITICAL RISK %								
	62%	60%	58%	56%	54%	52%	50%	100%	0%
NET GAINS TO G.M.E. INVESTOR	1,028	1,532	2,036	2,540	3,044	3,548	4,052	(8,548)	16,652

Table 11

SENSITIVITY ANALYSIS

BASE

MARKET VALUE PER SHARE IN L.E 1,395

CASE 1

DECREASE IN SALES GROWTH RATE
AND CHANGE IN COST OF FINISHED PROD.

	4.5%	4.0%	3.0%	2.0%	1.0%	0.0%
85%	1,149	1,142	1,129	1,116	1,142	1,130
90%	577	576	576	576	575	575
95%	24	29	40	51	62	72
80%	1,647	1,635	1,612	1,589	1,567	1,546
75%	2,071	2,054	2,021	1,989	1,958	1,927

CASE 2

DECREASE IN SALES GROWTH RATE
AND DECREASE IN THE DISCOUNT RATE

	4.5%	4.0%	3.0%	2.0%	1.0%	0.0%
22%	1,393	1,384	1,366	1,349	1,333	1,317
20%	1,573	1,563	1,542	1,523	1,503	1,484
18%	1,784	1,772	1,747	1,724	1,701	1,678
16%	2,030	2,015	1,986	1,958	1,931	1,905
14%	2,318	2,301	2,267	2,233	2,201	2,169
12%	2,658	2,637	2,596	2,557	2,518	2,480

CASE 3

CHANGES IN COST OF FINISHED PROD.
AND DECREASE IN THE DISCOUNT RATE

	85%	90%	95%	80%	75%
22%	1,151	577	22	1,650	2,076
20%	1,301	642	6	1,878	2,379
18%	1,477	718	(16)	2,144	2,738
16%	1,683	806	(43)	2,457	3,161
14%	1,925	909	(77)	2,826	3,665
12%	2,210	1,031	(120)	3,264	4,265

Table 12

L.E. ('000)

APPLICATION RESULTS

BASE

NET GAINS TO G.M.E. INVESTOR 2,540

CASE 1

DECREASE IN SALES GROWTH RATE
AND CHANGE IN COST OF FINISHED PROD.

	4.5%	4.0%	3.0%	2.0%	1.0%	0.0%
85%	(4,852)	(5,051)	(5,443)	(5,824)	(5,058)	(5,417)
90%	(22,016)	(22,021)	(22,030)	(22,039)	(22,048)	(22,057)
95%	(38,596)	(38,428)	(38,098)	(37,777)	(37,463)	(37,156)
80%	10,097	9,742	9,046	8,367	7,706	7,061
75%	22,818	22,314	21,325	20,361	19,421	18,505

CASE 2

DECREASE IN SALES GROWTH RATE
AND DECREASE IN THE DISCOUNT RATE

	4.5%	4.0%	3.0%	2.0%	1.0%	0.0%
20%	7,889	7,576	6,963	6,364	5,781	5,212
18%	14,205	13,834	13,108	12,400	11,710	11,037
16%	21,583	21,144	20,282	19,443	18,624	17,826
14%	30,237	29,715	28,690	27,690	26,716	25,766
12%	40,428	39,805	38,581	37,388	36,225	35,091

CASE 3

CHANGES IN COST OF FINISHED PROD.
AND DECREASE IN THE DISCOUNT RATE

	85%	90%	95%	80%	75%
20%	(4,794)	(22,015)	(38,644)	10,199	22,963
18%	(270)	(20,049)	(39,143)	17,014	32,073
16%	5,007	(17,772)	(39,782)	25,000	42,814
14%	11,183	(15,124)	(40,594)	34,391	55,526
12%	18,440	(12,028)	(41,623)	45,478	70,628

APPENDIX II

LINEAR PROGRAMMING APPLICATION

STORM DATA SET LISTING
LINEAR PROGRAMMING DATA SET

Problem Description Parameters

Title : G.M.E. PROFIT MAX. IN YEAR 1

Number of variables : 2

Number of constraints : 4

Starting solution given : NO

Objective function : MAX

STORM DATA SET LISTING
DETAILED PROBLEM DATA LISTING FOR
G.M.E. PROFIT MAX. IN YEAR 1

ROW LABEL	VAR 1	VAR 2	CONST TYPE	R H S	RANGE
OBJ COEFF	16.998	-14.963	XXXX	XXXX	XXXX
CONSTR 1	1.	-1.	=	0.	Infinity
CONSTR 2	1.	0.	<=	11000.	Infinity
CONSTR 3	0.	1.	>=	5000.	Infinity
CONSTR 4	1.	0.	<=	6149.	Infinity
VARBL TYPE	+	+	XXXX	XXXX	XXXX
LOWR BOUND	-Infinity	-Infinity	XXXX	XXXX	XXXX
UPPR BOUND	Infinity	Infinity	XXXX	XXXX	XXXX
INIT SOLN	0.	0.	XXXX	XXXX	XXXX

G.M.E. PROFIT MAX. IN YEAR 1
OPTIMAL SOLUTION - SUMMARY REPORT (Nonzero Variables)

	Variable		Value	Cost
1	VAR	1	6149.0000	16.9980
2	VAR	2	6149.0000	-14.9630
4	SLACK	2	4851.0000	0.0000
5	SLACK	3	1149.0000	0.0000

Objective Function Value = 12513.20820

G.M.E. PROFIT MAX. IN YEAR 1
OPTIMAL SOLUTION - DETAILED REPORT

	Variable		Value	Cost	Red. cost	Status
1	VAR	1	6149.0000	16.9980	0.0000	Basic
2	VAR	2	6149.0000	-14.9630	0.0000	Basic
4	SLACK	2	4851.0000	0.0000	0.0000	Basic
5	SLACK	3	1149.0000	0.0000	0.0000	Basic
6	SLACK	4	0.0000	0.0000	-2.0350	Lower bound

G.M.E. PROFIT MAX. IN YEAR 1
OPTIMAL SOLUTION - DETAILED REPORT

	Constraint		Type	RHS	Slack	Shadow price
1	CONSTR	1	=	0.0000	0.0000	14.9630
2	CONSTR	2	<=	11000.0000	4851.0000	0.0000
3	CONSTR	3	>=	5000.0000	1149.0000	0.0000
4	CONSTR	4	<=	6149.0000	0.0000	2.0350

Objective Function Value = 12513.20820

Objective Function Value = 12513.20820

STORM DATA SET LISTING
LINEAR PROGRAMMING DATA SET

Problem Description Parameters

Title : G.M.E. PROFIT MAX. IN YEAR 2

Number of variables : 2

Number of constraints : 4

Starting solution given : NO

Objective function : MAX

STORM DATA SET LISTING
DETAILED PROBLEM DATA LISTING FOR
G.M.E. PROFIT MAX. IN YEAR 2

ROW LABEL	VAR 1	VAR 2	CONST TYPE	R H S	RANGE
OBJ COEFF	17.478	-17.16	XXXX	XXXX	XXXX
CONSTR 1	1.	-1.	=	0.	Infinity
CONSTR 2	1.	0.	<=	11000.	Infinity
CONSTR 3	0.	1.	>=	5000.	Infinity
CONSTR 4	1.	0.	<=	6472.	Infinity
VARBL TYPE	+	+	XXXX	XXXX	XXXX
LOWR BOUND	-Infinity	-Infinity	XXXX	XXXX	XXXX
UPPR BOUND	Infinity	Infinity	XXXX	XXXX	XXXX
INIT SOLN	0.	0.	XXXX	XXXX	XXXX

G.M.E. PROFIT MAX. IN YEAR 2
OPTIMAL SOLUTION - SUMMARY REPORT (Nonzero Variables)

	Variable		Value	Cost
1	VAR	1	6472.0000	17.4780
2	VAR	2	6472.0000	-17.1600
4	SLACK	2	4528.0000	0.0000
5	SLACK	3	1472.0000	0.0000

Objective Function Value = 2058.10114

G.M.E. PROFIT MAX. IN YEAR 2
OPTIMAL SOLUTION - DETAILED REPORT

	Variable		Value	Cost	Red. cost	Status
1	VAR	1	6472.0000	17.4780	0.0000	Basic
2	VAR	2	6472.0000	-17.1600	0.0000	Basic
4	SLACK	2	4528.0000	0.0000	0.0000	Basic
5	SLACK	3	1472.0000	0.0000	0.0000	Basic
6	SLACK	4	0.0000	0.0000	-0.3180	Lower bound

G.M.E. PROFIT MAX. IN YEAR 2
OPTIMAL SOLUTION - DETAILED REPORT

	Constraint		Type	RHS	Slack	Shadow price
1	CONSTR	1	=	0.0000	0.0000	17.1600
2	CONSTR	2	<=	11000.0000	4528.0000	0.0000
3	CONSTR	3	>=	5000.0000	1472.0000	0.0000
4	CONSTR	4	<=	6472.0000	0.0000	0.3180

Objective Function Value = 2058.10114

STORM DATA SET LISTING
LINEAR PROGRAMMING DATA SET

Problem Description Parameters

Title : G.M.E. PROFIT MAX. IN YEAR 3

Number of variables : 2

Number of constraints : 4

Starting solution given : NO

Objective function : MAX

STORM DATA SET LISTING
DETAILED PROBLEM DATA LISTING FOR
G.M.E. PROFIT MAX. IN YEAR 3

ROW LABEL	VAR 1	VAR 2	CONST TYPE	R H S	RANGE
OBJ COEFF	22.802	-19.91	XXXX	XXXX	XXXX
CONSTR 1	1.	-1.	=	0.	Infinity
CONSTR 2	1.	0.	<=	11000.	Infinity
CONSTR 3	0.	1.	>=	5000.	Infinity
CONSTR 4	1.	0.	<=	5812.	Infinity
VARBL TYPE	+	+	XXXX	XXXX	XXXX
LOWR BOUND	-Infinity	-Infinity	XXXX	XXXX	XXXX
UPPR BOUND	Infinity	Infinity	XXXX	XXXX	XXXX
INIT SOLN	0.	0.	XXXX	XXXX	XXXX

G.M.E. PROFIT MAX. IN YEAR 3
OPTIMAL SOLUTION - SUMMARY REPORT (Nonzero Variables)

	Variable		Value	Cost
1	VAR	1	5812.0000	22.8020
2	VAR	2	5812.0000	-19.9100
4	SLACK	2	5188.0000	0.0000
5	SLACK	3	812.0000	0.0000

Objective Function Value = 16808.30515

G.M.E. PROFIT MAX. IN YEAR 3
OPTIMAL SOLUTION - DETAILED REPORT

	Variable		Value	Cost	Red. cost	Status
1	VAR	1	5812.0000	22.8020	0.0000	Basic
2	VAR	2	5812.0000	-19.9100	0.0000	Basic
4	SLACK	2	5188.0000	0.0000	0.0000	Basic
5	SLACK	3	812.0000	0.0000	0.0000	Basic
6	SLACK	4	0.0000	0.0000	-2.8920	Lower bound

G.M.E. PROFIT MAX. IN YEAR 3
OPTIMAL SOLUTION - DETAILED REPORT

	Constraint		Type	RHS	Slack	Shadow price
1	CONSTR	1	=	0.0000	0.0000	19.9100
2	CONSTR	2	<=	11000.0000	5188.0000	0.0000
3	CONSTR	3	>=	5000.0000	812.0000	0.0000
4	CONSTR	4	<=	5812.0000	0.0000	2.8920

Objective Function Value = 16808.30515

STORM DATA SET LISTING
LINEAR PROGRAMMING DATA SET

Problem Description Parameters

Title : G.M.E. PROFIT MAX. IN YEAR 4

Number of variables	:	2
Number of constraints	:	4
Starting solution given	:	NO
Objective function	:	MAX

STORM DATA SET LISTING
DETAILED PROBLEM DATA LISTING FOR
G.M.E. PROFIT MAX. IN YEAR 4

ROW LABEL	VAR 1	VAR 2	CONST TYPE	R H S	RANGE
OBJ COEFF	25.823	-23.233	XXXX	XXXX	XXXX
CONSTR 1	1.	-1.	=	0.	Infinity
CONSTR 2	1.	0.	<=	11000.	Infinity
CONSTR 3	0.	1.	>=	5000.	Infinity
CONSTR 4	1.	0.	<=	6747.	Infinity
VARBL TYPE	+	+	XXXX	XXXX	XXXX
LOWR BOUND	-Infinity	-Infinity	XXXX	XXXX	XXXX
UPPR BOUND	Infinity	Infinity	XXXX	XXXX	XXXX
INIT SOLN	0.	0.	XXXX	XXXX	XXXX

G.M.E. PROFIT MAX. IN YEAR 4
OPTIMAL SOLUTION - SUMMARY REPORT (Nonzero Variables)

	Variable		Value	Cost
1	VAR	1	6747.0000	25.8230
2	VAR	2	6747.0000	-23.2330
4	SLACK	2	4253.0000	0.0000
5	SLACK	3	1747.0000	0.0000

Objective Function Value = 17474.73103

G.M.E. PROFIT MAX. IN YEAR 4
OPTIMAL SOLUTION - DETAILED REPORT

	Variable		Value	Cost	Red. cost	Status
1	VAR	1	6747.0000	25.8230	0.0000	Basic
2	VAR	2	6747.0000	-23.2330	0.0000	Basic
4	SLACK	2	4253.0000	0.0000	0.0000	Basic
5	SLACK	3	1747.0000	0.0000	0.0000	Basic
6	SLACK	4	0.0000	0.0000	-2.5900	Lower bound

G.M.E. PROFIT MAX. IN YEAR 4
OPTIMAL SOLUTION - DETAILED REPORT

	Constraint		Type	RHS	Slack	Shadow price
1	CONSTR	1	=	0.0000	0.0000	23.2330
2	CONSTR	2	<=	11000.0000	4253.0000	0.0000
3	CONSTR	3	>=	5000.0000	1747.0000	0.0000
4	CONSTR	4	<=	6747.0000	0.0000	2.5900

Objective Function Value = 17474.73103

STORM DATA SET LISTING
LINEAR PROGRAMMING DATA SET

Problem Description Parameters

Title : G.M.E. PROFIT MAX. IN YEAR 5

Number of variables : 2

Number of constraints : 4

Starting solution given : NO

Objective function : MAX

STORM DATA SET LISTING
DETAILED PROBLEM DATA LISTING FOR
G.M.E. PROFIT MAX. IN YEAR 5

ROW LABEL	VAR 1	VAR 2	CONST TYPE	R H S	RANGE
OBJ COEFF	29.576	-27.617	XXXX	XXXX	XXXX
CONSTR 1	1.	-1.	=	0.	Infinity
CONSTR 2	1.	0.	<=	11000.	Infinity
CONSTR 3	0.	1.	>=	5000.	Infinity
CONSTR 4	1.	0.	<=	8000.	Infinity
VARBL TYPE	+	+	XXXX	XXXX	XXXX
LOWR BOUND	-Infinity	-Infinity	XXXX	XXXX	XXXX
UPPR BOUND	Infinity	Infinity	XXXX	XXXX	XXXX
INIT SOLN	0.	0.	XXXX	XXXX	XXXX

G.M.E. PROFIT MAX. IN YEAR 5
OPTIMAL SOLUTION - SUMMARY REPORT (Nonzero Variables)

	Variable		Value	Cost
1	VAR	1	8000.0000	29.5760
2	VAR	2	8000.0000	-27.6170
4	SLACK	2	3000.0000	0.0000
5	SLACK	3	3000.0000	0.0000

Objective Function Value = 15671.99707

G.M.E. PROFIT MAX. IN YEAR 5
OPTIMAL SOLUTION - DETAILED REPORT

	Variable		Value	Cost	Red. cost	Status
1	VAR	1	8000.0000	29.5760	0.0000	Basic
2	VAR	2	8000.0000	-27.6170	0.0000	Basic
4	SLACK	2	3000.0000	0.0000	0.0000	Basic
5	SLACK	3	3000.0000	0.0000	0.0000	Basic
6	SLACK	4	0.0000	0.0000	-1.9590	Lower bound

G.M.E. PROFIT MAX. IN YEAR 5
OPTIMAL SOLUTION - DETAILED REPORT

	Constraint		Type	RHS	Slack	Shadow price
1	CONSTR	1	=	0.0000	0.0000	27.6170
2	CONSTR	2	<=	11000.0000	3000.0000	0.0000
3	CONSTR	3	>=	5000.0000	3000.0000	0.0000
4	CONSTR	4	<=	8000.0000	0.0000	1.9590

Objective Function Value = 15671.99707

APPENDIX III

COUNTRY RISK RANKED BY COMPOSITE RATING

Country Risk Ranked by Composite Political, Financial and Economic Risk Rating (April 1989 vs. April 1988)

Rank	Country	April 1989 Composite Risk Rating	April 1988 Composite Risk Rating	April 1989 vs. April 1988
1	Switzerland	93.5	92.5	1.0
2	Japan	91.0	91.5	-0.5
3	Germany, FR	90.5	89.5	1.0
4	Luxembourg	90.5	89.0	1.5
5	Netherlands	87.5	88.0	-0.5
6	Sweden	87.0	86.5	0.5
7	Austria	86.5	85.0	1.5
7	Canada	86.5	83.5	3.0
7	Norway	86.5	86.5	0.0
10	USA	85.0	83.5	1.5
11	United Kingdom	84.0	86.0	-2.0
12	Belgium	83.5	79.0	4.5
12	New Zealand	83.5	86.0	-2.5
12	Taiwan	83.5	83.5	0.0
15	Finland	82.5	82.5	0.0
16	Denmark	82.0	82.5	-0.5
17	Brunei	81.5	81.5	0.0
17	Italy	81.5	78.5	3.0
19	France	81.0	79.5	1.5
20	Ireland	80.5	80.0	0.5
21	Australia	80.0	78.0	2.0
21	Singapore	80.0	80.0	0.0
23	Iceland	78.5	81.5	-3.0
24	Korea, Rep.	76.0	73.0	3.0
24	Portugal	76.0	77.5	-1.5
24	Spain	76.0	76.0	0.0
27	Hong Kong	74.5	74.5	0.0
28	USSR	71.5	67.5	4.0
29	Botswana	71.0	69.5	1.5
30	Behamas	70.0	71.0	-1.0
31	Cyprus	69.5	64.5	5.0
32	Czechoslovakia	67.0	68.0	-1.0
32	Kuwait	67.0	58.0	9.0
32	Malaysia	67.0	65.0	2.0
32	Malta	67.0	66.5	0.5
36	Thailand	66.5	64.0	2.5
37	Hungary	64.5	62.0	2.5
37	Papua New Guinea	64.5	63.5	1.0
39	Germany, DR	64.0	63.0	1.0
39	Uruguay	64.0	64.0	0.0
41	Bulgaria	63.0	63.0	0.0
41	China, PR	63.0	63.0	0.0
43	Albania	62.5	61.5	1.0
43	Chile	62.5	63.0	-0.5
43	Gabon	62.5	64.0	-1.5
46	Greece	62.0	62.5	-0.5

Cont'd

Rank	Country	April 1989 Composite Risk Rating	April 1988 Composite Risk Rating	April 1989 vs. April 1988
47	Mexico	61.5	59.5	2.0
47	Saudi Arabia	61.5	56.5	5.0
49	Cote d'Ivoire	61.0	59.5	1.5
49	South Africa	61.0	60.0	1.0
51	Bahrain	60.5	60.0	0.5
51	Senegal	60.5	61.0	-0.5
53	Brazil	59.5	60.0	-0.5
53	Mongolia	59.5	59.5	0.0
53	Oman	59.5	60.5	-1.0
53	Venezuela	59.5	60.5	-1.0
57	Costa Rica	59.0	59.5	-0.5
58	Ghana	58.5	48.0	10.5
58	Jamaica	58.5	58.0	0.5
60	Gambia, The	57.5	58.0	-0.5
60	Morocco	57.5	48.0	9.5
60	Trinidad&Tobago	57.5	56.5	1.0
60	Tunisia	57.5	51.5	6.0
64	Colombia	55.5	57.0	-1.5
64	Qatar	55.5	54.0	1.5
64	UAE	55.5	53.0	2.5
67	Algeria	54.5	59.0	-4.5
68	Cameroon	54.0	54.0	0.0
68	Kenya	54.0	52.0	2.0
68	Tanzania	54.0	52.5	1.5
71	Poland	53.5	47.5	6.0
72	Malawi	52.5	51.5	1.0
72	Niger	52.5	51.5	1.0
72	Togo	52.5	52.0	0.5
72	Zimbabwe	52.5	50.0	2.5
76	Burkina Faso	52.0	53.5	-1.5
76	Madagascar	52.0	50.5	1.5
78	Ecuador	51.5	50.5	1.0
79	Congo	50.5	50.5	0.0
80	India	50.0	52.5	-2.5
80	Romania	50.0	47.5	2.5
82	Israel	49.5	53.0	-3.5
82	Panama	49.5	47.5	2.0
82	Paraguay	49.5	50.0	-0.5
85	Guinea	49.0	48.5	0.5
85	Indonesia	49.0	48.0	1.0
85	Korea, DPR	49.0	47.5	1.5
88	Angola	48.5	47.5	1.0
89	Dominican Rep.	48.0	48.5	-0.5
90	Philippines	47.5	45.0	2.5
91	Nigeria	47.0	45.5	1.5
91	Turkey	47.0	53.0	-6.0
93	New Caledonia	46.5	45.5	1.0

Cont'd

Rank	Country	April 1989 Composite Risk Rating	April 1988 Composite Risk Rating	April 1989 vs. April 1988
94	Jordan	46.0	52.0	-6.0
95	Sierra Leone	45.5	44.0	1.5
96	Bolivia	45.0	43.0	2.0
96	Honduras	45.0	45.0	0.0
98	Cuba	44.5	45.5	-1.0
99	Argentina	44.0	45.5	-1.5
99	Egypt	44.0	43.5	0.5
99	Guyana	44.0	39.0	5.0
99	Pakistan	44.0	46.5	-2.5
99	Uganda	44.0	42.0	2.0
99	Yemen, PDR	44.0	42.5	1.5
99	Yemen Arab Rep.	44.0	46.5	-2.5
106	Suriname	43.5	43.5	0.0
107	Libya	42.5	41.5	1.0
107	Mali	42.5	40.0	2.5
107	Mozambique	42.5	37.5	5.0
110	Guatemala	42.0	40.0	2.0
111	Yugoslavia	41.5	41.0	0.5
112	El Salvador	40.5	39.0	1.5
112	Viet Nam	40.5	40.5	0.0
112	Zambia	40.5	40.5	0.0
115	Ethiopia	40.0	38.5	1.5
116	Sri Lanka	39.0	42.5	-3.5
116	Syria	39.0	40.5	-1.5
118	Peru	38.5	37.0	1.5
119	Guinea-Bissau	37.0	37.0	0.0
120	Iraq	36.0	32.0	4.0
120	Zaire	36.0	40.5	-4.5
122	Somalia	35.5	35.5	0.0
123	Bangladesh	34.5	35.5	-1.0
124	Haiti	33.0	35.0	-2.0
124	Iran	33.0	32.0	1.0
126	Nicaragua	31.0	28.0	3.0
127	Liberia	30.0	32.5	-2.5
128	Burma	25.0	28.5	-3.5
129	Lebanon	23.0	29.0	-6.0
129	Sudan	23.0	29.5	-6.5

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