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A strategic plan for international expansion: the case of a pharmaceutical company

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SYNOPSIS

The purpose of this study is to construct a corporate plan for setting on an international footing a pharamceutical company whose operations have hitherto been limited to the domestic market. A specific company, Yamanouchi, was selected as a typical example of a Japanese pharmaceutical company whose domestic market is now insufficient to accommodate its desired future corporate growth.

Conventional methodologies for planning are applied such that they can be understood by non-specialists and can be used as a starting point for further sophistication uisng additional and more detailed information.

Although the report takes the case of a particular company, the principles that are discussed and the methodology that is applied have a general application to the problems involved in the "internationalisation" of any manufacturing business.

Notations

AFR	Annual Financial Return
AAA	Africa/Asia/Australasia
BI	Boehringer Ingelheim
BUM	Bottom Up Method
CG	Ciba-Geigy
CHQ	Corporate Head Quarters
CIP	Interministrial Price Committee
CPI	Central Price Commission
EFPIA	European Federation of Pharamceutical Industries Association
E	Europe
FDA	Food and Drug Administration
Glaxo	Glaxo Holdings Limited
JPC	Japanese Pharmaceutical Company
JV	Joint Venture
KAG	Concerted Action Committee
KVKG	Krankenversicherungskostendaempfungsgestz
LA	Latin America
Merck	Merck & Co.
MI	Minority Interest
MPC	Multinational Pharamceutical Company
MSD	Merck Sharp & Dohme
NHS	National Health Service
NA	North America
P & E	Plant and Equipment
POS	Percentage-of-sales

PPRS	Pharmaceutical Price Regulation Scheme
ROS	Return on sales
SKF	SmithKline Beckman Corporation
TO	Take-over
Y	Yamanouchi

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CHAPTER 1 INTRODUCTION

The balance of home-country against international operations is an important decision variable in corporate planning for any major manufacturing company: whether to concentrate on the home-market or to expand into the world market, and if to expand into the world market, on what scale to do so.

Many powerful arguments may be advanced both for and against the process of internationalisation but it is essential, during the first tentative steps towards such a transformation, to recognise that the company will have to adopt a new set of values to find a new sense of direction.

The decision to expand abroad reflects an assessment by the expanding company that the further growth of sales and/or of profits can be achieved more easily or more securely in this way. The home market may be growing slowly, be subject to increasingly restrictive government regulations, or may face intensifying competition. In the pharmaceutical industry, moreover, the pressure to increase sales volume is especially compelling because of the huge and growing expenditure needed for the development of new drugs - an expenditure which must be recovered from sales and recovered quickly if the company is to maintain a series of new products of sufficient quality to match competition.

The Economist (August 18th, 1984) quotes estimates that the US pharmaceutical companies together spent $500M p.a. in the early 1960s

to develop 30-40 new drugs. In 1983 they spent $26M (a 21% increase in real terms) to come up with only 14 new drugs. The flow of drugs out of patent exceeds the flow of patentable new drugs, and return on investment is declining.

Stagnation is an inevitable outcome of such a state of affairs. To escape the consequences of such a situation and to mitigate a decline in profits and a decline in R & D activities, new products must be marketed on an international scale.

Although most of the world's larger pharmaceutical companies have already responded to these pressures by adopting international market strategies, the Japanese companies have not. This may be surprising in view of the activeness of other Japanese industries in world markets.

The reasons why the Japanese pharmaceutical industry has not yet been able to internationalise itself as car manufacturing and consumer electronics have done are as follows:

1) Technology has been dependent on licensing from other multinational pharmaceutical giants and territory for the license of technology has been confined to Japan.

2) An inadequate flow of patentable original new products.

Car manufacturing and consumer electronics has overcome these two barriers at an earlier stage of the current industrialisaiton period

and took off from the domestic market to the international market. Due to the nature of the pharmaceutical industry which deals with human health technology this sector has been too complicated for the Japanese to tackle effectively and to reach the same level of the other advanced industries. However, the Japanese pharmacuetical companies are solving these two problems by introducing new and original products to the non-Japanese markets. Thus they have now started tackling the 83% of the world market which has been so far dominated by a handful of multinationals, mainly from the USA and Switzerland.

This report offers a corporate plan for setting on an international footing a pharmaceutical company whose operations have been confined hitherto to its own domestic market. The specific company is Yamanouchi, currently ranked number seven in size in Japan and number 45 among world pharmaceutical companies.

Although the report takes the case of a particular company, the principles that are discussed and the methodology that is applied have a general application to the problems involved in the "internationalisation" of any manufacturing business.

1.1 World pharmaceutical market

As shown in Figure 1.1-1, the free world pharmaceutical market consists of four major segments, Europe (E), North America (NA), Africa/Asia/Australasia (AAA) and Latin America (LA). Roughly speaking, the first three each take up about thirty percent of the market and LA has 10%.

The average annual rate of growth of the world market was 14% between 1972 and 1981 while the expansion of the individual markets was 12% in E, 11% in NA, 20% in AAA and 14% in LA. The AAA countries showed the fastest growth mainly due to the presence of the Japanese market. The sharp decline in the rate of growth of the European market, beginning in 1981, was due to unfavourable currency fluctuations.

Figures 1.1-1 and 1.1-2 show the structure of the world pharmaceutical market. Figure 1.1-2 shows that in AAA and NA countries the market is growing much faster than in the rest of the world.

The major countries, i.e. the six largest in terms of their domestic markets, are:

U.S.A.
Japan
Germany (West)
France
Italy
U.K.

These countries cover around 65% of the market. (Figure 1.1-3) The Japanese market is however excluded from this comparison, although its market is a very important one, thus leaving about fifty percent of the world market for ease of analysis.

Figure 1.1-4 shows the ranking of the world pharmaceutical companies. The top ten companies by nationality are as below:

Country	No. of companies
U.S.A.	7
Switzerland	2
Germany	1

The US companies dominate the world market in part because they have the biggest home market and can take full advantage of this. For example, Lilly sells 77% of its products to NA countries. In the case of American Home Products (AHP), 70% of their sales are in the domestic market.

On average, the US companies achieve 60% of their sales domestically (including Canada). The split of home/overseas sales which the mature multinational pharamaceutical companies in USA and Switzerland have achieved, is shown below

	North America	Europe	AAA	LA
US companies	60	20	10	10
Swiss companies	45	30	13	12

(Source: compiled from Figure 1.1-4)

The US and Swiss companies have 80% and 75% of their sales respectively in the NA and E markets. The tendency to concentrate on these markets is mainly due to their market accessibility.

According to Figure 1.1-1, Europe and North America hold 60% of the total world market. This figure when compared to the 75% and 80% shares held by the US and Swiss companies respectively, in the USA and Europe, shows the extent of investement which these companeis have made in the US and European markets. Therefore, if the Japanese pharmaceutical companies are to grow beyond the AAA market (which takes up only 10% and 13% of the US and Swiss companies respectively), then they must internationalise towards the US and European market to be ranked in the top ten multinationals.

The following are brief analyses of the top ten companies.

Hoechst

This is the biggest multinational pharmaceutical company (MPC) in the world. Sixty five percent of its market is in Europe and the remainder is evenly divided between the other three markets.

According to the world market structure, this uneven distribution of their market between Europe and North America should be balanced by greater investment in NA, which would boost its total market share.

Merck Sharp & Dohme (MSD)

This is the second biggest MPC. Eigthy four percent of its market is in NA and E. It has a firm base in these countries. According to Figure 1.1-4 it seems that it is in a relatively weak market position with regard to AAA and LA. This imbalance is being redressed by greater investment in the Japanese market. A recent acquisition of the majority stake in Banyu, with whom a joint venture already exists, stands to boost this share. This represents the outcome of a 30 year old corporate strategy.

Ciba-Geigy (C-G)

Ciba-Geigy is the Swiss based MPC. The home market ratio in C-G is almost two percent of the world sales. The company is very well represented throughout the world with a good distribution of its

market share in 4 segments of the world market.

This has helped to put it amongst the giants of the PMCs whilst its distribution is helped by the fact that C-G is not limited to pharmaceutical products only.

American Home Products (AHP)

The company is a typical home market oriented company since the market share in the US is 70%.

SmithKline Beckman (SKF)

Almost 90% of SKF's sales is in the US and European markets. SKF started its international expansion programme relatively late after the launch of Tagamet in Europe and America.

Hoffmann-La Roche (Roche)

The company is the second largest Swiss-based PMC. The share of its total sales made in E and NA is 73%. It is also strong in LA. Its European and North American markets are almost even at 36% and 37% respectively.

Pfizer

This has 70% of its market in E and NA. Its strength lies in the relatively even distribution of its market across the world, holding the largest market share of AAA countries.

Eli Lilly (Lilly)

The company is very domestic market-oriented having 77% in NA. Its weak share in AAA and LA countries is shown in Figure 1.1-4. This figure, however, underestimates its activities in AAA countries, especially in Japan since Lilly has license agreements with Sionogi, 20th ranking in the world market.

Bristol-Myers (Bristol)

This has 60% of its market in NA, 14% in Europe and 16% in AAA countries. Bristol is relatively strong in the AAA market.

Johnson and Johnson (JJ)

JJ has 89% of its sales in E and NA and is very weak in AAA countries achieving only one percent of its sales there.

Among the world top twenty there are two Japanese pharmaceutical companies, Takeda and Shionogi. They do not have any market outside AAA countries as yet, concentrating only on the Japanese market, and thus differ sharply from Western MPCs.

Figure 1.1-4 shows that all of the listed Japanese pharmaceutical companies are concentrated in the AAA market. These companies have not explored yet the market outside AAA countries, and are therefore excluded as yet from 83% of the world market. This suggests that for the Japanese countries to expand rapidly in international markets, two big markets, NA and E should be exploited following the lead set by established MPCs.

1.2 Recent movements in the Japanese market

Economics

In March 1984 the government announced a 16.6% National Health Insurance (NHI) price reduction. This reduction will have a tremendous effect on the Japanese pharmaceutical companies since NHI prices give the companies a kind of guarantee of fixed selling prices to the public.

As long as the government is able to give higher NHI prices, the pharmaceutical companies will be able to enjoy a higher growth rate of revenue sustained by those prices. However, in the past three years the governments has reduced the prices (as shown in Figure 1.2-1) by 18.6% in 1981, 4.9% in 1982 and 16.6% in 1984.

The significance of these reductions is considerable. When prices are reduced, pharmaceutical companies try to maintain unaltered prices to wholesalers in order to maintain their own profit margins. This causes friction between manufacturers and wholesalers.

The anticipation of a public price reduction would cause final users, doctors and pharmacists to maintain only minimal stocks. As shown in Figure 1.2-1 the anticipation of the reduction in 1984 influenced production levels, the rate of increase being limited to only one percent in 1983.

Government Strategy

From the strategic point of view, the Welfare Minsitry decided to cut NHI prices dramatically as a contribution to a reduction in the government's deficit, this being the major government concern.

Taking advantage of this situation, the Ministry emphasized the importance of innovative products - an area of current weakness for Japanese pharmaceutical companies. The innovative pharmaceutical companies are able to obtain a relatveily high NHI price for a new product which enables them to recoup R & D and other related costs as soon as possible, whereas the company's established products are subject to price reductions.

In pursuing this policy, the government aims at promoting a better and internationally more competitive industry. New and innovative products are especially important in the pharamaceutical industry as instruments of competition.

From MPC's point of view operating in Japan, they welcome this policy since they tend to produce an innovative and new product for the world market, not merely for the Japanese market, though it is too early as yet to judge whether this policy will oblige the Japanese companies to develop a more competitive edge against MPCs. So far, MPCs welcome it and will take advantage to the full extent.

Merck's take-over of Banyu

A recent important movement in the Japenese market by an MPC has involved an acquisition. This may be significant since, as seen in Figure 1.1-3, this market is the second largest in the world and has a lot of attractiveness to MPCs.

Due to economic growth in Japan and due to the Welfare Ministry's policy, the market has been growing at the annual rate of 20% (AAA countries) throughout the 1970's. The rate of growth seems to be slowing down but the market itself is now very large in absolute terms and obviously attractive to both domestic pharmaceutical companies and MPCs.

MPCs tend to form a Joint Venture (JV) with domestic pharmaceutical companies in order to get familiality with the market. The circumstance of the Japanese market is quite different from those of Europe and America. Development of an understanding of the local market through the JV partners is often an essential preliminary or transitional stage in market entry.

For example, MSD formed a JV with Banyu about 25 years ago, called Nippon Merck-Banyu, to get a Japanese flavour, since cultural differences in marketing are highly significant.

To fill the cultural gap, they needed a JV for marketing in the first place, R & D and production issues came along later. The MPC's most recent major strategic move in the Japanese market was by MSD in its

acquisition of Banyu.

In August 1983, Merck announced that it had acquired approximately 51% of Banyu having been allocated newly-issued Banyu's common shares plus bonds convertible into an additional 40M Banyu's common shares. The estimated cost for the acquisition was $314M (£224M).

This announcement was a considerable shock to the Japanese pharmaceutical industry. The Japanese are not used to being taken over by outsiders in a major industry. In particular, Banyu is one of the leading companies in Japan and a take-over by an MPC had never been seriously contemplated within the Japanese industry. MSD's strategy appears to follow a similar pattern, where possible, in each country in which they operate (see Yamada, 1983).

In the early 1970s just after the oil embargo by Arab countries MSD undertook huge capital expenditures ($500M in total from 1973 through 1975) on production facilities so as to secure the autonomous supply sources. About 7 projects were undertaken in various countries. This high capital spending is one of the features of multinationals and it is also a typical feature of Merck who undertook a number of acquisitions in Spain where the take-over of Abello was approved by the Spanish government, and in Japan of Torii.

The declared objective of Merck is to become the top pharmaceutical company in Japan. As a result of these acquisitions, Merck's 1,500 market sales force is becoming the top in Japan. (600 in Banyu, 550 in Nippon Merck-Banyu and 330 in Torii).

This is a great threat to the Japanese pharmaceutical industry since the government advises them to pursue original products, and this the Japanese will do, but the MPCs have many competitive advantages in this respect over the Japanese.

1.3 The case for internationalisation

As explained in the previous section, the favourable situation for the Japanese pharmaceutical industry has been changing into an unfavourable one. As a result, the production of drugs stagnated at a rate of increase of 1% per annum in 1983. The government policy in Japan has shifted from protecting industry into making the industry more competitive by placing emphasis on new product development.

As Figures 1.1-3 and 1.1-4 show, the Japanese companies have not challenged yet the major countries whose combined home markets make up is 50% of the world. Decreasing growth rate in the domestic market, compels the Japanese to expand operations overseas. Since a small number of countries represents 50% of the world market, huge potential sales may be achievable without undue dispersal of marketing resources.

To develop a new product which will be marketable in the world market is hugely expensive. Sometimes that cost cannot be recouped only in Japan despite its individual market size. The more the company becomes innovative the more the company should be internationalised to recoup the cost.

CHAPTER 2 GENERAL BUSINESS DEVELOPMENT STAGES FOR PHARMACEUTICAL COMPANIES

In this chapter we propose to examine the path towards internationalisation taken by the MPCs to gain some insight into global operations in this industry.

2.1 METHODOLOGY

As source material for the identification of the business development stages of the pharmaceutical companies, annual reports, mainly from 1973 to 1983, together with other company reports which are related to internationalisation, were used.

This material is of only limited use in directly describing the stages of business development. However, almost all the main events related to business expansion are described adequately which may give us an insight into the background and the main events.

Following out interpretation of the MPCs historical development, an analysis of the lessons of this experience is offered. This is followed by a discussion of models for international expansion.

2.2 HISTORIES OF THE MPCs

Generally speaking, before World War II, the industry dealt in commodities and relied on a small number of products. During the 40s and 50s, the drug discovery boom prevailed and they started

concentrating their efforts on R & D.

However, this movement has been recently reversed due to the increase of government regulations in the pharmaceutical industry. In order to survive this situation, the MPCs have been intensifying their R & D efforts and at the same time intensifying their marketing efforts to prolong the life of their existing products in the market.

In order to cope with this change of circumstance the within the industry, MPCs have had to respond more efficiently to the change in market structure and product development.

In terms of marketing, they have had to develop a new product portfolio whilst having regard to the rising costs of R & D, the rate of discovery and the resources required to bring a new product to the market place.

Since the drug discovery boom, the MPCs' home market structures have had to change significantly. The strategic responses to this new domestic environment focused on two major strategies;

1. Diversification

2. Emphasis on the foreign market.

Diversification

As an example, Eli Lilly's diversification move first started in the

areas of agricultural chemicals and veterinary products in the '60s. They then moved into the cosmetics market through the acquisition of Elizabeth Arden in the early '70s and thence to the medical instrument market with IVAC and Cardiac Pacemakers. Merck also diversified into veterinary products with the acquisition of a couple of companies specialising in that area.

Emphasis on the foreign market

The table below gives a rough indication of non-domestic sales of the U.S. based MPCs:

Year	% non domestic sales
1960s	20
1970s	30
1980s	40

In increasing the share of non-domestic sales from 20% in the 1960s to 30% in the 1970s and to 40% in the 1980s, MPCs have greatly increased their sales revenue and therefore their capacities for introducing new drugs into the market and for supplying them world-wide.

2.2.1 Merck & Co (Merck)

In 1973 Merck was in the process of constructing 8 plants in the US and 7 plants overseas incurring a total capital expenditure of $500M from 1973 to 1975. Eighty percent of the funds were used for new

facilities and 20% for improving existing ones. The purpose of this was to secure the supply sources under independent control.

In 1973 Merck attained for the first time in its history sales of $1 billion, which was a milestone in the company's internationalisation. In 1974 they forecast their capital expenditure in 1975 and 1976 would be about $400M in total and this amound was spent as planned to expand their facilities.

The general policy of the company was to maintain profits by exploiting existing product lines rather than through introducing new products. This was because of the lack of outflow of new products from their R & D.

The intensive investment during 1973 through 1975 was backed by the statement made in the 1975 annual report that "recognition that the consequence of an inability to meet the needs of patients and customers can be much more significant than the cost of having a reasonable reserve of production capacity. Also construction costs in the future are likely to be higher than they are now."

In spite of the diversification efforts made in the 1950s and 60, Merck sold their Over-The-Counter (OTC) product department to Beecham in 1977 for $77M. This was a sort of de-diversification of the health care department. At this stage Merck already ahd 2,900 member staff in R & D and 3,700 sales representatives.

In 1978 Timoptic (Timolol maleate) Clinoril (Sulindac) and Mefoxin

(Cefoxitin) were launched. To sell Mefoxin, Merck restructured their hospital marketing organisation to enhance their sales in hospitals and compete more effectively. At the same time comprehensive management changes were made throughout the year. This was to start with a new management team so that the company could take full advantage of new product launchings, this being one of the most important phases of product development.

In view of the importance of maintaining a constant outflow of new products from R & D, Merck increased the number of R & D staff to 3,300 in 1980.

In 1981 Merck announced that they reached an agreement for a JV with Astra, for the purpose of licensing in Astra's products and to further develop these drugs for worldwide marketing. This was an important move and reflected the inadequacy of the outflow of new products from their own R & D department. From 1980 to 1982 Merck increased the size of their sales force to meet the requirements of the marketing department.

In 1983, as a result of their long term planning in the Japanese market Merck were able to acquire more than half of Banyu's and Torii's shares.

2.2.2 Ciba-Geigy (CG)

By 1974, CG's pharamceutical division had already internationalised itself and the company's history from 1974 onwards may be seen as the struggle of an MPC reaching maturity and coping with its associated demands.

In common with others, CG suffered from the worldwide energy and raw material crisis in 1974. The Swiss based MPCs had additionally to overcome the effects of an overvalued Swiss Franc.

Like Merck, CG had to be satisfied with existing product lines by prolonging the life cycle of their products, i.e. by changing the formulation of their products, One example being the sustained release form.

In 1974 and 1975, CG spent SF824M and SF1,017M on capital expenditure. (This value includes divisions other than pharmaceutical ones. About thirty percent of these sums would be for the pharmaceutical division. The estimation is by sales distribution among divisions.) This resembled the steps taken by Merck described above.

There are many similarities in the strategies followed by Merck and by CG, reflecting the fact that these companies are mature MPCs which have to face almost the same problems around the world. It is apparent that they know each other very well and study each other's strategy very carefully.

In 1975, CG had to overcome the problems of managing overcapacity, so they transferred personnel temporarily to the pharmacetical division which at that time faced a bottleneck in production of Valtaren (anti-rheumatic) and absorbed personnel from other departments. This shows good industrial relations since CG did not lay off the staff at the departments which had over capacities and suggests a management which is sufficiently flexible to meet changing circumstances.

Company policy dictates that chemically active ingredients are to be manufactured in Switzerland and the compounding of these substances to form finished products is then decentralised, permitting adaption to specific customer preferences and legal requirements in the various countries.

As a Swiss based MPC, CG claims that the best guarantee for a successful business activity is freedom of exchange of goods and payments. The Annual Report of 1976 showed some of the CG's corporate objectives as below:

> Create products possessing distinct qualitative and innovative advantages and incorporating a high degree of value added.
>
> Adapt an organisation to changing circumstances increasing dynamic force.

The freedom of exchange of goods and payments is consistent with these objectives due to its activities of multinationality.

Due to its heavy capital expenditure over 1974 and 1975, CG faced a lack of liquidity and issued bonds and debentures to finance the projects. In 1976 CG decreased their debit to SF679M from SF1,017M in 1975. Therefore, they were able to maintain appropriate liquid reserves in proportion to the value of the business.

Adequate liquidity is of obvious importance for an MPC in view of the high capital demanded by world-wide operations. Careful management of finance therefore assumes a significance for an MPC which is even greater than that for business in general.

In 1978 CG clearly expressed in the annual report that they had to take advantage of the strong Swiss Franc, using its increased purchasing power to finance investment projects.

In order to attain its corporate objectives as defined above, CG decentralised the organisation to allow its subsidiaries to move more flexibly according to the heterogeneous economic and social circumstances of its market. This included R & D which formed a new long term R & D concept in that a basic research would be more emphasised for the future and decentralised its activities.

2.2.3 SmithKline Bechman Corporation (SKF)

In 1973, SKF was able to foresee the prospect for success for Tagamet, which was in the R & D pipeline. At that time they had already spent over 7 years on its development. In that year the construction of manufacturing facility began in Cork in Ireland near the existing Pfizer facility about one mile away.

At that time SKF was dependent on generic products which they called "Branded Generics". In 1973 Cephalosporine licensed by Fujisawa, a Japanese pharmaceutical company, 27th ranking in Figure 1.1-4, was introduced on the U.S. market. This meant that SKF could move away from "Branded Generics" and step into the hospital market which was a weak link for SKF.

In 1974, the sales success of Cephalosporine was confirmed and through this product SKF developed their marketing skills in the hospital sector. However, they had to solve the problem of production efficiency. The drug's manafacturing cost was too high to generate reasonable profits. They solved the problem by focusing on high-yield cultures and improving the efficiency of their fermentation processes, working in conjunction with a fermentation company.

In view of the success of Cephalosporine and the preparation for the launch of Tagamet, SKF decided to expand their international marketing effots, taking this as a necessary foundation for future growth.

In 1975, a year befor the launch of Tagamet in the UK, SKF announced

clearly that "We have coordinated the growth of our production and marketing capabilities with the progress of our new product development programmes." It continued, "to maximise the return on our R & D investment we must have the ability to develop fully our operations in the world major markets."

This was an obvious indication of its intention to start up full operations overseas, as a preparation for which it speeded up the re-organisation of its international management structure. (Figure 2.2.3-1)

SKF acquired German and French companies in 1975 and 1976 based on a strategy which places emphasis on "selective" international expansion. In 1977 Tagamet was launched in the US, at which time the drug had already been launched in 65 countries. However, they had to face the problem of cimetitdine production (a main ingredient of Tagament) because it need to use complex multistage processes, which caused a delay in supply and pushed up production costs.

In 1979 SKF acquired two companies related to eye treatment, Humphry Instruments Incorporated and Allergan pharmaceuticals. This represented a major diversification but was still within the limits of human health care.

Capital expenditure by SKF went up to $101M in 1978, $133M in 1980, $201M in 1981 and $305M in 1982, They made investments in Puerto Rico, Ireland, Canada, France, the UK, and the US. In the 1980 annual report they announced that as a means of corporate growth, external

expansion was necessary and was to be acheived by acquisitions in health care and/or high technology.

At this stage they indicated the possibility of acquiring Bechman. This may be seen as a sort of intensification of diversification, (i.e. additional diversification to the previous acquisitions). In order to make a firm base for future corporate growth, they realigned the R & D management identifying molecular biology as a long term research area, relfecting an important field of current development.

In 1981 they targeted sales in 1985 at $4 billion and $8 billion in 1990 and extended their corporate planning horizon from 5 years to 10 years, whichever is the more suitable for decision purposes. This reflects the fact that the life cycles of pharamceutical products are longer than those of other products such as consumer electronics.

2.2.4 Glaxo

In 1971 and 1972, Beecham and Boots made a bid for Glaxo aiming at a possible take-over. However, Glaxo put the problem before the Monopolies Commission and both of the offers were turned down by the Commission.

In view of this take-over bid, Glaxo restructured its organisation by reviewing its previous policy of decentralisation and returning to centralised management. This led to an increase in the number of top managers. It also sold one of its subsidiaries to E. Merck to eliminate an unprofitable division.

As a consequence, since 1975 Glaxo has placed a greater emphasis on its R & D activities increasing its expenditure by 50%. In its 1976 annual report, we find the statement, "the pharmaceutical industry is essentially INTERNATIONAL, we cannot isolate ourselves from the outside world."

As a whole, British companies are regulated by national requirements and standards for developing and marketing new products. These government regulations are of a relatively high standard when compared to other countries in the West, requiring a great deal of investment during the R & D stage. This and other costs would normally be recouped by the company with a big enough domestic market. However, this is not the case for British companies, unlike their counterparts in the US and Japan.

In 1974, Glaxo expanded its production facilities in the UK and overseas, investing a great deal of capital in new and existing facilities of all kinds, in the process of acquiring the Italian fermentation company, Ankerfarm.

In 1975, it realised the potential for a huge market for two of their newest products: a new hypertensive and an advanced cephalosporine anitbiotic. These were and are the company's vehicle for advancing internationalisation.
As already mentioned, after the take-over bids by the two British pharmaceutical companies, Glaxo concentrated their efforts on R & D activities and pressed ahead with its new recentralisation policy.

In the annual reports of 1973 to 1977, great stress was placed on the importance of R & D. For example, in 1977 the chairman said that the key to success is TECHNOLOGY, and stressed the need for loyal staff of high quality.

This view is significant for pharmaceutical companies who are as yet home-market oriented and are looking towards international markets. Without new products, without new technology, they will not be able expand their operations beyond their home market.

In 1978, for the first time in 6 years Glaxo suffered a decrease in net income from £49M in 1977 to £42M in 1978. This caused Glaxo's top management grave concern. As was explained in the annual report, "though sales increased, the rate of income was not up to that of recent years. This was due to a slow-down in the growth of the older

products without the new ones yet contributing enough to overcome the shortfall."

The immediate reason for this shortfall was an unfavourable movement of international exchange rates, affecting real profit and the sales value. Therefore, the above statement may be interpreted as signifying that they company has to be prepared to increase its profits anticipating such an unfavourable currency movement. It means that whatever happens externally, the management should always be prepared to study the possibility of increasing net income.

In 1978 Glaxo acquired Meyer Laboratories in the United States to establish a foothold there. At the same time they reorganised their corporate structure to meet the objective as below:

Improve Communications
Decision-making
Cost effectiveness

For R & D oriented companies like Glaxo, patent protection is a big issue. The pharamceutical industry as a whole contributed to the modification of the Patent Act so that their discovery and original development efforts will be sufficiently protected and to ease redress in the case of patent infringement.

In 1975, R & D reorganisation included changes in the corporate structure setting up 'The International Product Development Group'. In 1979 Glaxo's international operations were hit by a strong pound

again affecting mainly sales revenue and profits. Sales went down by 1% and profit by 14.3%. In real figures, sales were reduced by £40M due to the unfavourable exchange rate. As a company expands its market abroad and becomes internationalised, its susceptibility to exchange rate fluctuations grows correspondingly and the management of inter-currency fund flows grows in importance.

In 1981 they installed the most advanced computer and telephone networks aimed at optimising inter-site communications and enhancing the efficient use of their factories.

In 1982 Glaxo proceeded once again with a reorganisation of its management structure, stating, as the purposes in the Annual Report "to give larger responsibilities to those in charge of the different types of business within the Group. To urge and tighten Group policy decision-making without detriment to the exercise of local responsibilities and to lay the ground for more closely defined structures to regulate the interplay of live management and financial staff operations".

Hence the new structure became:

Glaxo Operations UK Ltd. (Secondary pharmaceutical manufacture)
Glaxo Pharmaceutical Ltd (Extensive central support services to related companies, U.K. ethical pharmaceutical sales and export)
Glaxochem Ltd (Primary pharmaceutical chemicals and intermediates)

In order to market Zantac effectively, Glaxo made agreements with other pharmaceutical companies. The company's 1982 report said that "the mention of these things enables us to emphasise the Group's flexible approach to making arrangements with others that we judge will protect our valuable products; will speed their marketing; expand the market, and earn more profit faster than otherwise. Further arrangements of this kind will follow."

2.3 The lessons of historical experience

As seen in section 2.2, individual MPCs have their own history of internationalisation. For example, CG, Merck and Lilly were internationalised as long ago as 1973. However, SKF and Glaxo were still in the take-off stage from relatively domestic-market oriented companies, heading towards internationalisation.

It is to be hoped that helpful lessons can be learned concerning the management of mature MPCs from the past experiences of CG, Merck and Lilly, and from SKF and Glaxo concerning the management of companies growing towards international status during the mid-70s.

2.3.1 Theoretical framwork of international evolution

As a theoretical framework of international evolution of an MPC, Bartlett identified six steps as follows:

1. Need for country autonomy
2. Need for regional support
3. Need for control
4. Need for Coordination and Integration
5. Need for dual focus by corporate and subsidiary
6. Need for global perspective

According to this classification, companies heading for internationalisation seem to pass through six structural steps, most of which are a response to external environmental changes and internal capabilities.

During the first stage, a subsidiary needs autonomy to acquire market and environmental information and react accordingly without delay, and relay them to corporate head quarters (CHQ), since the latter has not relevant information and must be informed by its various subsidiaries.

By stage two, the issues to be handled by the subsidiary become more complicated and require the support of a regional office. By this stage, therefore, the subsidiaries should have regional offices.

In the third stage it is necessary for the parent company to carefully watch the subsidiaries so that it can unite their activities. The fourth stage involves making management more effective by coordinating and integrating decision making and information in contrast to their past independence during the development stage.

In the fifth stage there emerge problems which should be handled by both CHQ and subsidiaries such as marketing and governmental regulations.

As the organisation further develops, the need for a global perspective to cope with external changes becomes greater and accordingly the company must develop its internal structure and corporate objectives to meet the international goals.

MPCs described in Section 2.2 are passing through or have passed through these stages. These MPCs are in different stages of business development. At each stage of internationalisation all these MPCs are undergoing internal development. However, their annual reports will

not supply us with such information as evidence for having undergone the full 6 stages of development. As a conceptual framework however, this is a useful guide for the company on the verge of international development.

2.3.2 Management mode

There are three types of management mode to be considered:

(1) Centralised

(2) Decentralised

(3) Cooperative

The champion of Mode One is Merck. Almost all the major decisions concerning the subsidiaries are made at the corporate level and the CHQ is constantly monitoring actions of its various subsidiaries.

The champion of Mode Two is Lilly. It delegate authority to its subsidiaries so that they can cope with the multitude of socio-economic and environmental changes.

Mode Three creates a decision environment within the organisation which encourages the initiation of cooperative interaction on mutual problems, and flexibility of approach as task demands changes.

Most MPCs are somewhere between Mode One and Mode Two. The combination

of three modes is very popular. In the evolution of a business, a company can move its organisation from a centralised to a decentralised structure according to the prevailing circumstances and internal capabilities of its management resources.

For example, Glaxo changed from management Mode Two to One in 1973 after the takeover bids by two British companies in ordere to tighten control over its activities. However, they later changed from Mode One to Two to ease information flows between its various subsidiaries and to improve the quality of its decision making.

SKF in 1974 formed a project team using external and internal expertise to improve the yeild of cephalosporin production. This was a serious problem since the cost of production was much higher than expected. This was solved soon afterwards. This is a good example of management Mode Three.

The selection of the appropriate management mode will, of course, depend on the company's philosophy, internal requirements etc.

2.3.3 International expansion strategy

Companies have to look to the future all the time, which gives them insight into what will be happening and what their prospective customers might expect. Once a potential project has been identified the idea undergoes successive stages of evaluation and development.

This kind of foresight is very important for these companies since the world has been changing very rapidly and regardless of whether they welcome it or not, external circumstances force them to adjust themselves to these changes. If they can read these signals before their competitors do, this will give them a competitive advantage. However, the company's objectives will be realised through the company's internal capability for development.

Obviously it is not enough merely to have an innovative product, but in the world pharmaceutical market, the transition to, or consolidation of, a multinational position is greatly facilitated by the ownership of distinct products offering clear advantages over existing rivals.

2.3.3.1 New products (R & D)

The most important aspect of internationalisation is to develop "a new innovative and worldwide marketable product". As we saw in Section 2.2 almost all corporate development programmes are based on possible new products.

Therefore, capability in the development of new products by the R & D department is absolutely essential to internationalisation. How can the necessary strength in R & D be attained?

One of the answers to this question will be to have excellent scientists. The company needs the sort of researcher and scientist who can take an idea from the drawing board and to the market, and though a good final product can sometimes be obtained by a licensing agreement, it may need further testing and marketing expenditure in order to get the product on the market before the advent of rivals.

The MPCs described in Section 2.2 have established a recruiting system which attracts prospective researchers to work for them. In the case of Merck, George W. Merck, Chief Executive Officer between 1926-1955 decided to set up a research laboratory under the philosophy that the Company should conduct a programme in research equal to the best in the academic world.

This laboratory was set up with the cooperation of Dr Randolph T. Major and Dr Hans Molitor. They started on an organised, systemic expedition of exploration and achievement.

According to George Merck, "to me this has always been a milestone, for it signified our transition from the more or less individual, isolated scientific effort to modern teamwork". However, at that time the financial risks were obvious; potential rewards to society and to the Company were uncertain.

Merck took risks in 1933 in setting up a large-scale research laboratory, which made the Company a top ranking MPC. As can be seen from the example of SKF and Glaxo, they constantly up-graded their activities and reorganised their R & D structure in response to external changes.

What rate of new product introduction does experience suggest that an MPC will need to sustain? The table below shows the cost of a new product and the number launched per annum.

New Products

MPC	Cost/product	No. of product per year	Period
Merck	$98M	1.8	'73-'82
Glaxo	£34M	0.7	'72-'82
SKF	$141M	0.6	'73-'82

Figure 2.3.3.1-1 (Source: Annual Reports)

As a mature multinational, Merck launches 1.8 new products a year. Glaxo 0.7 and SKF 0.6. We can deduce from the data that at least one single new product per annum wold match the average performance of an MPC in this respect.

2.3.3.2 Production

The case for internationalisation as for any other strategy, resolves ultimately into its anticipated ability to generate reasonable profit which will enhance future growth. In the case where production costs are higher in the home market than they are overseas, then obviously the company has to consider the advantages of setting up manufacturing facilities abroad.

Since the regime of floating exchange rates began, MPCs have been suffering from the complexities introduced by the fluctuation of these rates. Huge losses may be made by the MPCs since nearly half of all sales are dependent on the overseas market. Setting up manufacturing facilities overseas will have two effects: to reduce the currency exposure of the company and perhaps to reduce production cost itself.

The location of production facilities is a critical variable for internationalisation. The issue will be discussed in Section 5.2 in CHAPTER 5 as one of our long-term practical considerations. Even though the company's production facilities in its home country may be adequate in both capacity and quality, there may be other considerations which favour additional overseas production facilities.

2.3.3.3 Marketing

The most difficult task in internationalising a company is to establish an expert marketing organisation, because marketing in Japan and marketing overseas in practice are quite different even though the principles are the same. First of all in the case of a Japanese company, they have to speak the local language to proceed with marketing. The language is a major obstacle to them. Marketing is a communication process, and requires a very sensitive approach. If they are not well versed in the local language, successful marketing will be impossible.

A company which already has several world marketable products can choose strategic options which are described briefly as below and these will be discussed further in Sections 2.4 and 4.5.

1) Export
2) Joint Venture (JV)
3) Minority Interest (MI)
4) Take-over (TO)

The first method is to export finished and/or half finished goods. For the other methods, the underlying idea is to use an existing organisation as the core of the new organisation. In forming a JV, a company looks to its partner to provide marketing expertise and distribution channels to their mutual advantage. The JV is often seen as a transitional stage beyond which the main company will grow towards complete autonomy either by development of its own resources or by acquisition of its partner.

MI is the preliminary step towards TO. The advantage of this method is that an investor is able to minimise its risks by not purchasing the whole of the company. TO means complete control by the parent company.

JPCs have to consider what strategy they should pursue in order to form an effective marketing organisation, a JV, an MI or TO and/or combination of these three. This expansion strategy will be discussed in Sections 2.4 and 4.5.

There are many examples of acquisitions which facilitated internationalisation of a company. Merck acquired Sharp and Dohme (English) in 1953 and Lilly acquired Dista (English) in 1963. Warner-Lambert acquired Park-Davis.

The impact of acquisition on the parent companies must have been different from one case to another. These acquisitions triggered off the process of becoming an MPC in each case. These acquired companies provided acquiring companies with an international market force. Obviously the parent companies had to improve performance by injecting funds and human resources.

In the sense that a company can obtain first hand information on marketing techniques, TO is one of the best strategies. We can form several possible alternative strategic options depending on the assumptions and current circumstances of the company as will be discussed in Chapter 4.

Glaxo

Glaxo's case is the best example of the use of options 2, 3 and 4 for marketing objectives. In 1977 Glaxo took over Meyer Laboratories Ltd, a U.S. local distributor of pharmaceuticals. It cost them $37M, and was clearly intended for Zantac and other major new product lauches in the U.S.

It was a strategic decision to have a firm foothold in the U.S., but the scale of the TO was not as large as expected in Wall Street. They had the option of acquiring a larger company than Meyer, but minimised their investment risks by acquiring a smaller one.

As part of its international expansion strategy, which mainly is focused on marketing, Glaxo tends to acquire a relatively small local company overseas. In promoting a new product, they form a JV or Joint Promotion Arrangements (in US with Roche) in a country so that Glaxo with its new venture can compete in the new market. They probably expect an accumulation of marketing expertise from this venture to add to their international portfolio of take-overs and joint ventures.

SKF

The international expansion strategy of SKF (a US company) would be to acquire local companies instead of forming JVs (the exception is in Japan - a JV with Fujisawa). This would indicate that they already have sufficient management expertise and accumulated information to run the local subsidiary.

JPCs

As shown in Figure 1.1-4, the top ten MPCs in the world include 7 US based companies, 2 are Swiss based and one German based company. This is a natural result because the market in the US is over 20% of the world market. Obviously the US based companies are able to capture a good portion of the big domestic market and because of the strict regulations imposed by FDA, giving American MPCs an incentive to produce more effective drugs than they might otherwise.

In turn the second biggest market is Japan. Therefore, in terms of market size the JPC have much potential in becoming amongst the top ten MPCs since they already have a firm foundation in this huge market.

However, in considering internationalisation the decisive difference between MPCs and JPCs is the physical and cultural gulf which JPCs face in relation to their non-domestic markets.
This will be discussed further in Section 2.4.3 as a 'distance concept'.

2.3.3.4 Finance

The financial aspects of the international expansion strategy should be viewed as in a long-term investment programme. A company has to decide how much it should spend on plant and machinery and other tangible assets for the future growth of the company. This will be decided by taking into account not only internal decision factors but also external economic and social factors.

Once the company has identified the internal constraints, that it must (or wishes to) observe, it must then appraise the external factors bearing on its long-term investments. MPCs are bound to expose themselves to the dangers and uncertainties of floating exchange rates, and this is one of the key decision factors. A theoretical forecasting model for exchange rates is described in Figure 2.3.3.4-1 which involves exchange rates, interest rates and inflation rates which may be used for timing the implementation of plans and for the shorter-term management of international cash flows.

In general as a theory for international investment, MPCs tend to make investment when its own currency becomes stronger than that of those countries in which they wish to invest since this gives the MPC more economic value per unit of its own currency. For example, Ciba-Geigy, suffering from the sharp depreciation of the Swiss Franc in the early 70s, were perplexed by their disadvantageous situation in terms of profits and revenues from foreign countries.

However, they realised that they could take advantage of the situation

by advancing their foreign investment programmes since the greater the value of the Swiss Franc the greater its purchasing power in other countries.

Merck announced the take-over of Banyu in August 1983. At that time, the exchange rate of the US dollar was around Yen 250/US$, the dollar thus being very strong. Merck suffered the trading disadvantage of the appreciation of the US dollar but on the other hand was able to expedite its investment in Japan. The take-over of Banyu must have been prepared at an earlier stage and its timing was dependent on the advent of a favourable economic climate. Such an approach is typical of the modus operandi of a multinational company.

2.3.3.5 Human resources

Human resources can be an enhancer of or a bottleneck in business. It takes a long time to educate people for the appropriate strategic programmes. During the course of expansion if these companies cannot meet their human resource requirements internally, they will have to recruit them externally.

A typical aspect of Japanese management is a commitment to life time employment. Usually they recruit university and high school graduates straight from school and educate then internally. Therefore, recruiting experienced people externally is not a regular practice unless they have an urgent need in a certain field.

Almost all MPCs have already established systems for recruiting competent researchers and scientists. As discussed in Section 2.3.3.1, human resources in R & D are critical. For JPCs to internationalise themselves it is necessary to have direct contacts with universities and institutions which may provide them with competent people.

2.4 International expansion models

2.4.1 Master plan and strategy options

In the Master Plan in Figure 2.4, a 20 year development schedule is made in view of longer R & D and product life cycle periods than those of other industries. The 20 years of the plan for internationalisation are divided into two parts: the first period is a preparation for internationalisation called Phase I, and the second is the implementation and completion period called Phase II.

Phase I is further subdivided into two parts: the first five years may be used for licensing or forming JVs and the second five years may also be used for licensing and/or JVs but the emphasis will be placed on JVs.

As from 1984, the company could aim at the year 2000 AD as a kind of turning point. From the year 2000 onwards, it will commence the operation of its 100 percent owned subsidiaries in the targeted major countries.

The first five years of Phase II will be used for the transition period from JV to 100% owned subsidiaries and the second part for the full operations of the 100% owned subsidiaries by the company.

The company does not know how many years it will take to complete Phase II. However, taking into consideration the financial analysis in Section 4.6, the company is able to make a realistic corporate plan

for its international expansion.

As can be seen, the objective of internationalisation is to have an international footing in each district or each country in order to distribute the company's products and take the opportunity for increasing profits.

The Master Plan (Figure 2.4) will be considered further by the use of the Strategy Matrix (Figure 2.4.1-1(1)). This is a 2 x 2 matrix with one side indicating whether JV, MI*TO and the other side US and European markets. The strategy options open for international expansion are: A for JV in USA and B for MI*TO in USA, A' for JV is Europe and B' for MI*TO in Europe.

At this stage, the assumption that the company will start a JV in the US can be based on the company's announcement of future collaboration with a US company. (Annual report in 1983).

Therefore, the stratgy combination will be shown in Figure 2.4.1-1(2). According to the assumption above, the USA start with a JV and Europe has free choice. The basic pattern of options is illustrated in Figure 2.4.1-1(2). A + (A' + B') means that in the US only JV runs and in Europe JV and MI*TO run independently and finally merges in the year 2000. As a realistic option, licensing will be added to the Illustrations (Figures 2.4.2-1, 2.4.2-2 and 2.4.2-3).

2.4.2 Strategic options

Stategic Option One (SO1) A' + A'

(JVs in USA and Europe)

This is the most simple option for both territories, the USA and Europe. Both are to concentrate initially only on JV arrangements and move gradually to 100% owned subsidiaries. This is a very orthodox and simple option for a company. In this case the choice of a JV partner is a critical issue which shares all future events in the company's business development.

Stategic Option Two (SO2) A + B'

(JV in USA in MI*TO in Europe)

For the USA, the case is the same as in option one. In Europe the company will not form a JV for expansion, instead it will continue its licensing policy and look for a minority interest (MI) or a possible take-over (TO) of a company to supplement the company's needs.

In the case of Europe, there are four major countries to be covered, Germany, France, Italy and UK. For an effective operation, the company has to pay careful attention to business development. In comparison to the JV-oriented strategy (A + A') option, this option has wider strategic implications.

Stategic Option Three (SO2) A +(A' + B')

(JV in USA and JV + MI*TO in Europe)

In the case of USA its option is as before. In Europe two options run independently, the first is the same option as that of SO1 and the second is licensing plus MI*TO. Whether the company puts emphasis on A' or B' will depend on the circumstances and its policy towards the JV partner and the licensees.

Stategic Option Four (SO4) (A + B) + A'

(JV + MI*TO in USA and JV in Europe)

In Europe this option is the same as SO1. In the case of USA two strategic options run indenpendently as we saw for Europe in SO3.

Stategic Option Five (SO5) (A + B) + B'

(JV + MI*TO in USA and MI*TO Europe)

In USA the option is the same as in SO4. Instead of A' in SO4 there comes B'. This means that in USA two options run independently and in Europe they use licensing and MI*TO.

Stategic Option Six (SO6) A + B + (A' + B')

(JV + MI*TO in USA and Europe)

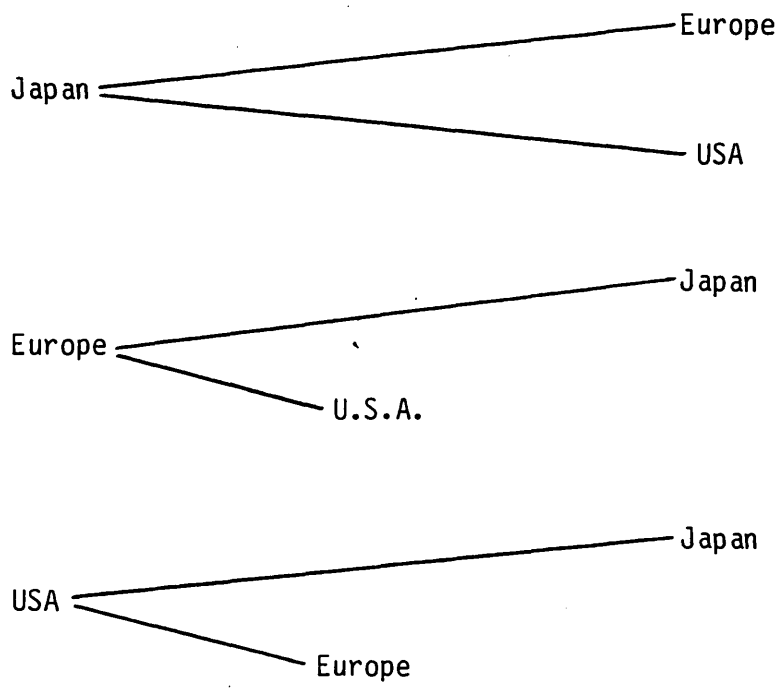
Four options run independently in both USA and Europe. This has the widest set of strategic options. The problems which arise in this case will be what product is non-world marketable but is only regionally marketable product, it should then be licensed to a possible local licensee.

If the product is semi-world marketable and is also regionally marketable, then the JV partners must decide whether to develop it as soon as possible. However, depending on their present R & D activities, the partners may delay the decision to develop the product.

These options' implications up to 1990 will be discussed in Section 4.5.

2.4.3 The 'distance' concept

In considering the internationalisation of a Japanese-based company, it should be recognised that Japan is isolated geographically from the world. This is true also of social and cultural differences, even from Asian countries which are located near Japan. This is a feature peculiar in degree to Japan among the world's leading industrial nations.



In many ways, the illustration above which demonstrates the physical distance between these various regions, gives us an insight into the advantages and disadvantages of a company based in any one of these regions.

For Japanese companies, Europe and the USA are a long distance away in many aspects, such as their cultural, social and psychological features. The Japanese have to make more effort in overcoming the gap between themselves and the Americans and Europeans than do the last two between themselves. The reverse is also true.

This illustration may also represent 'psychological distance' as it relates to internationalisation. This distance would be one of the variables which define the perceived degree of internationalisation. This can be defined as below;

F(Distance) = Perception of Internationalisation

This suggests that the degree to which a company sees itself as internationalised and the degree to which its business strategies will need to be re-tailored in becoming so is a function of "distance" where distance may be taken to be in terms of social, economic and cultural factors as well as in the conventional geographical sense. We may call this "the distance concept of internationalisation". In many ways the distance between USA and Europe is very close, a sort of family relationship. However, Japan is a remote country in many respects amongst the three regions. Therefore, when internationalising a company, US, European and Japanese based companies should be dealt with differently because of the different views of the different markets.

As the discussion in Section 2.3.3.3 suggests, international expansion within "family membership" (e.g. within US and Europe) may make more immediate use of acquisitions because the procedures of acquisition, identification and subesquent management of companies appropriate to acquisition will be more immediately familiar than would be the case for expansion beyond the family group.

It took Merck, e.g. about 25 years to take over Banyu. If a JPC wants to do the same thing in Europe and US, it might take the same period to accomplish this objective. As one of the biggest MPCs, Merck became aware of the implications of the 'distance concept' of internationalisation, by experience. Therefore, they took a gradual approach to the Japanese company in forming intially a Joint Venture.

By this means, Merck was able gradually to close the gap imposed by the distance between its own initial experience and the cultural and social requirements of the Japanese environment to the point where it could successfully assume full control of Banyu. This is a typical example of a successful MPC getting into a difficult market on the basis of a long-term strategy.

However, during the trade disputes between Japan and USA or Japan and EEC, one of the complaints made by European and American companies was the relative difficulty of entry into the Japanese market arising from the complexity of the wholesaler and distribution systems in Japan. This they saw as a trade barrier.

This kind of argument disregards cultural and social forces. Complaints are made in particular, about the complex infrastructure. Basic marketing textbooks explain how to penetrate the target market and how to adapt to the infrastructure, the latter being one of the most important study objectives. A similar argument used by the Japanese might be a complaint about the difficulty of learning local languages, German, French and Italian in the markets to be penetrated. This is a futile controversy. If we think in terms of the distance theory of internationalisation, we can look at the situation more objectively and perhaps find more logical and practical approaches to the markets.

Distance, in the sense in which it is used here, is a useful concept in several ways.

First it may help to guide our initial selection of target national

markets since, other things being equal we will want to minimize the degree of difference between current markets and our hoped-for additional markets. The total distance with which our expansion (and later management) strategies will have to cope will be the sum of the distances incurred by the portfolio of our national markets. We may wish to balance the demands of a larger number of 'short-distance' markets against those of a smaller number of 'long-distance' markets.

Second, the choice of entry strategy will be influenced by the need to minimize distance. What are the costs and benefits of acquiring distance-reducing resources by e.g. joint venture? Is the distance as yet too great to justify the risk of attempting to bridge it by a full-scale takeover? Third, after entry, is the distance between the needs of the new market and the nature of the marketing programmes we currently use elsewhere great enough to justify a 'custom-made' programme for the new market?

Fourth, an MPC will learn to cope with the demands of the distances that its strategies incur. It will develop management systems for coping with the diversity of markets and governments with the international flows of money and materials. It will develop expertise in decision-making with respect to the location of facilities and it will build up local knowledge and infrastructures within geographical regions which will facilitate expansion into additional national markets within each of those regions. As the base of the MPCs capabilities expands, the distance incurred by any given additional expansion diminishes. Existing MPCs have gained a competitive advantage thereby, which intending MPCs must recognise and, where possible circumvent by their own choice of distance-reducing strategies.

CHAPTER 3 INTRODUCING YAMANOUCHI (Y)

3.1 Overview on Yamanouchi

As shown in Figure 3.1-1 this company had sales of £286M in 1982 with profits after tax of £19M. During each of the past 3 years it grew at the rate of about 10 percent, which was its target rate. Its major fields lie in cardiovascular, anitbiotics and metabolic agents.

According to the 1982 Annual Report, there were 5 new products in the R & D pipeline. Compound-A as anti-ulcer, Compound-B as a cardiovascular, Compound-C as also cardiovascular, Compound-D as an antibiotic and Compound-E as a brochodilator.

Some of the products are already marketed domestically but are still in the development stage in their international launch - an event expected sometime after 1985.

3.2 Strengths and weaknesses

As the company moves through successive development stages the nature of the areas strengths and weaknesses may change. However, characteristic features of the JPCs (Japanese Pharmaceutical Companies) are shown in Figure 3.2-1. JPCs which already have several new products in the R & D pipelines will have to market their products internationally in order to recoup their R & D costs.

A major weakness amongst JPCs is the ability to produce very original

products based on basic research. It goes without saying that the lack of a presence outside the home market is the other weakness. Also the lack of cost competitiveness is a major obstacle to internationalisation. Prices in the international market tend to be lower than thos of the Japanese market.

Cost competitiveness, one of the major weaknesses of JPCs, will be examined. One of the factors which explains and justifies the high cost of JPCs is that the Japanese pharmaceutical industry is relatively young and has had to establish new facilities leading to high depreciation charges.

As can be seen in Figure 3.2-2, the ratio of depreciation to cost of sales is much higher for Merck than for either SKF or Yamanouchi. Yamanouchi's ratio is stable around 5 percent and SKF's has a tendency to go up. In 1982, Merck had a ratio of 11 percent. Therefore, the depreciation factor does not appear to explain the higher Japanese cost of sale.

Published accounts do not provide us with adequately detailed accounting information. Companies have to examine the problem using their own internal data to find out what factor is crucial to the higher rate of production cost. The other major contributors to production cost are labour and materials, which should be examined in the light of international cost comparisons.

3.3 Internationalisation

It can be safely said that a common feature of JPCs is the lack of competitiveness outside the home market. Yamanouchi has been chosen for this study as a typical example of this phenonemon. Therefore, Yamanouchi's past experience and future prospects are generalissed for other JPCs.

The Japanese market apparently has reached saturation, in terms of expansion, due to governement policy, which appears to favour the activities of MPCs in Japan (Section 1.2). Therefore, almost all of the JPCs are pursuing a very aggresive policy towards expanding their operaitons overseas as a natural consequence of the industry's development.

Internationalising a company is a multistage operation. For instance, it involves modification in such areas as R & D, manufacturing, marketing, human resources, financing and administration. We shall further elucidate these topics in the following chapters.

However, for the company's overall growth these variables should be examined collectively within the framework of a corporate plan. The aim is to form these arguments into a comprehensive package for internationalisation.

CHAPTER 4 CORPORATE PLANNING

4.1 Methodology

4.1.1 Corporate planning

Since anticipated or target sales level is the datum to which each element in any corporate plan must conform, demand analysis is the necessary starting point in the process of planning.

The intial approach taken here is to forecast market growth in total for each of the target market segments over the course of the eight year planning period. Subsequently, expected company share of each segment provides a forecast of achievable sales for the company in each segment.

At the extreme, this approach is essentially passive in that it derives a sales forecast from aniticipated market conditions. At the other extreme, the company may set sales targets which are derived from subjectively determined corporate objectives. Marketing resources are then presumed to be allocated on whatever scale is judged necessary to achieve the sales targets. In reality, targets would be set having regard both to market conditions and to required marketing expenditures. Nonetheless, the company's target may be set high or low within the feasible range reflecting its willingness to seek out and develop new markets or to provide resources for the promotion of its sales within existing markets.

This spectrum may be represented by the familiar 'gap' or 'variation' analysis indicating the divergence of sales levels on a 'no-change' policy from target sales as determined by corporate policy objectives.

In the case of a company planning for internationalisation from a domestic base, the policy extremes indicated by the widening gap would represent continuation in only the domestic market or the lower curve and sales achievable by internationalisation on the higher curve. This is illustrated in Figure 4.1.1-1

Following the identification of sales targets, necessary resources to achieve these targets must be identified and their costs estimated. The financial effects and needs of the plan then become crucial. One approach is to use proforma balance sheets, income statements, funds flow statements, cash flow analysis and financial ratio analysis, to cover each of the periods up to the planning horizon.

There are many techniques for constructing a corporate plan covering a wide range of complexity and sophistication. In choosing a method, "The priciple of simplicity" is applied. This principle requires that the method be:

1. Easy to understand
2. Easy to put into practice
3. Able to be used as a step towards more sophisticated techniques
4. Able to facilitate quick decisions

In practice, management have to make decision quickly, considering and understanding updated data. We may use a sophisticated technique which is supposed to reflect a better relationship amongst variables. However, the more sophisticated the model is, the more it is based only on assumptions and the less comprehensible it becomes to top management. "The principle of simplicity" is therefore applied to this study as far as possible.

4.1.2 Demand Analysis

As a first step, from the statistics of IMS, which is regarded as the most reliable source in the industry, the relevant statistics for each particular new product are identified. Major classifications in IMS for each product are as follows.

New product	Classification by IMS
Compound-A	A
Compound-B	C
Compound-C	C
Compound-D	J
Compound-E	R

The above represents the most important of Y's new products and those on which international growth is most likely to be based on.
Characteristics of the products and detailed IMS classifications are given in Appendices A and B.

Data availability for the market segments pharmacy and hospital, is

shown in Figure 4.1.2-1. As shown hospital data for France, Italy and UK are not available in this study. Data for countries such as W. Germany, France, Italy and USA are collected for five years. In the case of the UK, due to limited availability, only two year data are used.

Based on the data the demand for each market segment for each compound is measured. Five year data would not be sufficient for use in corporate planning in this instance. In this study an eight year planning horizon instead of the more common five years is used.

This is because the product life cycle of pharmaceutical products has a different range from those of conusmer electronics or other consumer goods for which a five year horizon may be appropriate.

New product market launch will normally follow about 10 years from the start of research on that product, whilst market life may be more than ten years depending on its innovativity and marketing efforts.

Demand projection

The simple linear regression model (time series) is used for this analysis. This is a technique used to determine the form of a linear relationship between two variables, i.e. draw the best straight line through data. Non-linear relationships can often be transformed to a linear form. Models are as below:

Linear type (LT) $Y = A + BX$

Exponential type (ET) $Y = A\, e^{BX}$

In the equation above, X is year and Y is sales value. A, B and "r" (correlation coefficient) will be determined by data. Which of these forms to use will depend on their 'fit' to the data.

In order to obtain the forecasting range, t statistics are used and 95% confidence interval is applied, which demonstrates that 95% of the statistics will fall into this range.

The result of choice as to LT or ET is shown in Figure 4.1.2-2. This figure may show the potentiality of growth in the future, subject to the future movement of key factors which influences the course of demand.

Formulae for t-statistics are given as below:

When an estimate of a quantity is made, it is desirable to know the estimated value and a measure of how precise our estimate may be (i.e. how good is our estimate?)

We give a measure of this precision by stating upper and lower limits within which the estimated true value is likely to lie with a certain "percent confidence". These limits are called Confidence Limits and the resulting interval a Confidence Interval (CI)

$$Y = A + BX$$

$$CI = \bar{Y} \pm t_{n-2,\ 0.025}\sqrt{\text{Var}\ (Y_0)}$$

$$\text{Var}\ (Y_0) = \hat{\delta}^2 \left[\frac{1}{n} + \frac{(x_0 - \bar{x})^2}{\sum (x_i - \bar{x})^2} + 1 \right]$$

$$\hat{\delta}^2 = \frac{\sum (y_i - \bar{y})^2 - B^2 \sum (x_i - \bar{x})^2}{n - 2}$$

The ranges for upper and lower bounds are obtained by the formulae and in the case of the exponential type it is treated exactly as above. (example of non-linear becomes linear)

$$Y = A e^{BX}$$

$$\log Y = \log A + BX \log e$$

$$\underline{\log Y} = \underline{\log A} + \underline{BX}$$

$$Y' = A' + BX$$

Non quantifiable factors

A purely statistically-based forecast would be unreliable in the present application since such a forecast inevitably relies on data from the past. The environment of the pharmaceutical industry is subject to rapid changes, many of these reflecting technolgical forces and many are responses to political pressures. It is essential therefore to take what account is possible of the impact of such environmental changes as may reasonably be anticipated.

Such factors as the competitive situation, price regime, medical attitudes, reimbursement systems, are analysed using descriptive data to see how these factors may influence the course of demand for each market segment.

Summary of demand analysis

In this section demand projection and demand analysis for non-quantifiable factors are combined and discussed to decide which course future demand is most likely to take, as explained by the upper bound, middle or lower bound classification.

The result of the demand analysis will be shown as in the form of Figure 4.1.2-3. A major assumption made here is that the trend shown by the market segment will continue for the forecast period from 1983 to 1990 (Assumption 4.1.2-1(A)). However, in practice this kind of assumption will be modified after examining current key factors. Therefore, the assumptions may be relaxed.

The monetary figures are expressed in the local currencies so that at the final stage we may convert them into the Japanese Yen which will be useful for decision making purposes for JPCs.

4.1.3 Sales forecast

The sales forecast is made according to the formula.

Sales forecast = Demand forecast x Market share

It is necessary to obtain expected market share for each new product since the market share will represent the product's marketability as already laid down in the company's policy on new products. 'Marketability' also includes the company's sales force, efficient production, competitive advantage of a new product over its rivals.

With regard to Yamanouchi's domestic market, sales are simply projected by the method described in the demand analysis, simple linear regression model (Section 4.3.2).

4.1.4 Sales objectives

Sales objectives will be obtained through the merger of Bottom Up Method (BUM) and Top Down Method (TDM). BUM uses the method described in Sections 4.1.2 and 4.1.3 obtaining a demand forecast, and subsequently a sales forecast for the corresponding market.

On the other hand, TDM is related to the company's "will" with regard to the future growth of the company. Under this concept, internationalisation, the central objective for the future growth of company, is a projection of domestic sales into a new overseas market.

This is set by using a ratio of domestic sales/expected overseas sales; and through the company's "will" to expand and reach its internationalisation target, this ratio is pre-set and becomes the driving force for penetrating overseas markets.

As a rule, the sales forecast becomes the sales objective after the former has been checked and ratified by top management. The sales objective becomes the focus of corporate objectives and hence must be adhered to if the company is to grow in line with expectations.

4.1.5 Strategy

This section deals with company's strategy up to 1990 as an 8 year corporate plan. There is a difference between the two levels of 'no policy change' and 'corporate policy objective' (illustrated in Section 4.1.1). The difference should be filled by the implementation of international expansion plans (Section 2.4), using whichever is suitable for business development under the prevailing circumstances.

The strategy matrix (Figure 2.4.1-1) will be discussed in more detail in line with strategy options, which are intended to fill the gap between the two levels of operation; 'no policy change' and 'corporate policy objective'.

Finally, in the course of later discussion, it will be shown how sales objectives may be attained through the implementation of the above-mentioned strategies.

4.1.6 Financial analysis

Methodologies for financial analysis are briefly explained in the following sections.

4.1.6.1 Proforma balance sheet

The sales objectives are constructed through the addition of sales in the home market and in the overseas market. The price level of the home market is taken to be that of finished goods at ex-company price and that of the non-home market to be the active ingredients at CIF (Cost, Insurance and Frieght) prices.

Based on the sales objective up to 1990, the proforma balance sheet is constructed by the method called "Percentage-of-sales" (POS). The items variable to the sales are selected such that when there is an increase of one monetary unit in sales there will be a corresponding increase in these variables in some proportion. This is a simple incremental analysis used to extrapolate data for each item to the year 1990.

4.1.6.2 Proforma income statement

The whole structure of the income statement is based on POS. Past percentages from historical data are calculated and extrapolated to obtain data up to the year 1990.

4.1.6.3 Proforma funds flow statement

The proforma funds flow statement is constructed by using the proforma balance sheet while taking into account the difference between the opening balance sheet and the closing balance sheet. This is used to analyse the trend in liquidity and to estimate the need for funds in the next year. Funds flow will be explained in the next section in relation to cash flow analysis.

4.1.6.4 Cash flow analysis

Funds flow

Funds flow analysis deals with changes in working capital. Working capital consists of current assets and current liabilities and the change in working capital will be worked out by comparing working capital of the current year with that of the previous year. Figure 4.1.6.4-1 illustrates the relationship between sources and used of incoming and outgoing funds.

Cash flow

Cash flow analysis focused on the cash position taking into account outgoing and incoming cash. Cash from operations will be described in Figure 4.1.6.4-2. This analysis focuses on the cash position rather than working capital as a whole. The cash is one of the components of working capital. This analysis takes cash out and examines the change in the amount.

4.1.6.5 Financial ratio analysis

A comparative study between MPCs and Yamanouchi in terms of financial ratios is to be made. The financial ratios for SKF, Merck and Glaxo (Figure 4.6.5-1) as well as Yamanouchi's are obtained.

The objective of this section is to compare the results of the Proforma balance sheet produced by POS (Percentages-of-Sales) with the result of proforma balance sheet made through MPCs average.

POS represents the past record of Yamanouchi and extrapolates for the future considering increases of sales. On the other hand MPCs average is calculated by using data on SKF, Merck and Glaxo. This represents the MPCs financial structure on average, which can be regarded as an industry average for this purpose.

The two results are compared and discussed looking for the implications of the differences.

The definitions of financial ratios are given in Figure 4.1.6.5.

4.2 DEMAND ANALYSIS

4.2.1 Demand Projection

4.2.1.1 Germany (Figure 4.2.1.1-1 to 4.2.1.1-5)

As Figure 4.1.2-2 shows, market (C) (Cardiovascular, etc) has an exponential type curve, indicating an increasing market growth rate. Its market size is roughly 8 times that of (R) (Bronchodilator) and four times those of (A) (Anti-ulcer) and (J) (Antibiotics).

The size and the potential growth of market (C) clearly points to a high priority for market (C) when compared to other markets having relatively small absolute size and stable growth potentiality.

Among the rest, markets (A) and (J), should be given priority in terms of market penetration. In general, demand projections as in Figure 4.2.1.1-1 should be adjusted by non-quantifiable direct as well as indirect factors to obtain the final demand forecast. Detailed market strategies are to be developed based on such an analysis.

4.2.1.2 France (Figures 4.2.1.2-1 to 4.2.1.2-5)

Markets (C) and (R), in the French market, have exponential type curves and (A) and (J) are linear type ones. Potential growth of (C) and (R) is high. Market (C), is outstandingly large in comparison with the other segments; six times as great as (A), twenty times as great as (J) and fifteen times as great as (R).

Because of its potential growth and its current market size (C) (cardiovascular) and its related market is very attractive to the pharmaceutical companies, leading to itensified competition, and greater difficulty of successful entry.

4.2.1.3 Italy (Figures 4.2.1.3-1 to 4.2.1.3-5)

In the Italian market, surprisingly enough, the market (A) is a relatively large market due to Zantac's entry in competition with Tagamet, the latter having provided an awareness for the new type of drug. However, the statistical 95% confidence interval range for the 4 segments, is exceptionally wide due to the very rapid market growth during the past five years. We have to examine closely what direction the market will take so that we may estimate the target range more narrowly.

The Italian market generally has the same problem as that of (A) due to the exponential market growth, which does not allow the statistical range to be as narrow as can be seen in the other examples.

Market (A) will catch up with (C) in 1985 if the market continues along the same trend even though market (C) was the largest in Italy in 1982.

Market (J) is half the size of (C), and (R) is a tenth as much as that of (C). This suggests that the Italian market has two major areas of promise, (A) and (C).

Almost all of the segments in every country except Italy have an

acceptable range of demand forecast, with a deviation of 8 to 10% from middle values. These demand forecasts will be taken as the three alternatives from which to choose from the most suitable forecast in each segment for each country. In the case of Italy, other methods and other factors must be taken into account to provide a useable forecast.

4.2.1.4 U.K. (Figures 4.2.1.4-1 to 4.2.1.4-5)

In the case of the U.K. market analysis, we have data only for the two years 1980 and 1981. As long as two periods of data are obtained, we can see the direction that the market is moving towards, even though statistical significance might not be expected. Nevertheless, we have use this for the U.K. analysis as best we can.

One of the characteristics of the U.K. market is that the (R) market is a relatively large one, followed by the (C) market. Market (J) is the smallest among those investigated.

Due to data availability, the statistical confidence interval is not shown; instead 10% ranges from the middle value are considered for the purpose of managerial decisions.

4.2.1.5 U.S.A. (Figures 4.2.1.5-1 to 4.2.1.5-5)

In the U.S. market, (J) is comparable to market (C). In the other European markets the structure is quite different from this. Market (J) in the U.S. is expanding rapidly and will exceed the market (C) in 1984 if the current trend continues.

In the countries under investigation, only the U.S. has a large market for cephalosporine, mainly used in hospitals for infectious diseases. As the marketability grows e.g. in Japan and in the U.S., the competition to develop this product becomes severe. The U.S. market is the biggest in the world and thus there is a strong case for internationalisation or intèrnational expansion for non multinational companies to start with, or certainly to place great emphasis on, this market.

4.2.2 Demand Analysis (non-quantifiable)

4.2.2.1 Competitive situation

Athough the strengths of competitive products and their marketing programmes will help in obvious ways to determine attainable market shares for individual manufacturers in the pharmaceutical industry, the size of the total market itself will be responsive to product quality and to marketing resources since these will help to determine the perceived suitability for drug therapy of each medical condition. Patent protection also means that drug availablility in different countries, itself a function of the manufacturer's marketing programmes, will help to determine market size.

In this section, each segment such as the cardiovascular product, cephalosporine, the bronchodilator and the anti-ulcer, will be examined from the two points of view; those of the manufacturer and the product itself. This competitive analysis should be made once again in detail so as to establish marketing strategies for each new product.

4.2.2.1.1 Germany

According to the market share analysis, Tagamet has 37.1% of market (A). In market (C) no product has a market share more than 6%, Adalat and Trental having the biggest shares. In market (J) Claforan is the market leader, whilst other major products vary from 7% to 2% market shares. In market (R) Berotel and Intal hold the biggest share. (Figure 4.2.2.1.1)

Among the investigated companies, (Appendix C, Compounds in R & D), there are three which are German based; Hoechst, Bayer and Boehringer Ingelheim (BI). Traditionally the market for cardiovascular products is relatively large and these three multinationals have pertinent new products in their reseach and development lines. In particular, Bayer has many calcium antagonists which will become direct competitors to Compound-B. To the cardiovascular manufacturer, this German market is quite attractive. In contrast, antibiotics are less attractive because of the small market.

4.2.2.1.2 France

In market (A) Tagamet has a 44.5% market share. A peripheral vasodilator section has the largest share in market (C). The market shares of Tankan, Praxilene and Sermion have 8.4%, 7.6% and 6.0% respectively. Oracilline is the market leader in market (J). In market (R) Fisons and Glaxo the have biggest market shares (Figure 4.2.2.1.2).

There is no French based company among our investigated manufacturers, (Appendix C). However, the French market is the second largest in Europe and many multinationals have sales branches, plants and laboratories in the country. The largest market segment is for cardiovascular products. The market is growing at the rate of 16.4% p.a. In the field of cardiovascular products, Specia and MSD-Chibret have leading positions with high growth rates. The market for cephalosporin is relatively small in France.

4.2.2.1.3 Italy

Detailed information on market (A) is not available. In market (C) Nicholin has a substantial market share (13.5%), followed by Adalat and Fluxartin whose market shares are 5.5%. In market (J) five major products have 45.1% of the total market. In market (R) four major products have about 7% to 6% market share each. (Figure 4.2.2.1.3)

Italy is one of the biggest antibiotic markets in the world. With regard to anti-ulcer products, this is also the fastest growing market. However, the recent entry by Glaxo has apparently resulted in a cut throat price war. Tagamet is losing ground due to this price war, which is further compounded by the existing price war in generics. These generics are sold without any patent infringements.

4.2.2.1.4 U.K.

One of the smallest countries in the EEC in terms of sale of pharmaceutical products. Tagamet and Zantac were born here and subsequently spread over the world. Here, the assessment of products is very severe in terms of effectiveness and side effects. Therefore, an approval of a new product by the country means establishment of a world wide reputation, as Tagament and Zantac have demonstrated.

Tagamet has a 50.7% market share in market (A). In market (C) beta blockers have a big market. In particular, Trasico, Tenormin and Inderal have 12.1%, 10.8% and 10.6% market share for each. Market (J) is dominated by major three products in aggregate accounting for up to

70.0% of the total market. Ventolin is the market leader in market (R). (Figure 4.2.2.1.4)

4.2.2.1.5 U.S.A.

Tagamet has a 68.9% market share in (A). As in the U.K. beta blockers are well prescribed, Inderal having a 14.9% market share and Aldomet the next largest market share. In the U.K. also Aldomet's market share is substantial. The pattern of market (C) is similar to that of the U.S.A., in which beta blockers have a large market, and Aldomet being prominent. In (J) ten major products together have over 70% market share, (Figure 4.2.2.1.5).

4.2.2.2 Price environment

The price of pharmaceutical products is directly related to the economic state of the industry. The companies tend to push the prices upwards to absorb production costs and recoup high R&D expenditures, within the limits of national health budgets depending on the health care systems applied in each country.

On the other hand, from the governments' point of view, they try to reduce the budget for the pharmaceutical products as much as possible so that eventually they can reduce the costs for the health care system.

For the future, the EEC is attempting to unite member countries into a common market. However, it will take much time to formulate the ideas and to finalise the relevant laws to be implemented by each member country. EEC committee members will be making efforts to achieve this by the end of this century. Current price levels among EEC countries are compared in Figure 4.2.2.2.

4.2.2.2.1 West Germany

There is no direct government control of pharmaceutical price levels, but indirect government pressures on drug expenditures increased greatly since the establishment of KVKG (Krankenversicherungskostendaempfungsgesetz). In 1977 the government enforced an act to control growth in expenditure and to

improve the structure of the health insurance system.

Prescription drugs are subject to a highest level of VAT in Europe. The rate stood at 11% in 1977, 12% in 1978, rose to 13% from 1979 to 1982, and in 1983 to 14% in this country. This VAT must be included as one of the cost factors by the manufacturers.

In order to restrain the increase in drug expenditures, and make KVKG function effectively, the Concerted Action Committee (KAG) was established, which advises the government on the health care budget.

According to the Krankenkassen (German health care insurance body), they expect the annual saving from the negative list to be in the region of DM300M a year. Recently it was reported that they had called for a structural reform of the health care services in W. Germany and suggested a stronger and more direct control over spending by doctors and health care services.

With regard to monopolistic prices, which must be reduced in view of the health care expenditure control, the Cartel Office shifted its emphasis from price itself to the level of market dominance.

In 1978, regulations on price margins for pharmaceutical products became legislative. Mark-ups are graded from the basic manufacturer's price as shown in Figure 4.2.2.2.1.

4.2.2.2.2 France

Manufacturers have to submit the projected price of a product for consideration when applying for a reimbursable listing. Once a price has been set, any subsequent modification requires the approval of the Ministry of Health. Any increase over the listed price is only with the government's approval according to each individual contract.

The level of price increases depends on two main factors: 1) the rate of inflation and 2) its effect on company margins, and the growth of health insurance drug consumption.

Due to the slim margin for wholesalers, which has been badly eroded by inflation, several major wholesalers are in financial difficulties. This has caused concern for the industry since healthy distribution enables them to operate effectively.

The price increase has been discussed many times since Mitterand's take-over of the government. The increase is scheduled to take place twice a year, taking above factors into account. However, these negotiations have not been successfully concluded due, it is alleged, to the hostile attitude of the Health Minister towards the industry. The industry accused the government of ambiguous standards for awarding a contract to any single company.

The EFPIA (European Federation of Pharmaceutical Industries Association) reflecting on the EEC laws, urges a reform of the

French pricing system to bring it into line with Community principles.

The EFPIA pointed out that even though the French government claims pharmaceutical prices are free subject to reimbursement listing, they think their claim is groundless since 90% of the drugs are reimbursable.

Price levels are set arbitrarily and controlled by excessively strict price regulations, the EFPIA argues. The government used the "remove" technique from the reimbursement list as a way of penalising manufacturers who stray from the government guidelines.

With regard to new product pricing, there is increasing anxiety that the severity of the new product pricing has begun to cause delays in the launch of new drugs, which are caused by the prevailing delays and difficulties encountered by the pricing system. Where clear price levels are not obtained, the companies concerned are forced to delay the launch and negotiate a new price level with the government.

4.2.2.2.3 Italy

Pharmaceutical prices are determined by the Interministerial Price Committee (CIP) which takes into account the elements listed below:

1) cost of raw materials
2) cost of manufacturing labour
3) administrative costs and overheads
4) cost of promotion and samples
5) research costs and royalties at a fixed rate
6) gross profits at a fixed rate

The prices are currently under the EEC's scrutiny since these levels are roughly half those of the rest of the member countries. The Italian government has been trying to comply with the recommendation to raise the prices within the national budgetary limits.

According to a new Italian law regulating pharmaceutical reimbursement, the Health Ministry will have a greater influence on pricing policies. In deciding the prices of drugs, representatives from the Health Ministry have to participate as a full member of the CIP. They must participate in meetings of the Central Pricing Commission (CPI) and be given a key role in the establishment of a new pricing system.

The Italian drug registration system has been reorganised to comply with the requirements of the EEC. In this process they are catching up with the price levels of the other EEC member countries.

4.2.2.2.4 U.K.

Pharmaceutical prices are regulated by the Pharmaceutical Price Regulation Scheme (PPRS). The pharmaceutical companies are required to submit the Annual Financial Return (AFR), on which government and companies negotiate prices. The price negotiations will be mainly based on the four factors of investment in the UK, R & D expenditure, value added in the UK and export contribution.

For the year 1984, the government insisted on a big saving in National Health Services (NHS) in the region of £100M and there was a government proposal to reduce the return on capital from 21% to 17% and to reduce the promotion expenditure from 10% of sales to 8% so that these will effectively reduce the total NHS expenditures.

Finally, both parties agreed to reduce the return on capital to 17% but keep the 10% expenditure for promotion. The pharmaceutical companies were put under tremendous pressure with the reductions in NHS expenditure. However, the system for negotiation with the government is already clearly established, unlike that of France. This helping the industry to set up necessary strategies to cope with pressures from outside.

4.2.2.2.5 U.S.A.

Pharmaceutical product prices are not regulated by the government but by market demand and supply force. In the U.S. there is no integrated national insurance system, common with other countries.

At the retail price level, prices were increased by 12.2% in 1982 over 1981 and the producers' price level by 11.7% during the same period. The price increases of the pharmaceutical products are only one half of the average increase for all products over 15 years inspite of increase in the costs of R & D, and the long and tedious approval requirements imposed by FDA (Food and Drug Administration) and product liability insurance to protect the consumer.

4.2.2.3 Medical Environment

This section will examine the ways in which doctors in each country use pharmaceutical products in order to identify any differences of attitude towards the same disease.

We can identify such differences from leading theraputic categories, leading products, etc., which may suggest the prescription habit, medical attitude towards prescription drugs in general. This attitude is one of the decisive factors for pharmaceutical demand as a whole.

4.2.2.3.1 Germany

A particular aspect of the German market is that the prescriptions are concentrated on cardiac therapy and peripheral vasodilators, and this market is growing at a fairly high rate. As shown in Figure 4.2.1.1-1, the targeted market for Compound-B and Compound-C is substantial and the largest target in the EEC countries.

It is interesting to note that the leading product is an antidiabetic (Euglucon). This therapeutic category does not appear among the fifteen leading products, except in the U.S., in the examined countries.

The reason for the concentration of prescription drugs in the geriatric field reflects the age structure of the population: 16% of the German population is over 65 years old. Half of the pharmaceutical consumption is attributed to this age group. The structure of

prescriptions in 1982 was as follows:

antihypertensive	14%
peripheral vasodilator	10%
antianginals	7%
anticoagulants	7%
anti-arrythmics	7%
antidiabetics	7%
cardiac glycosides	6%
tranquillizers	5%
cerebral activators	3%
	66%

Anti-ulcer agent (Tagamet) is the second leading product, next to Euglucon. It is expected that the introduction of Zantac on the market will stimulate further expansion of the anti-ulcer market.

Antibiotics have a relatively small market niche in the country. However, in the hospital, beta-lactamase stable antibiotics are following a rising trend in usage.

The industry was recently criticised for not visiting paediatricians, gyneacologists and dermatologists in spite of the fact that these doctors regard company representatives as an important source of medical information.

4.2.2.3.2 France

As seen in Figure 4.2.1.2-1, the cephalosporin market is very small because the prescription is restricted to hospital use only. However, the market for antibiotics in general is ranked as the second largest product category, and the government's discouragement of the use of cephalosporine in general practice at present is the most significant feature of the French antibiotic market. Should the restrictions be removed then the cephalosporin market will expand rapidly within the limits of the national health budget.

In general in the EEC, the market for peripheral vasodilators and cardiac therapy is exceptionally large and this product range constitutes the major product class in these countries. Among the 15 leading products, six are the peripheral vasodilators with SKF's Tagamet as the market leader in terms of sales.

4.2.2.3.3 Italy

One of the leading categories is antibiotics, in particular cephalosporine which is expanding its market very rapidly even afer the launch of over 30 new products within this category in 1980 and 1981. This expansion was achieved at the expense of tetracycline which has several serious side effects as reported by various medical journals.

The competition in the antibiotics market, especially for cephalosporin, is very severe. Over fifty products compete with each other in this field.

A proposal included in the new Italian reimbursement system, would have put antibiotics into the category of drugs for which patients have to bear partial payment. However, this proposal was later ommited and this class of drug is fully reimbursed by the national insurance organisation.

Medical attitudes held by doctors can be expected to be highly influenced by this kind of regulation which is imposed for economic reasons. Tagamet is also a leading product in this country.

4.2.2.3.4 U.K.

The leading therapeutic class in the U.K. is antirheumatics followed by antibiotics and then beta blockers. However, the leading product is Tagamet, next comes Ventoline, which is an antiasthmatic produced by Glaxo and third comes the beta blocker.

A characteristic of the U.K. market is the relatively large market for antiasthmatic drugs. As seen in Figure 4.2.1.4-1, the projected sales for antiasthmatic drugs is greater than that of anti-ulcer and cephalosporin combined.

The U.K. medical profession has played a key role in world medicine and they has much influence in the field and made many contributions towards inventing new pharmaceutical products.

4.2.2.3.5 U.S.A.

In the US, analgesics, psycholeptics and antibiotics are the leading categories. Analgesics has remained the leading category though the growth rate is slowing down. With the well known Valium, psycholeptics come second. Valium has been the top product for a long time but it has been over-taken over by Tagamet in value terms.

The U.S. has one of the largest markets for cephalosporin and almost all of the leading companies with the exception of Roche, has cephalosporine as a major source of income because of its marketability in that country.

Among the 15 leading products, we find one anti-ulcer agent (Tagamet), one tranquilliser (Valium), and one analgesic (Tylenol). In the US market, even though it is a large market place, there is a relatively small number of products, which tend to dominate the market due to the strict regulations imposed by such bodies as the FDA. The control by the FDA over the pharmaceutical market influences the medical attitudes in the US.

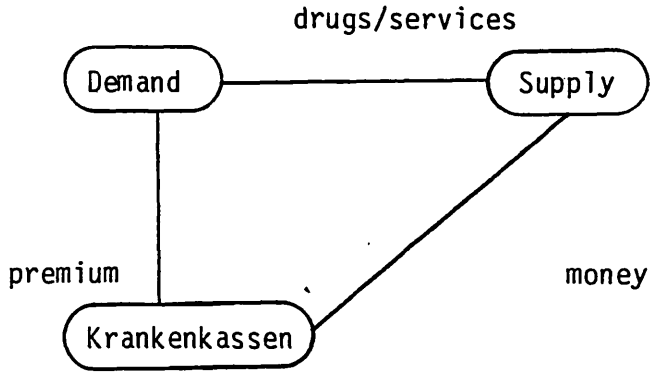
4.2.2.4 Reimbursement system and related topics

The reimbursement system directly influences the total consumption of pharmaceuticals especially prescription drugs. Each country has its own system of financing national health care depending on its political and economic climates. Regulatory aspects come into the reimbursement system as a control over the national health care budget. This controls the activities of the pharmaceutical companies as a whole because economically they are dependent on the system.

A new prescription drug has to be on the reimbursement listing before its launch. The new product has had already to get through various regulatory procedures as required by the government even at this preliminary stage. If the country has a National Health Insurance Price (NHI price), the company must negotiate this with the government and the price will then be listed, or if the country has no NHI price system the product will have to be listed upon receipt of its marketing approval from the government.

In every country, once the drug is added to the reimbursement list, the new product is subject to the national insurance system's budget constraint, which in many countries has become increasingly restrictive. This section describes the reimbursement systems and related topics.

4.2.2.4.1 West Germany



(Figure 4.2.2.4.1)

The characteristics of this system are:

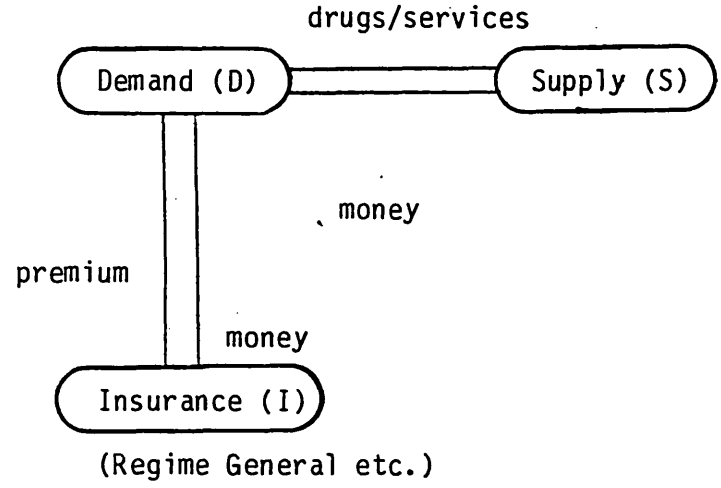
1; the demand side (i.e. patients) does not have to pay, instead it is the supply side i.e. pharmacy, medical institution, that will ask for reimbursement for the drugs/services through the National Insurance scheme, and the payments will be made directly to the supply side. Patients pay a premium based on their income rather then their consumption.

2; the product prices are unknown to the demand side. Therefore, it is commonplace for the medical profession to set their own service levels, thus a tendency arises to neglect the guidelines set by the national budget.

3; there is a propensity for increasing supply and demand unless Krankenkassen control the total health care budget. As expected, it plays a key role in the system regulating the total expenditures for this system.

Krankenkassen is constantly looking for measures to reduce the total healthcare cost, focusing on expenditure on prescription drugs, one such measure being the installment of the Negative List.

4.2.2.4.2 France

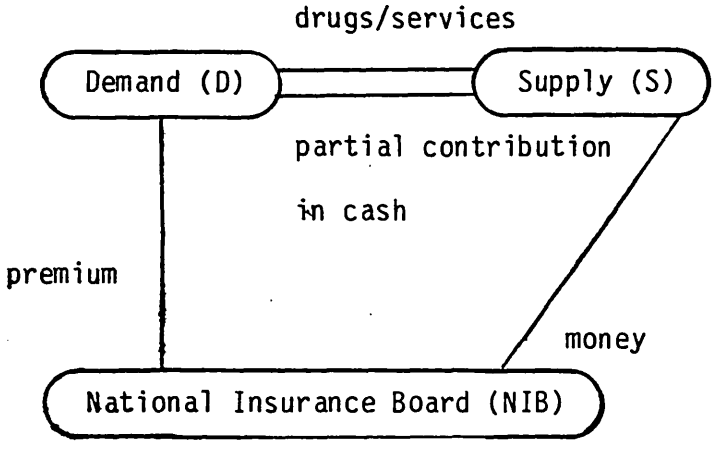


(Figure 4.2.2.4.2)

In this system, patient (D) has to pay all of the fee to (S) in return for the drugs/services and later he sends the bill to (I) to be reimbursed so that the patient knows how much he spent on the drugs and other medical services. This system seems likely to reduce total expenditure on drugs because of the deterrent effect of the patient's need to finance the purchase whilst awaiting reimbursement. In France, such a system is supposedly in common use. However, according to a recent report, it has been found that in certain areas this system has been abandoned, i.e. the pay-back system, and changing it for a system similar to the German one. The purpose is to reduce the burden on the patient of making the temporary payment.

In order to effectively reduce the supply of drugs the French government is proposing a new tax on promotional expenditure. The industry views this with grave concern since the French pharmaceutical industry is not well run due to relatively low reimbursment prices and relatively high pharmacy margins.

4.2.2.4.3 Italy



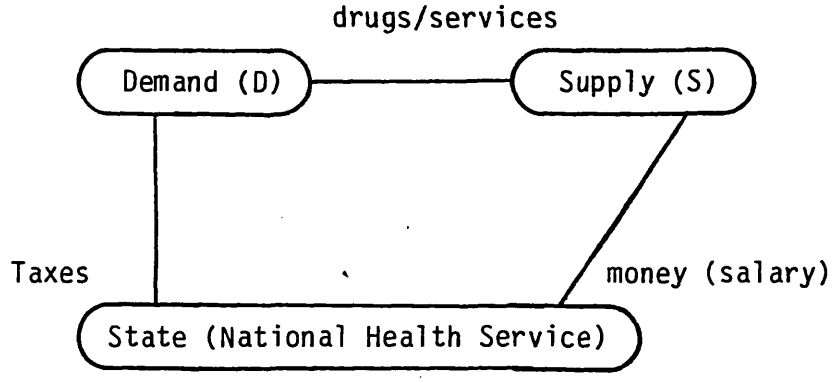
(Figure 4.2.2.4.3)

This system is similar to that of Germany, the difference is that the patient has to make a partial contribution to (S), the doctor, and the rest of the amount will be paid by the National Insurance Board to (S). The outlines of the new reimbursement is as below:

1) There is a list of priority products (1400)
   antibiotics
   anti-hypertension
   beta blocker etc.
   almost all the essential drugs are listed and fully reimbursed
2) For other products, the patient should pay 15% of the total drug cost
3) Lr. 1,000 to be paid by the patient per prescription
4) Total payment's ceiling is Lr. 10,000
5) The list to be updated at 3 - 4 month intervals.

During discussion of the new system, a negative list was also discussed. But this proposal was turned down. The new Italian system also provides a mechanism for more rapid introduction of new products to the reimbursement list.

4.2.2.4.4 U.K.



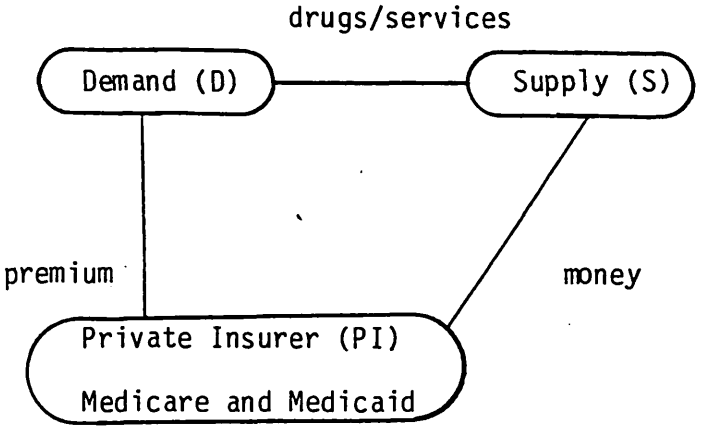
(Figure 4.2.2.4.4)

The characteristic of this system is that financing is made through taxes instead of an insurance premium. This means there is no direct relationship between taxes and services received. It is claimed that this system reduces incentives to the supplier to provide services and reduces the incentive to lower the demand.

As explained in the section on price attitudes in the U.K., the negotiation between the government and the industry over the reimbursement listed prices is based on the individual company's performance such as investment in the U.K., R&D expenditure, value added in the U.K. and export contribution.

It is claimed that this assessment procedure is a very clear-cut one. However, in periods of economic difficulty the constraints placed on the national budget force the government to restrict the budget for expenditure on pharmaceutical products. This is a grave problem because if there are no government guidelines to the future of the industry, the U.K. R&D based pharmaceutical industries will be at a disadvantage in relation to its foreign competitors.

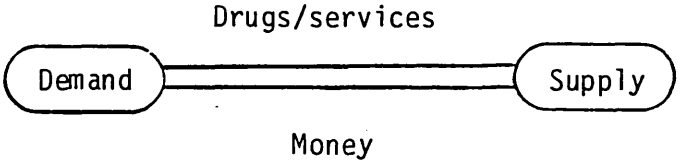
4.2.2.4.5 U.S.A.



(Figure 4.2.2.4.5)

The characteristic of the U.S. system is that they have no state run health care insurance organisation except for Medicare and Medicaid. Individuals have to apply to the insurance company for a private health insurance policy. Therefore, about 6% of US citizens have no health insurance at all.

There is no intervention by the government and this system is very similar to the classical situation as below:



To a large degree, the supply and demand is decided by the market mechanism because there is no national health insurance system.

With regard to a legislation, a patent restoration act is under discussion in the U.S. Congress. This derives from a concern by the industry that the U.S. pharmaceutical industry will decline unless the necessary measures are taken to keep the industry competitive and innovative. Major competitors have received governmental support aiming to stimulate the development of strong indigenous industries that can compete effectively against the U.S.

4.2.3 Summary of the demand analysis

This section will attempt to narrow down the range of possible forecasts of future sales for new products to a single figure based on quantifiable factors, i.e. past sales performance, by selecting the appropriate non-quantifiable factors such as those discussed earlier. The forecast may not be accurate, however, when the result is looked at in retrospect, i.e., by "looking down" the forecast curve from period future sales to our present sales figures.

The advantage of such an analysis is that the statistical extrapolation has a 95% confidence interval which includes future changes in sales figures. How we may use these ranges is solely dependent on the interpretation of all aspects of the relevant facts.

Subsequently, a brief review of the analysis will be made and the final values will be decided for the purpose of management decisions.

For the sake of simplicity, the forecasted values will be taken as either the upper bound, the middle or the lower bound. Once the market tendency is decided e.g. upper bound, it will be assumed that this will continue for the five years. A summary of the results is shown in Figure 4.2.3.

4.2.3.1 Germany

Market (A): Upper bound

Zantac's entry into the market has stimulated expansion of this market and probably subsequent entries will also boost the market up to 1990. The German market does not display an exponential growth curve as other markets. However, steady growth will be expected.

Market (C): Middle

This is the fastest growing and is already the biggest market in Germany. The potential growth will be very high but at the same time the competition is also severe unlike that of market (A), Tagamet. Krankenkassen will influence the level of sales through its regulatory pressures on the most prescribed drugs, thus driving the market to take the middle of the forecast figures.

Market (J): Middle

This market is the most unstable and is most likely influenced by the government's regulatory policies. Therefore, the market may grow or may stagnate. The market for cephalosporin will, through the development efforts of the multinational companies, follow the mid course between growth and stagnation. This may be explained by the fact that past sales figures had a large deviation. The most likely course for the future sales will take the mid course of the 95% confidence interval.

Market (R): Lower bound

This market is very stable and any new product development is not likely to boost the market itself. The safest estimate is thus the lowest.

4.2.3.2 France

Market (A): Upper bound

This market is growing fast and statistically speaking there is not much difference between the upper and the lower bounds. In view of the medical advantages of Tagamet and Zantac, this will take the course of the upper bound as they are likely to boost total sales figures.

Market (C): Lower bound

In general the French market does not have a prosperous outlook because of the government's hostile policy towards the industry. Even though the statistical forecast shows the exponential growth, in reality, estimated sales figures will stagnate because of the various aspects of disadvantageous regulations imposed by the authorities. The exponential curve already takes into account the growth potential of the market within the 95% confidence interval, however the hostile climate pushes the forecast curve downwards. Therefore, it will take the lower bound.

Market (J): Lower bound

This is the smallest segment in the investigated markets and its fluctuation is much affected by the government's continued policy changes. This erodes market confidence and thus sales figures follow the changes most likely value, i.e. the lower bound.

Market (R): Lower bound

This expands exponentially and probably takes the lower bound.

4.2.3.3 Italy

Market (A): Lower bound

Market (C): Middle

Market (J): Middle

Market (R): Middle

As a whole, the Italian market is being revitalised through the installment of the new system for national health care. The average growth rate per year is expected to be over 18% during the course of the 8 years forecast. Because of the high growth rate during the past 5 years the statistical forecast shows an exponential trend towards 1990 and at the same time the 95% confidence interval has an uncommonly wide range for all of the markets investigated.

Although the 95% confidence interval indicates that an upper bound sales figure is possible, the market itself cannot sustain higher rates of growth. On the other hand government regulations may depress the sales figures toward the lower bound. Overall, the new reimbursement system and the new policies introduced to facilitate the launching of new products, will cause the forecast curve to take the middle course, except for market(A) due to its high exponentiality.

4.2.3.4 U.K.

Due to the unavailability of data for the U.K. markets we are forced to use only two year data over the years 1980 and 1981. However, as long as we have two points to fix on the graph we may extrapolate the curve to indicate the future course of behaviour of the market.

In view of this data unavailability, we cannot expect too much from this analysis. In addition, inflation was in double digits for these two years. This inflationary effect has undoubtedly distorted the growth rate.

Although the data are unreliable, in practice, management has to make decisions based on such data as are available. In this case and in view of the double digit inflation, we will take the lowest course of growth.

Market (A): Lower bound

Market (C): Lower bound

Market (J): Lower bound

Market (R): Lower bound

4.2.3.5 U.S.A.

A rigourous economic recovery has been noted since February 1983 by the economic journals and according to the Time magazine's estimate made in the January 30th issue, the real growth rate for 1983 was 6.0 percent and currently it is 7.6 percent p.a. (July 1984)

This is a substantial recovery from the economic slump which the U.S. had been suffering for some time. This recovery is welcome to the pharmaceutical industry since the performance of the industry as a whole is more sensitive to the economy than in the rest of the coutries under scrutiny due to the demand and supply relationship in the health care system of the US.

Market (A): Upper bound
Market (C): Upper bound
Market (J): Middle
Market (R): Upper bound

All of the markets except Market (J) will be in the Upper bound. Due to excessive fluctuation in Market (J), this market will be expected to take the Middle course.

4.3 Sales forecast

4.3.1 Major countries (W. Germany, France, Italy, U.K. and U.S.A.)

Once the demand forecast for each new product is completed, we have to proceed with estimating market share so that eventually we can get a sales forecast for each product during the period of the corporate plan.

The target market share will be decided by taking into account several factors such as product marketability, distribution channels, the sales force, etc. In formulating the sales forecast, assumptions inevitably have to be made but these should in all cases be reasonable.

Through the executive decision-making processes, the policy adopted for the products' market shares should be finalised. Tentative steps are taken towards formulating a market share policy as below:

TO CAPTURE 50% OF THE LEADING COMPETITOR'S MARKET
SHARE IN FIVE YEARS FOR EACH OF THE NEW PRODUCTS
EXCEPT FOR COMPOUND-A

We can illustrate this policy through the example of Compound-B in Germany. The direct competitor and leading product is "Adalat", whose market share in Germany is 5.1%. In order to achieve the target share in 5 years, then a market share of 2.5% should be attained (Figure 4.3.1-1).

With the exception of Compound-A, the market share for all four new products was determined using the above method. The resultant shares over the eight year plan period are shown in Figures 4.3.1-3 and 4.3.1-4.

The next step is to fix the launching dates for each product in the prospective markets. The sales forecast in local currencies (Figure 4.3.1-6) is obtained from the combination of the demand forecast (Figure 4.3.1-2), market shares (Figure 4.3.1-3 and 4.3.1-4) and launching dates. The sales forecast in local currencies (Figure 4.3.1-6) should then be translated into Japanese Yen so that the management is able to relate international sales to domestic sales.

In order to get the Yen value of sales, we prepared two currency tables, one for a 'most likely' exchange rate (Figure 4.3.1-7) and the other for the expected lower bounds (Figure 4.3.1-8).

The sales forecast in Yen (Figure 4.3.1-9) is calculated with the currency translation table (most likely) (Figure 4.3.1-7). One of the problems which MPCs have to face is curency fluctuations. A rough estimation of the impact of currency flutuations on sales revenue will be made by the formula in Figure 4.3.1-12.

With the weighted average of currency fluctuation, we can estimate the decrease or increase in sales revenue. The currency translation for the table for lower bound (Figure 4.3.1-8) figures will be used for this purpose. We can estimate how profits and losses will be affected by the fluctuation, $\bar{x}$ being multiplied by the sales objectives.

Figures 4.3.1-9 and 4.3.1-10 show the results of the sales forecasts. The sales figures are expressed as net sales of final goods. (Figure 4.3.1-10 at rounded in 100M).

At this stage we need to make certain assumptions before proceeding with our forecasts.

Assumption 4.3.1-1(A):

During the period of the company's corporate plan up to 1990, the company exports active ingredients for its new products under licensing agreements, which would eventually lead to forming JVs with the licensees.

Assumption 4.3.1-2(A):

The cost of the active ingredient is 20% of ex-company price (net sales) of the final goods. This means that 3,267 (Yen 100M) will become 653.4 (Yen 100M) in terms of the price of the active ingredient. More accurately this is CIF (Cost Insurance and Freight) price. A model of the cost break-down is as below:

Net sales	100
Cost of goods sold	35
Production	10
Material (CIF)	20
Import duties	5

Assumption 4.3.1-3(A)

The figure of 20% for CIF cost comes from the model of the cost break-down and is taken to be the same for all 5 products listed previously. This is a major assumption which will be applicable to each new product. The cost break-down differs from one product to another in practice. When the company makes a detailed corporate plan, this assumption may be relaxed and through more accurate internal information the company achieves improved corporate planning.

The sales forecast obtained from the active ingredients in major countries (Figure 4.3.1-11) is based on the assumptions made in 4.3.1-1(A), 4.3.1-2(A) and 4.3.1-3(A). The total (rounded) in Figure 4.3.1-11 shows the value of sales forecast at CIF price.

4.3.2 Domestic (Y)

Data for 7 years from 1976 to 1982 are used for projecting the sales from 1983 to 1990 for the period of the corporate plan. Linear type and exponential type of linear regression analysis are made and the exponential form is selected because it yields a higher value of the corelation coefficient (r).

We can introduce an assumption at this stage to decide which course the sales will take in Figure 4.3.2-1. The company wants to expand domestically at the double digit rate of growth. This indicates that growth should be 10% or slightly more (see Figure 4.4-1). Among the three courses, lower, middle and upper, the middle course will satisfy the requirement. At this stage, the sales objective in terms of the domestic market because a corporate objective as an assumption in this case is taken into account.

4.3.3 Sales forecast in total

Sales forecast in total (Figure 4.3.3-1) is produced from our sales forecasts in major overseas countries (Figure 4.3.1-11) and our sales forecast in the domestic market (Y) (Figure 4.3.2-1).

Therefore, Figure 4.3.3-1 is the final result of the sales forecast from which figures are incorporated in the corporate accounts, incomes statements, etc.

4.4 Sales objectives

It has already been decided to use two ways for determining the sales objectives: Top Down Method (TDM) and the Bottom Up Method (BUM).

TDM: Under normal practice, the company first sets the annual rate of sales growth, say, 10% or 15% and the annual profit growth rate of 10% of 15% and the annual profit growth rate fo 10% or 15% over the next few years. This gives us simple and clear corporate objectives. However, in itself this does not take into account market movements.

BUM: In order to closely examine market conditions, we have to undertake market analysis, especially on the market segments pertinent to each product.

From Section 4.2 to 4.4 a product market analysis set the expected market share for each new product, however subjective this might have been. From this we produce sales objectives.

TDM and BUM should be used as complementary tools for forecasting future international sales. TDM shows that there is a time limit for reaching the company's corporate objectives. This automatically implies that the market conditions should be included but not solely in an analytical way. BUM purely analyses the market regardless of the corporate intentions.

4.4.1 Corporate objectives

Demand analysis and sales forecasts have given us some insight into how the markets move and how much the company will be able to sell of its products internationally in major countries such as West Germany, France, Italy, UK, and USA.

The method of this analysis is called BUM. This considered only the market conditions regardless of the company's "will" and internal capabilities, whereas the company's own corporate objectives must take into account the future course of market movements. These objectives are very important and show the company's "will".

As shown in Figure 4.4-1 the corporate objective of internationalisation can be expressed in terms of the sales intended ratio of domestic to international markets. In Figure 4.4-1 the sales ratio in the international market is 20% or more.

According to Figure 4.3.3-1 the sales ratio in 1990 is 76% to 24% in the domestic and international markets respectively. Therefore, we make an assumption that the company uses this ratio as a corporate objective. (Assumption 4.4.1-1(A)).

The first objective in Figure 4.4-1 is sales growth in the domestic market, and this has already been discussed in Section 4.3.2. The second objective regarding internationalisation is the sales ratio of domestic to non-domestic markets. The ratio of 80% to 20% in domestic to non-domestic markets is the same as that of USA during the 1960s. A

big MPC like Merck in the US started their internationalisation in the 1950s and attained a 20% ratio in about 10 years. However, following the procedures already successfully demonstrated by earlier MPCs, a Japanese company should be able to internationalise more rapidly and a corporate objective of 76% to 24% would not be unrealistic.

The Swiss MPCs have a very different pattern, 30% in Europe and 45% in the US in 1981. The Swiss MPCs were born international since they had from the outset to export their goods overseas due to their small domestic market. They knew that the US market was essential. However, the US MPCs concentrate more on the US market, so for the JPCs in the US model will be more suitable than that of Switzerland as an example of internationalisation.

The important underlying assumptions for the corporate sales ratio of 76% to 24% are the Assumptions 4.3.1-1(A) and 4.3.1-2(A). This company is able to follow a licensing policy up to 1990, as a prelude to a JV set-up. This assumption will also include the possibility of constructing a new pharmaceutical and/or chemical plant somewhere in the world. The new products will be distributed through the licensee's marketing channels. With these assumptions the company can bypass for the time being the most important and difficult question of how to organise and execute the marketing of the new products.

The results of the sales objectives are summarised in Figure 4.4-1.

4.5 International Expansion Strategies

As shown in Figure 4.5-1, without internationalisation the company's sales growth will follow the line shown for 'no policy change'. In contrast, the dotted line represents the company's sales objective, which relfects corporate objectives and strategies, including the impact of the intended internationalisation of the business.

The difference between two sales figures for the particular year of 1988 (A in Figure 4.5-1) should be diminished or, at best, eliminated by corporate strategies. These are considered in Section 2.5 as international expansion models. In this section these will be discussed in more detail for a specific corporate planning period.

4.5.1 Master plan

The first five years of the master plan is called the "preparation period". During this period a set of stretegic options are open to the company for consideration and through analysis the best option may be chosen for future growth. This choice is always provisional since environmental changes will always call for appropriate revisions. Such a course of action is particularly likely at the preliminary stage, since the plan is still in its initial stages and the commitment to it is not great.

4.5.2 Strategy options up to 1990

In Section 2.4 on international expansion models, Figures 2.4 , 2.4.1-1, 2.4.2-1, 2.4.2-2 and 2.4.2-3 showed a series of strategies open to the company over a 20 year period. However, in this instance, the planning period has been "concentrated" to the year 1990; and options are examined, as it were, under the enlarged view of a magnifying glass in that this is a medium-term view of what should be happening to the company over the coming 8 years.

Assumption 4.3.1-1(A) in Section 4.3.1 on the forecast of international sales stipulates that after the company has licensed its new products, joint ventures may subsequently be formed with the initial licensees.

If this assumption is treated in strict terms, the strategic options are very narrow: licensing followed by Joint Venture. However, in reality, this is unnecessarily restrictive and a wider range of options may be considered. The series of strategic options to be considered up to 1990 are as follows:

Strategic Option One (SO1) A + A'

(JVs in USA and Europe)

This option is very similar to Assumption 4.3.1-1(A) concentrating on a single partner in the US for a JV and forming JV/JVs in Europe.

The advantage of this option is that the company secures, through an appropriate choice of partner(s), access to distribution channels and

local 'know-how'. Success is, however, dependent on the wisdom of the initial choice, on the form of the partnership and on successful conduct of the partners' working relationship. Once formed, it may be difficult and/or expensive for the company to withdraw from the JV should the partner prove to be unsatisfactory.

Strategic Option Two (SO2) A + B'

(JV in USA and MI*TO in Europe)

In the USA, this option has the same effect as SO1. In Europe this option introduces a different strategy which continues the licensing policy and leads to Minority Interest and Take-Overs. Therefore, during the licensing period the company has to look for a possible Minority Interest and Take-Over target.

Compared to the JV option, this alternative of licensing will require an accelerated development of internal capabilities since in the case of JV the company can rely on the partner's internal capabilities to a large extent and can take time in building up its own.

Strategic Option Three (SO3) A + (A' + B')

(JV in USA and JV+MI*TO in Europe

This is a variation of SO1 and SO2 for operation in Europe, while fixing the US course of action.

The advantage of running two strategies independently is that the company can place the emphasis on the JV for its international expansion and can use the other as a supplementary option. Strategy B' will be used as a positive stimulation to the JV. Within this

framework of strategies the company is able to do more than that without B'.

The problem the company has to face is that in Euroe there are four major national markets and if they set up four JVs in each country and four licensees as well, they will have to make provision for 32 new ventures. This would be too many considering the current internal capacities. Therefore, they can take only one JV partner or two at the most, and one or two influential licensees to supplement the JV operation.

Precise and detailed studies will be needed to achieve a successful A' + B' combination. As explained, this will entirely depend on the new products and/or compounds which are being developed in the R & D pipelines of the company.

Strategic Option Four (SO4) (A + B) + A'

(JV + MI*TO in USA and JV in Europe)

As illustrated in Figure 2.4.2-2, this option sets the operation in Europe as in SO1 and considers Strategy B for USA. The US may be considered as a single market and could be dealt with by one JV and 2 licensees at the most to avoid the customers' confusion about the company.

Strategic Option Five (SO5) (A + B) + B'

(JV + MI*TO in USA and MI*TO in Europe)

This is the variation on SO2 as illustrated in Figure 2.3.2-3. The problem the company has to face, as suggested in SO2 and SO3, is the management of the complex situation is Europe. In the case of licensing, the company has to take into account the possibility of MI*TO, which leads to an evaluation of licensing as a possible step to merger/acquisition.

Strategic Option Six (SO6) (A + B) + (A' + B')

(JV + MI*TO in USA and Europe)

This is the final option. The purpose of this strategy option is to focus on the JVs in USA and Europe. In addition, licensing and eventual MI*TO will help the company take its own intiative in deciding the course of internationalisation, while not entirely depending on the JV's partners.

4.5.3 Discussion

As previously described, the sales objective curve (Figure 4.5-1) takes into account such environmental factors as the competitive situation, price attitudes, medical attitudes and government aspects and is then extrapolated. The "no policy change" curve is drawn by way of simple linear regression.

In Figure 4.5-1, the domestic sales curve itself reflects the "no policy change" company operations. While the "Corporate objective" curve is the path set out by the company for its further sales in the global overseas market. Thus the gap which appears between the two curves is the area to be covered by the company's international expansion strategies.

The critical factor for international expansion strategy (IES) is "New Products". The internationalisation of a Japanese pharmaceutical company is conditional on the productin of new original and world marketable products.

For the purpose of this planning exercise, five new producs have been selected as having worldwide potential market. The assumption underlying IES is that the process of internationalisation would be supported by licensing, i.e. international sales will only succeed if suitable licensees are found in each international "local market".

However, licensing is not sufficient to fulfull the need for improved "marketing knowledge" in achieving internationalisation. Such an

arrangement does not give the company the opportunity for direct contact with government agencies or access to the wholesaler market, or information flows vital to their expansion requirements. Basically the company lacks first hand information and must rely on the full cooperation of the licensees.

According to the company's business expansion strategy, the final goal would be towards a 100% owned subsidiary. However, a licensing operation would not afford this opportunity. Hence it is logical to choose a JV and/or MI*TO, seeking a partnership that would satisfy the need left unfulfilled by a licensing agreement.

Among the six alternative strategy options, SO6 has the widest variety of choice though its management will be complicated. During the first five years it is better for the company to keep a few strategic options open so that it can change from one to the other depending on the situation. This needs a relatively well organised strategy group like a Strategic Business Unit (SBU). This constantly keeps an eye on the strategic issues and seeks to take full advantage of any changes in the company's internal situation and the external environment.

4.6 FINANCIAL ANALYSIS

4.6.1 Proforma Balance Sheet

In this analysis, the balance sheet items in Figure 4.6.1-1 are examined. Items that are variable with respect to sales have been simply calculated using percentages assuming the financial structure to be stable. In practice, it tends to change depending on the company's investment programmes and its financial policy. Nevertheless, the method shows how the balance sheet would look when sales increase under a stable financial structure, and in doing so may point out the need for changes in structure.

Assets

On the assets side the non-variable items are 'Investments' (holding securities of other companies) and 'Others' (small items in Current Assets). Investment should be based on the decision made regarding the investment project, Minority Interests, etc. Others are negligible. In the case of fixed assets, investment decisions should precede sales so that the company can prepare for the product launch. This requires large amounts of fixed assets for production and distribution prior to product launch, expenditure on R & D will normally be required.

Figure 4.6.1-2 was obtained by the methodology explained in Section 4.1.6.1 which is "Percentage-of-Sales" (POS) method. In deriving these figures, 4 years' actual financial results from Yamanouchi are used to give average percentages. Therefore, the numbers in Figure 4.6.1-2 are the results of extrapolation of 4 year records.

In commenting on the results of Figure 4.6.1-2 the methodology of the financial ratio analysis (Section 4.1.6.5) can be applied and a comparative study with MPCs such as SKF, Merck and Glaxo will be made since Figure 4.6.1-2 assumes that the financial structure is stable, and therefore that the financial ratios are also stable. This assumption of stability may be invalid for a company in transition to an international structure. Reference to Figure 4.6.5-1 will be made for the following discussion.

In current assets, stock control in Yamanouchi is maintained very well compared to that of MPCs. However, debtors management of Yamanouchi is a little poor. This can be seen by debtors turnover, 2.53 for Yamanouchi and 5.34 for Merck, 91 days for Glaxo and 145 days for Yamanouchi. It takes Yamanouchi twice as long as SKF and Merck to collect its debts. Yamanouchi's long debtor collection period may be caused by local practice. This will have to be investigated.

The current ratio of Yamanouchi is almost the same as that of SKF and those of Merck, and Glaxo are less than that of Yamanouchi. Acid test which is produced by deducting stocks from the numerator of the current ratio shows 2.22 for Yamanouchi and 1.28 for Merck. Due to good stock control, Yamanouchi's difference of current ratio from the acid test is less than those of Merck and others.

The current ratio, which is over 2.0 is thought to be a good level. However, recent thinking favours a figure of 1.5 as for cash management. The higher figure of acid test for Yamanouchi may be because of its higher cash level.

Liabilities

In liabilities, trade creditor management is very crucial in view of working capital management. A trade creditor, for Yamanouchi, is better than a debtor. The collection period from a debtor is 145 days and the payment period to creditor is 74 days.

However, if we compare it to the others in Figure 4.6.5-1, payment period by SKF is 21 days, 47 days by Merck and 67 days by Glaxo. Yamanouchi's is 74 days. The company still has to improve its ratio to reach the level of the multinationals.

The most important items in the balance sheet in terms of long-term planning are the ordinary share capital, long-term loans and retained earnings. These items are called "Capital Employed". With regard to these, the company has to decide which type of funding to use, share capital or long-term loans. The retained earnings item itself comes from the profit and loss account and is a major source of funds.

At this point we have to consider the sources available for external funding. The capital employed for each year is shown in Figure 4.6.1-2. As already explained, this is worked out using the percentage-of-sales (POS) method. In the long run, the percentage should change because the requirements for fixed assets will differ from one year to another. Once the company constructs a relatively big factory for a new project start-up, the requirement for internal and external funds will increase regardless of POS in the past. Share capital (SC) and loan capital (LC) are the major sources of external

funding. The following are the advantages and disadvantages of each source.

Ordinary shares

Advantages

1) No fixed charges are attached to ordinary shares, thus no legal obligation to pay dividends when short of earning.
2) Ordinary shares carry no fixed maturity date.
3) Ordinary shares provide a cushion against losses for creditors, thus the sales of ordinary shares rather than other securities increases the credit worthiness of the firm.
4) Ordinary shares can be sold more easily than debentures.

Disadvantages

1) Sale of ordinary shares dilutes the voting rights of existing shareholders
2) The issue of ordinary shars gives more people a share in profits
3) The cost of underwriting and distributing new issues of ordinary shares are usually higher than those for preference shares and debentures.
4) If the firm has more equity or less debt than is called for in the optimum capital structure the average cost of capital will be higher than necessary
5) Dividends payable to ordinary shareholders are not deductible as an expenses for the purpose of corporation tax but debenture interest is deductible.

Loan capital

The decision to use loan capital rather than equity is based on a judgement of the balance of advantages and disadvantages for the company at the relevant time.

Advantages

1) the cost of debt is known. The debenture-holder does not gain from any unexpected profits.
2) the expected yield is lower than the cost of equity capital
3) there is no dilution of equity capital
4) the interest payment on debentures is tax deductable

Disadvantages

1) debt is a fixed charge. Despite fluctuations in profits, the company's committment is unchanged.
2) increased gearing brings higher capitalisation rates on equity earnings.
3) debentures usually have a fixed maturity date.
4) long-term debt is a commitment for a long period; thereby enhancing risk.
5) there is a limit to the extent to which funds can be raised through long-term debt imposed by the company's perceived credit-worthiness.

4.6.2 Income statement

The annual sales growth for Y is a constant 17% from 1982 to 1990. All items in the income statement are increasing in proportion to sales expansion. The sales revenue for 1990 is three times that 1982 (Figure 4.6.2-1).

As discussed in Section 3.1.2. and shown in Figure 3.1.2-1, the company's unit production costs are relatively higher than those of the MPCs and this is not explicable in terms of higher depreciation costs. In order to compete with the MPCs, Y has to reduce production costs to their levels since product superiority is unlikely to be permanently sufficient to compensate for higher prices.

Selling, general and administration expenses (SGAE) in the proforma income statement show how much the company will be able to use for marketing and R & D and general administration. Marketing and R & D costs are especially important. The funds allocation between marketing and R & D is a matter for strategic decisions. Cost management has an obvious and important effect on the level of profits.

4.6.3 Funds flow statement

In this case (Figure 4.6.3-1), working capital tends to be large in comparison to the use of funds because of the increase in current assets and debtor and cash management should be closely examined as suggested in Section 4.6.1.

In Figure 4.6.1-2 the valule of depreciation is netted out and is shown in brackets. Depreciation provisions are one of the sources of funds and this should be treated as the major factor, whilst the company pension fund (retirement) is also an important source of funds, unlike in European and American MPCs.

With regard to ordinary share capital and long-term loans, the amounts shown in Figure 4.6.3-1 should be funded externally up to 1990. The advantages and disadvantages of external funding were discussed in Section 4.6.1.

The outstanding feature of this statement is that the amount of long-term funding is very small as a source of funds since funding from operations will largely suffice. We can, therefore, deduce that if funds from operations, i.e., net income, is not sufficient for long-term investment, the company can issue ordinary share capital and/or use long-term loans.

4.6.4 Cash flow analysis

Figure 4.6.4-1 is constructed by the method described in Section 4.1.6.4., cash inflow and cash outflow are identified by their net effect on the cash position.

Cash inflow increases rapidly when the new products are launched in 1986 and onwards. This is largely due to the increase of net income. If, as suggested in Section 4.6.1 and 4.6.3, debtor and creditor management is improved, cash inflow from operations will increase. As outflow factors, at least four items are listed. Although these figures are not obtainable from the published accounts they can be identified and more accurate cash flow analysis will be carried out.

4.6.5 Financial ratio analysis

Financial ratios show the performance and financial status of the company over a period of years in ways which allow comparison with other companies.

In Figure 4.6.5-1, the financial ratios for each company (SKF, Merck and Glaxo) are averaged out over ten years. Figure 4.6.5-2 shows the averages for the three MPCs. These ratios can than be used in constructing models for the purpose of comparison with Yamanouchi (Y).

In Figure 4.6.5-4, the proforma balance sheet for 1990 is based on the financial ratio model of Figure 4.6.5-2. The starting point of this calculation is sales revenue. Based on this model, total assets, fixed assets, stock, debtors and creditors are estimated whilst on the liability side, equity and capital employed are also estimated. Finally cash and accrued expenses and short-term loans are obtained.

All three MPCs have over 30% return on equity in comparison to Y's 12% whilst return on capital employed and sales of Y are also relatively low. In Figure 4.6.5-5, MPC's costs of production, marketing and administration, and R & D are compared with those of Y. How Return of Sales (ROS) of Y can be improved will be discussed below.

In looking for an explanation for the lower level of ROS achieved by Y, the most conspicuous difference to be observed between the two MPCs and Y is the cost of production, i.e., 38.7% for Merck, 36.1% for SKF and 44.2% for Y. If Y can reduce this by the equivalent of 4% of sales Y's ROS will then be over 10%. However, it would be very difficult for Y to reduce the rate of production cost by 4%. This being so, they may aim to reduce cost of production by 2% and others by 2% because marketing and administration cost is already at the same level or lower than that of MPCs and it would be unwise to reduce R & D expenditure in view of the importance of producing new products. Alternatively, Y could look to an increase in sales revenue to raise ROS since significant items in the cost total will be fixed (in relation to sales levels) over wide ranges. Subsequently the more detailed analysis of fixed and variable costs should be made to identify reducable elements.

Proforma Balance Sheets for 1990 by Financial Ratio Analysis (FRA) and by Percentage-of-Sales (POS)

Figure 4.6.5-4 shows the results of FRA and POS methods. Figure 4.6.5-2 may be thought of as an industry average of the pharmaceutical companies. In our case it may be considered to be a standard of MPCs. Using the ratios shown in Figure 4.6.5-2, FRA-1990 in Figure 4.6.5-4 is constructed. POS-1990 is from Figure 4.6.1-1.

Current assets: Cash in FRA-1990 is twice that found in POS-1990, suggesting that Y can be run with less cash when it becomes an MPC. Debtors should be reduced to half of POS-1990. Implying the need for more strict debt management.

The Japanese debtor turnover might be different from those overseas. Y's stock control is excellent and must have already been reduced to its limits.

Fixed assets: From the standard for MPCs, fixed assets will need to be increased.

Current liabilities: A feature of this is the level of trade credit in FRA-1990, which is half that of POS-1990. Creditor management by MPCs is better than that of Y.

Capital employed, (long-term loans, retained earnings and ordinary share capital): Figure 4.6.5-4 indicates that Y can be run with less capital employed.

Overall, from the standard of MPCs, the company can be managed with less assets and liabilities in general. However, what we have to take into account is that debtors, stocks and trade creditors are all dependent on what is normal practice in the local markets, whilst Y's past records cover only the Japanese market.

4.6.6 Discussion

We have constructed accounts for Y up to the year 1990 based on "Percentage-of-Sales" (POS) method, which has the shortcoming of not taking into account structural changes within the company. In practice, this might be overcome by incorporating the effects of intended strategic programmes into the calculations. As a whole the POS method is a simple and practical tool for constructing future accounts. Many companies use this method for this purpose.

We have seen some of the implications and we have attempted a few interpretations of these accounts from Section 4.6.1 through to Section 4.6.5. At this stage of the discussion it is advisable to use a simple method for measuring the requirements for external funding.

The method described below provides a rough but important set of guidelines for the process of formulating policy. After options have been chosen, more detailed information is gathered. The formula is shown in Figure 4.6.6-1 and an example is shown in Figure 4.6.6-2. The example shows that the company needs 22.5 (Yen 100M) in 1983 and 188.7 (Yen 100M) in 1990.

4.7 Discussion

In Chapter 4 a basic corporate plan was drawn up using the methodologies described in Section 4.1. Quantitative demand analysis with a forecasting range defined by a statistical method, was attempted. This demand analysis took into account non-quantifialbe factors. The sales forecast and objectives were then determined and strategy options were considered for the corporate planning period, based on long-term international expansion models in Section 2.4. We concluded the study with a projection of the important financial dimensions of the company.

In practice, several other methodologies should be contemplated to give greater support to the results and greater commitment by the company. For example, the sales forecast for the domestic market was carried out using a simple linear regression model (time series), not taking into account relevant non-quantifiable factors. In practice this method could be improved. Also the forecasting model for the major countries in question may be improved by taking into account at a more detailed level the medical and pharmacological advantages of a product, a product's competitive edge, etc.

However, in this analysis, the underlying philosophy with regard to methodology is the "Principle of Simplicity" as described in Section 4.1.1. This principle requires less sophisticated methods and is more cost and time effective. All the methodologies employed in Section 4.1 were selected according to this principle.

The assumptions made before we proceeded with the construction of the corporate plan, should be checked and tested in line with the progress of business, since this plan was made under circumstances of inadequate information. These assumptions may be naive and fragile and sometime ignore business opportunities.

However, in constructing a corporate plan we need such assumptions to accommodate inevitable uncertainties. Above all, this study will be used only as a preliminary and provisional plan within which assumptions can be redefined or can be relaxed according to the company's understanding of the situation.

For example, the financial analysis should have included several strategic programmes, which would require a huge amount of investment. However, in this case, such considerations have to be left for another study, and it will be very important to include these assumptions for decision purposes.

Following the acceptance of the corporate plan, action programmes should be instigated for R & D, manufacturing, marketing, human resources and administration. Major investments among these functions should be identified and be implemented in the financial analysis such as the balance sheet, income statement and especially the corporate cash flow statement to establish how investments may be financed. Therefore, several revisions of the accounts will be needed.

With improved methodologies, assumptions and data the corporate plan will become one of the strategically important tools.

CHAPTER 5 LONG-TERM STRATEGIES FOR INTERNATIONAL EXPANSION

5.1 Acquisition

In Sections 2.4 and 4.5, the subject of acquisition was discussed as a strategic option within the framework of the 8 year and 20 year corporate plans.

This section will consider the practical aspects of the the implementation of an acquisition programme, i.e. how the company may acquire the appropriate company or companies for international expansion, and what advance preparations are required before we may proceed with this operation.

As seen in Section 2.2, Merck and Lilly embarked on their internationalisation through acquisitions in their pharmaceutical divisions. Merck with Sharp and Dohme and Lilly with Dista were famous examples of successful amalgamations. Acquisition is a very common practice in European and American business communities, though not so common in Japan, where 'Minority Interests' acquisition is more likely. This may be due to the differences in business climate.

Acquiring minority interests in the Japanese business context implies that the acquiring company leaves room for autonomy for the company whose shares it has acquired. This makes the acquisition more acceptable to the subject company.

This may not be so readily accceptable in Western countries and

therefore adaptation of the acquisition strategy to reflect the different behaviour of companies in different countries will make the exercise much easier in practice.

At this stage, it should be pointed out that we are dealing only with related acquisition, i.e. within the company's existing line of business and therefore that the acquisition is planned as a part of corporate development strategy rather than followed ony opportunistically.

There are several types of acquisition, vertical, horizontal, market-related, and technology-related. A vertical acquisition normally involves the acquisition of a company which is either upstream or downstream of the acquiring company's principal activity. A horizontal acquisition is normally of a company at a similar level in the stream of activities. A market-related acquisition is a particular case of vertical acquisition since it is expected to provide marketing expertise or tangible marketing assets, for use in conjunction with existing products or production processes. In all such cases, the acquiring company would look for synergistic benefits although in some instances the major expected benefits may arise from increased market dominance.

A company such as Yamanouchi which has adequate strength in production and technology will be looking mainly for appropriate market related acquisitions principally to give the desired access to overseas markets. The process of acquisition will be described in terms of the following steps:

1. corporate strategy
2. acquisition objectives
3. acquisition screening approach
4. company evaluation
    a) strategic evaluation
    b) financial evaluation
5. negotiation
6. post-merger integration

5.1.1 Why acquisition?

In contemplating the overall internationalisation of the company, we may also think of it as the internationalisation of the separate functions of the company within the organisation, i.e. the internationalisation of R & D, production, marketing, administration, finance and human resources.

If we make the assumption that, like Yamanouchi (Y), a company has already several world marketable new products in its R & D pipeline, then sufficient R & D technology must have already been accumulated to meet the demands of international expansion. While the new product is still undergoing R & D, pilot plant feasibility studies will indicate whether the company should proceed to large scale production. If the company then has sufficient existing production capacity for these new products in their intended volumes, then the production department also is ready for internationalisation, since no physical adaptation of the products themselves is likely to be required.

In the case of the marketing department, however, new marketing teams through recruitment of new personnel with international expertise may have to be formed. However, unlike production and R & D, marketing involves personal contact with and services to customers, requiring diverse talents in dealing with each individual market, with its own language and local economic and social circumstances. Therefore, setting-up a new marketing department will involve more risk than acquiring a company, since the potential new marketing team have no past experience of marketing as an organisation as may be demonstrated in the learning curve in Figure 5.1.1-1.

In Figure 5.1.1-1 learning curves for the cases of acquisition and new business establishment are shown. The vertical axis shows cost of production or marketing cost per unit depending on the synergy which the acquiring company is looking for and indicates the level of effectiveness of management of the corresponding departments. Therefore, an acquirer looks for a company which is a more cost effective company like Y_a in B. If company A acquires company B, then point Z_a shows the post-acquisition position. Point Z_a is expected to move down the curve during the implementation process.

However, in the case of a new business establishment, a new organisation has no experience as a group. Its position on the learning curve (Y_N) is no lower than that of the existing company.

Thus one of the reasons for choosing acquisition as a strategic option for internationalisation is the difficulty foreseen in generating new marketing capabilities through internal development. Reorganising the marketing group to face the challenge of internationalisation is the most important and the most difficult task, and may be better tackled by acquisition than by establishing a completely new organisation.

5.1.2 Acquisition objectives

The objectives of an acquisition programme are summarised as follows:

continuous corporate growth

international business expansion

access to marketing/technological expertise

Decisions to be made include:

1) which industry?
2) how broad a spectrum to cover?
3) which type of company to focus on?
4) how to rank the value of the various prospects?
5) how much integration and synergy is desirable?
6) how much autonomy should be allowed to each acquisition?

A more detailed analysis of the acquisition objectives is needed in order to clarify the company's needs. Therefore the company must ask:

why acquisition?

what do we expect from it?

how much risk and what type of risks are we willing to take?

what are the constraints?

The following is a check list of items for seeking synergy by acquisition.

RESOURCE SHARING

Purchasing/supplying

Research facilities

Production

Sales force

Distribution network

Service organisation

Brand

FUNCTIONAL SKILL TRANSFER

Research capacity

Production management

Engineering

Sales force management

Marketing

Logisitcs management

GENERAL MANAGEMENT SKILLLS

Line management

Planning

Control

FINANCIAL RESOURCE TRANSFER

The clearer the company's identification of its needs, the more operational the acquisition objectives become, and the more likely is the subsequent acquisition to meet the company's expectations of it.

The concept of synergy is used in the sense of creating an added value in business i.e., the total corporate capability is greater than the sum of the individual capabilities of its component parts. Acquisitions will be strongly influenced by the search for synergy.

5.1.3 Acquisition screening approach

The principles of screening are simple:

1. Identify business areas and companies with characteristics that fit the needs fo the acquiring company
2. Make a preliminary assessment of their appropriateness for acquisition

The screening of an acquisition candidate will be done with the principles above.

5.1.4 Company evaluation

5.1.4.1 Strategic evaluation

Detailed acquisition objectives are re-examined in conjunction with each candidate. At the same time, candidates should be investigated for more detailed information to help strategic evaluation as a whole. The probable sources of information are shown in Figure 5.1.4.1-1.

5.1.4.2 Financial evaluation

The task of evaluating the financial position of each candidate company is difficult for the acquiring company and a thorough discussion of the possible methods is beyond the scope of this report. Financial evaluation may be thought of as an exercise in investment appraisal, i.e. investing funds and resources for future corporate growth. The following investment appraisal techniques are usually used for capital budgeting and are applicable to financial evaluation for acquisition.

1) Modified payback period

Payback period is not normally included among the techniques used for acquisition assessment. However, the method has been used for many years as a tool for long-term investment appraisal. In order for this method to be used in assessing the value of an acquisition, the formula is modified as follows.

Modified Payback period

$$I = \sum_{t=1}^{n} \frac{S_t}{(1+k)^t}$$

k: marginal cost of capital

S: savings or profits by acquisition in period t

I: cost of acquisition

n: payback period

N is given by company policy as the maximum acceptable Payback period. I (maximum acceptable acquisition price) is then estimated for the given N and the estimated net cash flow for each time period of t and discount rate k.

Modified payback period will indicate how many years it will take the company to recoup the cost of acquisition and the result can be compared to that of other investment payback periods.

2) Net Present Value Method

$$NPV = \left(\frac{F_1}{(1+k)^1} + \frac{F_2}{(1+k)^2} + \cdots\cdots + \frac{F_N}{(1+k)^N} \right) - I$$

$$= \sum_{t=1}^{N} \frac{F_t}{(1+k)^t} - I$$

F: Net cash flow

k: Marginal cost of capital

I: Initial cost of the project (purchase price)

N: Horizon of assessment period

Minimum cash flows may be obtained from the candidate company's accounts. However, since we are looking for the benefits of synergy, we hope that the actual contribution will exceed that of the acquired company on its own. In any case the acquiring company would normally wish to carry out its own independent analysis.

The initial cost of the project is the purchase price of the company. The marginal cost of capital will be decided by using the acquiring company's expected rate of return. The horizon of the assessment period, i.e. the number of years ahead over which the acquiring company will assess a candidate's performance, is taken to be between 5 and 10 years.

3) Internal rate of Return (IRR) Method

$$\sum_{t=1}^{N} \frac{F_t}{(1 + r)^t} - I = 0$$

A value for 'r' is chosen such that the discounted receipts equal the initial cost of the project. We call 'r' the Internal Rate of Return (IRR). This value will be compared to the standard rate of return as set down by the company and its annual forecast for the company performance and if this is larger than the standard, then the acquisition will go ahead. From the company's standard rate of return we can calculate the maximum acceptable purchase price by using expected profits over a fixed period.

The following are conventional financial evaluation methods for acquisition.

4) Earnings evaluation method

Value of the company = Estimated market price per share

x

Number of issued shares

Estimated price per share

= Past earnings per share (as a good estimate for the future)

x

Estimated price earning ratio

This method uses earnings per share and the price-earning ratio. The critical point of this method is estimating the future price-earnings ratio. If this is calculated successfully, then the value of the firm is obtained quite easily using the above equation.

5) Market value of the firm's stock

Value of the company = Market price per share

x

Number of issued shares

This is one of the simplest ways of assessing the value of the company and is a crude version of 4). However, the value of the company can be easily calculated and one can get some idea of the price of the company.

6) Book value method

Value of the company = Net assets

= Total asset - total liabilities

This may be important if the value of the company by this method is higher than those estimated by the earnings evaluation method since the acquiring company is able to obtain the asset after the aquisition and this must be taken into account in the acquisition evaluation.

5.1.5 Negotiation

Following the calculation stage, the company's executives will make a short list of possible candidates in line with the company's acquisition objectives, then proceed with executing their plans for the most suitable in order of preference. Negotiation is one of the most difficult tasks and is not a science but an art.

The negotiation will be seen here from the buyer's side, since it is Y's intention to acquire companies and not to be acquired. The following discussion with regard to negotiation is based on a seminar by Robert H. Kenmore, the former director of ITT specialising in acquisition.

1) Competitive and cooperative

Full and intelligent preparations for all future negotiations are a prerequisite of successful acquisition deals, creating an advantage from the outset. The greater the scope of the information gathered on the candidate, the more positive and forceful the company's negotiators can be.

2) Set the goals high

If the company wants to win in the negotiations, they should keep their aspirations high. Therefore, at the opening stage, the price issue should be left unbroached. Instead, the acquiring company should ensure that all the requirements for future cooperation and growth are

met and the conditions for probable launching of the new enterprise are acceptable. It is only then that price is at the forefront of negotiations and thus becomes a closing issue and not a precondition for purchase. Discussion of the financial terms should not be allowed to deflect attention from the task of securing a workable agreement or from the need for assurance as to the company's basic soundness.

The subject of "fair play" for its own sake need not be discussed here. However, if members of the acquired company feel that the acquirer has conducted the negotiations in an "unfair manner" this may make subsequent working relationships more difficult.

The negotiations may be conducted under pressure of time and may involve the interplay of powerful personalities. Therefore, the company's executives should prepare in advance a set of limitations on what they are willing to accept or discard in the course of the negotiation and thus when it would be best to abandon the deal should the pre-set guidelines be violated.

3) Recognition of differences in perception

It is very important to recognise differences in perception, i.e. the different frames of reference and cultural background of the two parties. If we are aware of these differences we can handle all future discussions more effectively. Since misunderstandings may be avoided, which would otherwise hinder, or even destroy, the success of the deal. Furthermore the negotiator should always realise that there are other parties, not at the negotiating table, playing a key role in the

discussions. The behavioural pattern of a negotiator is illustrated in Figure 5.1.5-3.

4) Careful selection of acquisition staff

Acquisition is a strategic issue, so the company cannot rely for the negotiation on outside help since they would not be well versed with the real circumstances of the company. The selection of the leader should be based on the ability to handle negotiations and not on seniority, since negotiation is a kind of art which some people possess while others do not.

Kenmore claims that management consultants will be more helpful for the buyer than investment bankers since investment bankers in his experience tend to accept higher prices than the underlying worth of the company would justify.

5) Enjoy the negotiation process

The negotiating team should not be in a hurry to close discussion or gloss over issues, but should try to enjoy the process so that they can obtain better results. In this way, if deadlocks in discussion or stalemate is reached, the team should then be less willing to compromise merely in order to complete the negotiating process.

6) Close cooperation between the two parties over difficult issues

One of the most difficult issues arising during acquisition negotiations is the issue of autonomy, i.e. the candidate wishing to maintain an independent identity. In such a case the company should work very closely with the candidate to solve this issue since it is very delicate and difficult to handle, for failing to deal with it promptly would lead to a break-down in negotiations or to severe problems in the subsequent relationship. The approach to such a problem might be quite different from one candidate to another depending on the negotiator's personality.

7) Pick up a key player for the issue of post merger integration

In integrating the two corporate entities, the negotiating team must acquaint itself with the key person on the other side. There may be more than one influential party, which the team have to deal with. During the negotiations, they will have to seek the active participation of such parties to prepare the way for the later process of integrating both companies.

These are the major principles involved in negotiating an acquisition deal. The main aim of this exercise is to acquire a good candidate for the company's international expansion programme. There is no rule of thumb for this kind of negotiation but observation of the above principles will facilitate fruitful discussions and help to lead eventually to a satisfactory conclusion.

5.1.6 Post merger integration

As pointed out in 7) of Section 5.1.5, key personnel should be identified during negotiations because implementation will affect the final stages of acquisition. Therefore, the earlier the key personnel are allowed to be involved in the acquisition activities, the better their eventual performance will be, as they will be familiar with the acquisition objectives.

There are 4 steps involved in implementation.

1) Communication

Initially rounds of talks will have to be held with all personnel of the acquired company including the president. Further negotiation, if necessary, should aim to gain the consent of the company's personnel in order to facilitate successful integration.

2) Whom to keep and how much to pay

Judging competence, motivation and honesty, the acquiring company will have to decide whom to keep on, if any, and to promptly recruit any new skills for successful integration of the two companies.

3) Specific implementation programme

Through processes 1) and 2) in this section, the acquiring company will have to set up a specific implementation programme, necessary changes in the marketing force and production-lines, etc., depending on the quality of resources which the acquired company will contribute. Time table and targets will be important issues in the programme.

4) Bring a liaison man

To monitor the implementation programme, the company must appoint a liaison man to the management of the acquired company. He will be in a position to set out the expectations of the acquiring company and will also be well informed as to the acquired company's progress. This system will facilitate integration.

5.1.7 Remarks

Reverting to the 'distance concept' discussed in Section 2.4.3, it is apparent that acquisition by a Japanese company of companies in Europe or North America will involve a major departure from familiar home territory and that the potential pitfalls of social, cultural and economic differences will be especially threatening. The need for guidance by non-Japanese nationals will be correspondingly strong.

5.2 SETTING-UP MANUFACTURING FACILITIES OUTSIDE JAPAN

The important considerations for setting up a factory in overseas markets include tax incentives, labour cost and accessibility to the new market. For example, Merck reported that tax exemptions from its Puerto Rican manufacturing facilities were worth $22.0M in 1982, $30.7M in 1981 and $25.8M (59 in Yen 100M) on average from 1978 to 1982. The company transferred proceeds from its Puerto Rican activities to the tune of $62.8M in 1982, $64.0M in 1981, and $52.3 (120 in Yen 100M) on average from 1978 to 1982. These figures show Merck's operation in Puerto Rico contribute significantly to tax savings and to the company's cash flow. However, the contract for this manufacturing facility expires in 1989, having been set up in 1970.

Because of such tax incentives, many MPCs and chemical companies locate their factories in Puerto Rico to benefit from the tax holiday offered by the government. Puerto Rico is used by MPCs as a manufacturing centre for goods bound for the USA.

In Europe, there are several suitable development areas set aside by governments to attract foreign capital. Such an example is the Republic of Ireland (Eire). The Industrial Development Agency (IDA) in Ireland has been especially encouraging to pharmaceutical companies to invest and build, seeing them as having great potential for future growth.

5.2.1 The prospects ahead for an MPC in Ireland

In general, when managers contemplate future investment in foreign countries, they may take into account the following points:

Business Environment

Access to Markets

Operating Conditions

Financial Return

1) Business environment in Ireland

Ireland's industrialisation began in the 1960s when the Irish government took steps to provide greater financial support for private industry especially for foreign business. The IDA provided many incentives to attract investment from foreign companies. Today, there are major financial incentives: corporation tax is minimal and profits and dividens can be moved to the parent company without restriction. There is no government intervention in the management of the companies and Ireland is a member state of the EEC, and there are therefore no trade barriers and tariffs to be imposed on the goods manufactured in Ireland for sale to other EEC countries.

Reasons for locating a factory in Ireland in terms of the business environment include:

a) a stable government which supports the free market

b) ample, young and well-educated labour force

c) IDA's support for investment in the pharmaceutical industry

d) established infrastructure for the factory's location organised by IDA

e) the currency is linked to the European Monetary System (EMS) and thus moves within a certain range.

These factors play a great role in persuading MPC's to set up their factories in Ireland. Furthermore, the earlier establishment in Ireland of existing MPCs has helped to develop relevant management expertise at the company level and has enabled Irish governments to become more adept and understanding in their relationship with MPCs.

2) Access to markets

Ireland is a full member of the EEC having joined when UK became a member of the community. Therefore, there are no trade barriers or tariffs on the goods exported from Ireland to the other EEC member countries. Ireland has also favourable trading arrangements with other Western countries like Sweden, Switzerland, Austria and Spain and therefore may be used as a manufacturing and distribution centre to Western European markets.

Peurto Rico is strategically important for the MPCs because of its favourable climate for the pharmaceutical industry in relation to the

American market and, in the same way, Ireland is especially important as a base for the European markets. The manufacturing strategy of a location is to manufacture primary chemicals and to distribute these to the relevant countries to be turned into finished pharmaceutical products.

As long as only primary chemicals are exported from Ireland or Peurto Rico, shipping costs would be within acceptable limits. However, if final products were produced in Puerto Rico or Ireland, and depending on the bulkiness of the necessary packaging of the products, transportation costs will push up the break-even points well above the company's profit generating objectives.

In Ireland the national transportation network is well organised and especially around Cork, suitable air and sea ports are found, for products bound for Europe and USA.

3) Operating conditions

The following points are to be considered as operating factors:

Labour
Site and building
Infrastructure

Labour

Ireland has the fastest growing rate of population (2% p.a.) and the youngest population (50% under 25 years old) in Europe. There are five

Irish universities, two-degree granting colleges of technology and nine regional technical colleges in the main provincial centres. These provide Irish youth with the education and training to meet the needs of the MPCs.

Site and building

There are plenty of sites developed by the IDA for MPCs and many other potential industrial sites. The IDA owns about 5,000 acres of industrial land which will be used for manufacturing purposes.

Infrastructure

The basic infrastructure requirements by MPCs can be met throughout the country. There are rail road, airport and sea networks. There is also an electricity system, clean process water (an important requirement in pharmaceutical industry) housing and educational facilities, public administration, financial institutions and advanced telecommunications systems. Land development and construction companies have experience with MPCs' facilities.

4) Financial return

Financial gains will be made through 1) investment incentives 2) tax incentives and 3) cost reductions.

Investment incentives given by the Irish government are as follows:

Non-repayable cash grants of up to 60% towards the cost of land, buildings and machinery.

Training grants to cover all direct costs of training Irish personnel.

Loan finance at low interest rates.

R & D grants of up to 50% towards product and process development.

Industrial sites at reasonable prices.

Factory buildings available for lease.

These investment incentives reduce the cash requirements, the balance being used for other development projects, such as locating secondary factories in other countries for re-investing in Ireland.

Tax incentives are as below:

Corporation tax: minimum 10%

Capital allowances: generous, especially the effective tax rates reduced to a minimal for the initial years

Dividends: dividends paid to overseas shareholders are exempt from Irish income tax and withholding tax

Double taxation agreements: available

According to the IDA, 75% of the profits generated in Ireland have been re-invested in Ireland with a good return on investment.

Cost reductions

Cost reductions will be made through 1) labour costs 2) material costs and 3) manufacturing overhead costs. Irish labour costs are lowest in the EEC and are approximately half those in the U.S. Due also to favourable accelerated depreciation allowances MPCs are able to reduce significantly the costs of production.

5.2.2 Two cases of MPCs already located in Ireland

Merck

Location: Ballydine in Waterford 110 miles from Dublin

Space: 188 acres for land 60 miles from Cork

40 acres for building 60 miles from Shannon

Cost of construction: IR£30M.

Period of construction: from 27th March 1973 to 3rd June 1976

Reasons for location:
1. skilled labour
2. proximity to international sea and air route
3. abundant supply of clean water
4. favourable tax and government climates

Labour:
250 people
87 salaried staff
17 semi-monthly salaried staff
146 unionised staff

Trade Unions: The Amalgamated Union of Engineering Workers (AEUW)
The National Engineering and Electrical Trade Union (NEETU)
The Electrical Trade Union (ETU)
The Irish Transport & General Workers Union (ITGWU)

Contractors: Bechtel International and 58 sub-contractors

Products:	bulk for
	Indocin (Indomethacin), an anti-inflammatory
	Clinoril (Sulindac), an anti-inflammatory
	Tryptizol (Amtriptyline), anti-depressant
	Flexeril (Cyclobenaprine), a muscle relaxant
	Perictin (Cyproheptadine), an anti-histamine
	Modurectic (Amiloride), anti-hypertension
GMP:	pass
Raw material:	almost all are imported

Pfizer

Location: Ringaskiddy in Cork, 7 miles from city of Cork, 8 miles from Cork airport

Space: 160 acres of land

Cost of construction: N.A.

Period of construction: From May 1969

Reasons for location:

1. taking into account the grants and other financial assistance made available by the Irish government, a site in the Republic of Ireland offered the most favourable return on capital employed of all the sites considered
2. the site is geographically well situated in relation to suppliers of raw materials and markets for finished products
3. the site offers good facilities for the inward and outward shipment of raw materials and finished goods
4. adequate supplies of water and electricity are available
5. the site is large enough to afford adequate room for further expansion of the plant.

Labour: 700 including food and chemical staff

Trade union: N.A.

Contractors: installation of the plant and equipment by the Lummus Company Ltd

civil engineering works by E.G. Pettit & Partners

Products: bulk for

Feldene (Piroxican), anti-rheumatic

Vibramycin (Doxycycline), antibiotic

Fasigyn (Tinidazole), anti-trichomonal

Minipress (Prazosin), anti-hypertensive

Sinequan (Doxepin), anti-depressant

GMP: N.A.

Raw Material: N.A.

The most recent facility for the pharmaceutical division:

construction of new building for Feldene and Minipress

contractor: Catalytic International

preliminary design completed	August 1981
detailed engineering design	August 1982
completion of construction of building etc.	July 1983
testing finished	December 1983

cost of construction: IR£16M.

CHAPTER 6 CONCLUSION

In this study we first examined the lessons learned from the histories of a few MPCs some of which were already mature. All of these MPCs, regardless of their home country, had developed from a home-oriented company to an international one. The objective of CHAPTER 2 was to see how these MPCs passed through the various stages of development and broke into their prospective international markets.

The earlier developing MPCs such as Merck and Lilly, used acquisition as an international expansion strategy; acquiring and existing international marketing network and sharing resources, transferring expertise, giving financial assistance, and in the process, gaining the benefits of synergy.

The later developing MPCs such as SKF and Glaxo have adopted a similar strategy. The experience of these MPCs may be used as a lesson and a guideline for the future growth of aspiring Japanese pharmaceutical companies.

Later, international expansion models were introduced which were specifically relevent to the development of Yamanouchi. The company's strengths and weaknesses were examined; the weaknesses being especially considered in the light of the international expansion models.

Yamonouchi has five new products in its R & D pipeline, some of which are already introduced locally but are still waiting for their introduction to international markets. The time is therefore ripe to contemplate a plan for international penetration and to examine fully the potentialities of marketing the products internationally.

This involves setting up corporate plans for short-term and long-term strategies. The methodologies for corporate planning were described in detail for the purpose of making clear how the aforementioned models may be used as a platform for constructing more sophisticated and demanding corporate plans, thus also remedying the shortcomings which might have been caused by the "Principle of Simplicity"; a factor incorporated originally for pragmatic reasons. Therefore, constructive criticism is most welcome to enable a more accurate and illuminating corporate plan to be synthesised.

In the case of corporate planning, demand analysis for the five new products was performed to see how the relevant market segments of each new product were likley to grow and included in the analysis were non-quantifiable factors such as the effects of the competitive situation, pricing environment etc.

By estimating the market shares for the new product, international sales forecasts were made for the major markets in W. Germany, France, Italy, U.K. and U.S.A. With regard to domestic sales, these were forecasted simply by way of a linear regression model.

The sales forecasts were adapted to reflect corporate objectives and the resultant corporate sales objectives were fleshed out by corporate strategies, in particular by international expansion strategies. The sales objectives enable the company to produce financial statements such as a proforma balance sheet, income statement, and funds flow statement. Based on these accounts, cash flow and financial ratio analysis then become available.

The results from the financial analysis were projected to give some insight into future business development, in seeking a tool for long-term investment planning. The financial analysis will then reflect the nature, scale and timing of investments needed to give effect to the plan. This is vital to the company since it can then foresee what external funds should be raised and how much could be financed internally.

Internationalisation involves much investment as was clearly seen in the discussion of strategy options such as Joint Venture, Minority Interests and Take-Over. These strategy options require substantial funds, depending on the scale of the company's involvement in any single multiple ventures. At the same time, the company must be financially sound. It must not excessively dilute its equity or raise its gearing.

Finally, long-term practical considerations for international expansion were examined. This chapter dealt with one of the most important strategic options, i.e. acquisition. The setting-up of a factory outside Japan was also investigated.

All the various aspects already dealt with would be finally crystalised into the corporate plan, and will be expressed in real terms, in terms of human resources, how many people to be allocated, how much should be spent on their training? All financial statements should be constructed as far as possible incorporating the effects strategic plans. This is likely to involve considerable research and analysis but is required only in sufficient detail to confirm the plan's feasibility and to predict financial needs.

During the implementation stage of the strategy at the functional level of the company, i.e., R & D, production, marketing and administration, the gap between the company's action at the "no policy change" level and the path set out by incorporating the new guidelines should be overcome by management in order to steer the company towards its corporate objectives.

This logic of bridging the gap between "Sales on no policy change" and "Sales on corporate policy objective", is very easy to understand, but very difficult to apply in practice. Corporate objectives should be realistic and attainable. However, planners sometimes tend to respond only to the ideas of top management nad are not wholly versed in what is going on at the functional level. Sophisticated planning would be meaningless if it is not implemented. Naive planning would be better than sophisticated planning if the former is implemented and attains the desired goals.

It is a well-recognised paradox of planning that its only certainty is that the plan will not be fully implemented. Environmental changes, perhaps even changes in the goals themselves, will require appropriate modifications to the plan. The existence of a plan, however, allows management to identify those environmental forces which are capable of forcing a change in the plan, provides a scale against which the magnitude of environmental changes can be measured, and indicates what responses, in the form of plan modification, are likely to be beneficial.

In the case of a company striving to make the transition from domestic to international markets, the wide range of stretegic options and the diversity of national environments make a coherent plan, whatever its fragility, an essential component of the successful management of that transition.

FREE WORLD PHARMACEUTICAL MARKET

$66.1 BILLION

1981

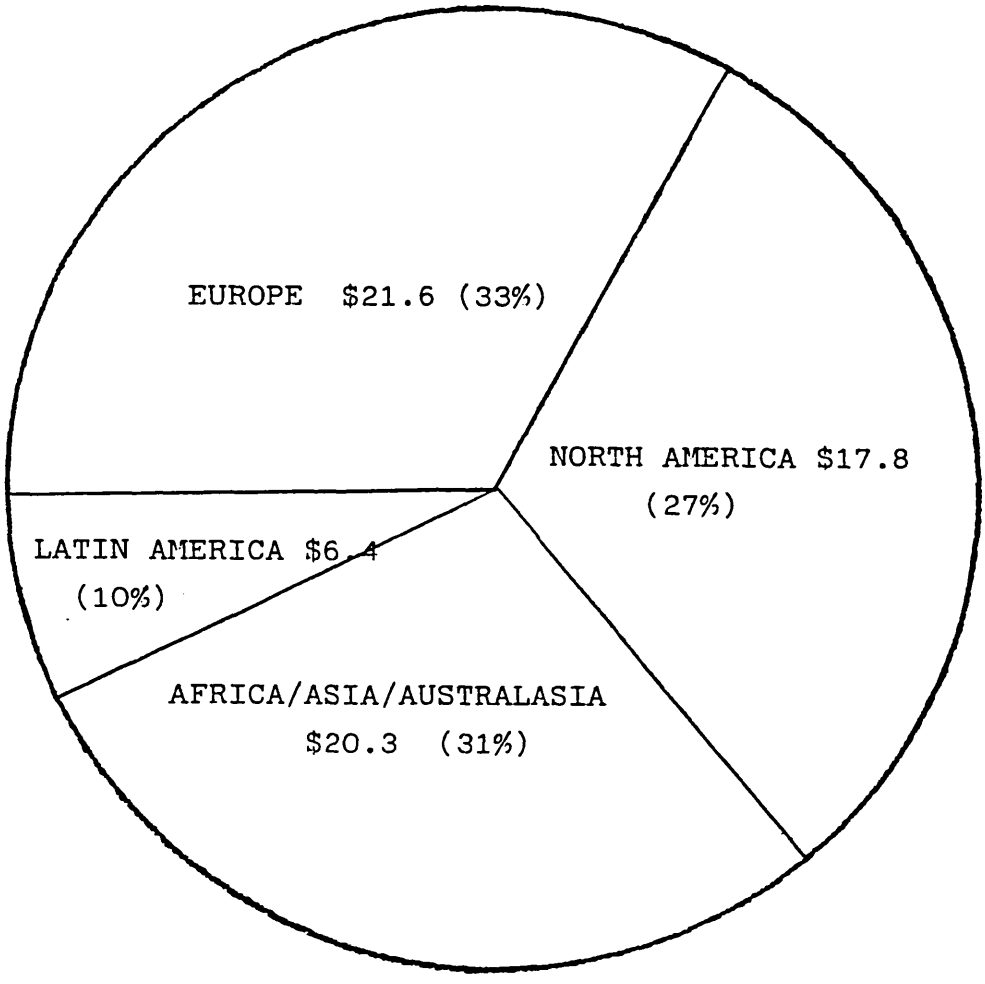


Figure 1.1-1 (Source: IMS World Review)

( ): Growth rate'72/'81
(annual)

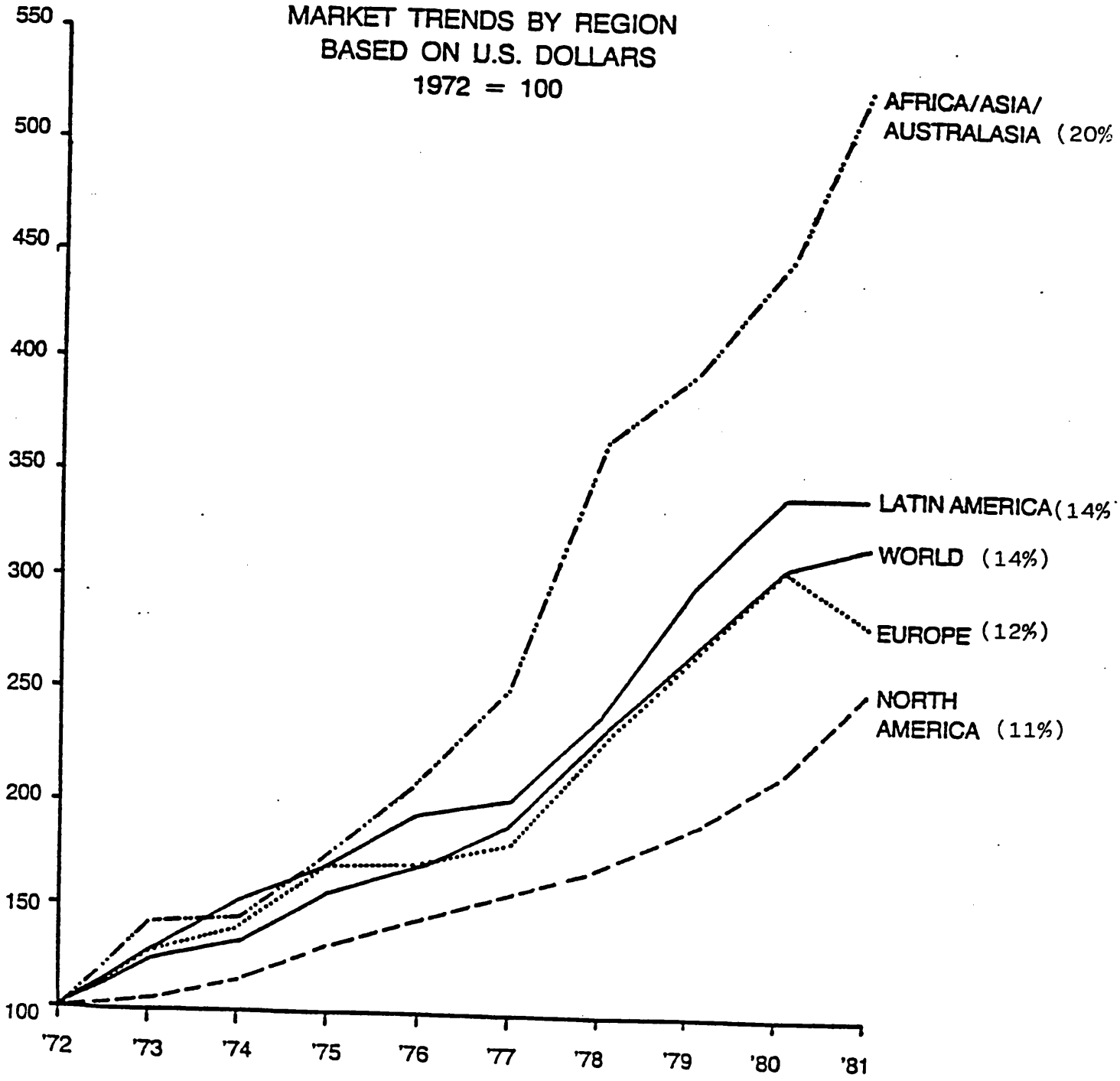
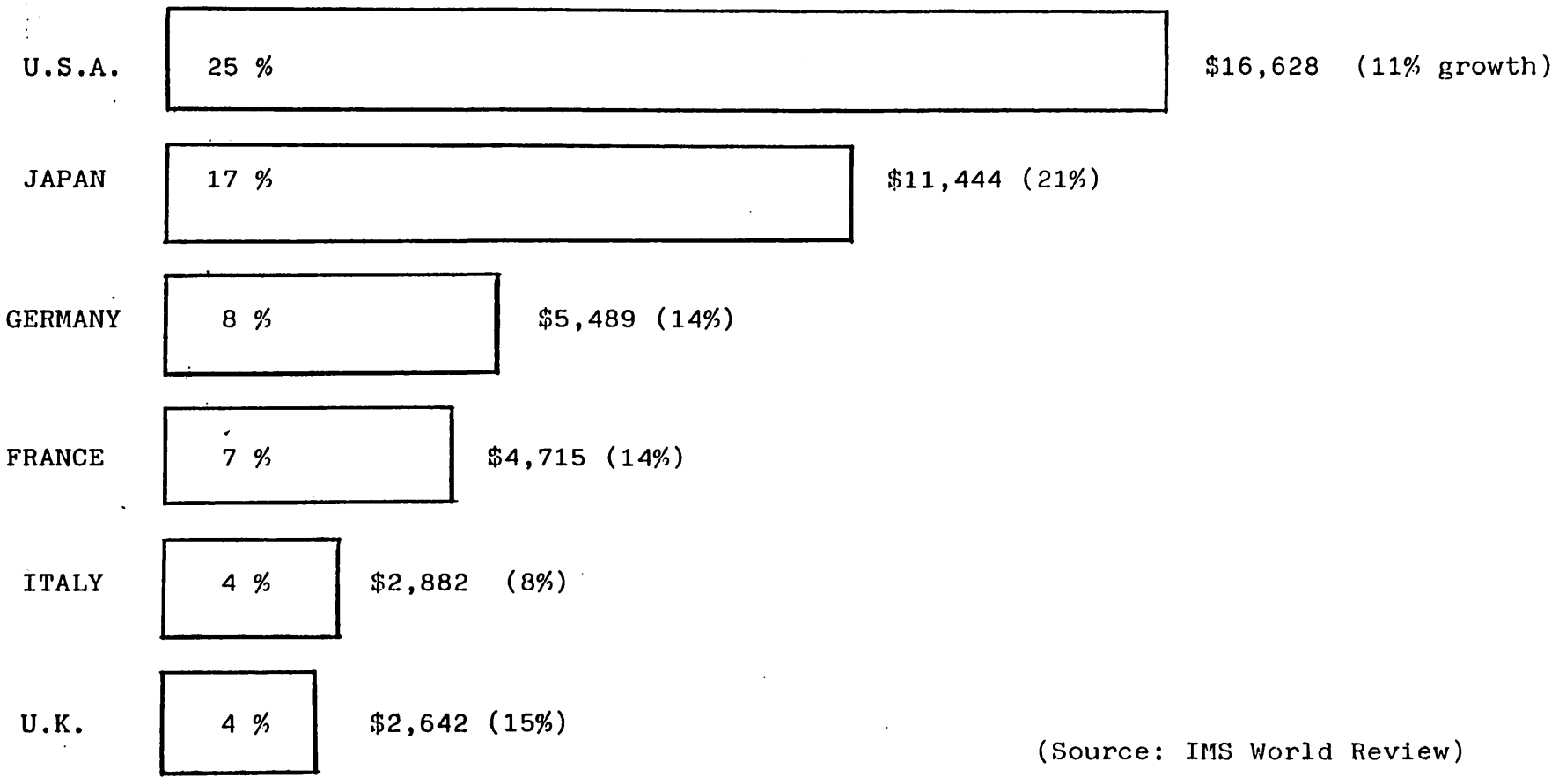


Figure 1.1-2 (Source: IMS World Review)

THE MARKETS OF MAJOR COUNTRIES 1981 Figure 1.1-3



(Source: IMS World Review)

LEADING CORPORATE GROUPS 1981 $(M)

RANK	NAME	SALES(M/S)	EUROPE	A.AMERICA	A/A/A	L.AMERICA
1	HOECHST	1,501 (3.1)	65	12	12	11
2	M.S.D.	1,458 (3.0)	31	53	8	9
3	CIBA-GEIGY	1,443 (3.0)	46	28	14	12
4	AMERICAN HOME P.	1,343 (2.8)	16	70	4	10
5	SMITH KLINE	1,248 (2.6)	26	63	9	5
6	ROCHE	1,141 (2.4)	36	37	9	17
7	PFIZER	1,119 (2.3)	33	37	21	9
8	LILLY	1,072 (2.2)	16	77	2	6
9	BRISTOL-MYERS	1,025 (2.1)	14	59	16	11
10	JOHNSON & JOHNSON	1,016 (2.1)	23	66	1	10
		(25.9)				
11	SANDOZ	1,008 (2.1)	51	24	17	8
12	BOEHRINGER I.	993 (2.1)	59	15	10	16
13	WARNER-LAMBERT	923 (1.9)	30	56	5	9
14	BAYER	842 (1.8)	57	19	12	13
15	SCHERING PLOUGH	712 (1.5)	18	53	9	19
16	UPJOHN	704 (1.5)	14	66	11	10
17	ABBOTT	682 (1.4)	16	61	7	16
18	TAKEDA	645 (1.3)			100	
19	SQUIBB	565 (1.2)	26	52	8	14
20	SHIONOGI	543 (1.1)			100	
		(41.8)				
21	GLAXO	541 (1.1)	64	8	17	11
22	BEECHAM	518 (1.1)	59	17	16	8
23	WELLCOME	515 (1.1)	37	44	13	6
24	CYANAMID	500 (1.0)	31	46	17	6
25	SCHERING AG	489 (1.0)	53	8	25	14
26	SANOFI	488 (1.0)	95	1	0	4
27	FUJISAWA	477 (1.0)			100	
28	STERING DRUG	468 (1.0)	30	50	5	15
29	DOW	467 (1.0)	34	35	7	24
30	SEARLE	458 (1.0)	20	61	9	11
		(52.1)				
31	RHONE-POULENC	456 (1.0)	82	3	3	12
32	I.C.I.	448 (0.9)	54	27	11	7
33	SANKYO	446 (0.9)			100	
34	SYNTEX	367 (0.8)	24	58	9	9
35	EISAI CO.	360 (0.8)			100	
36	REVLON	357 (0.7)	31	56	3	11
37	NESTLE	332 (0.7)	37	30	13	20
38	BOEHRINGER MANN	313 (0.7)	90	2	1	8
39	MERCK AG	308 (0.6)	65	0	9	26
40	TAIHO YAKUHIN	292 (0.6)			100	
		(59.8)				
41	AKZO	292 (0.6)	70	8	11	10
42	ALTANA INDUSTRIAL	279 (0.6)	77	4	3	16
43	ROBINS	264 (0.6)	20	70	1	9
44	GREEN CROSS	263 (0.6)			100	
45	YAMANOUCHI	257 (0.5)			100	
46	MEIJI SEIKA	255 (0.5)			100	
47	MONTEDISON	251 (0.5)	66	13	2	20
48	TANABE SEIYAKU	251 (0.5)			100	
49	DAIICHI SEIYAKU	251 (0.5)			100	
50	CHUGAI SEIYAKU	235 (0.5)			100	
		(65.2)				

Figure 1.1-4 (Source: IMS World Review)

TOPICS IN THE JAPANESE MARKET

ECONOMIC ASPECT

1 NHI (National Health Insurance) price reduction

1981	18.6%
1982	4.9%
1984	16.6%

2 Increase of pharmaceutical production in 1983

Only	1 %
1978	13.7%
1979	8.9%
1980	14.5%
1981	5.7%
1982	8.2%
1983	1.0% (estimate)

STRATEGIC ASPECT

1. NEW PRODUCTS ARE ESSENTIAL TO SURVIVE IN THE JAPANESE MARKET.
2. DIRECT INVESTMENTS BY MULTINATIONAL PHARMACEUTICAL COMPANIES SUCH AS MERCK (TAKE-OVER BANYU).
3. NEW ENTRIES BY CHEMICAL INDUSTRY.

Figure 1.2-1

Figure 2.3.3-1 SKF's new management organisation

SKF world wide management

Vice President and General Manager (US)
Vice President International
Vice President and Medical Director
Vice President, Research and Development
Vice President, Business Planning
Vice President, Marketing

U.S. Pharmaceutical management

Director of Strategic Planning and Forecasting
Vice President, Manufacturing
Vice President, Administration and Fianance
Vice President, Marketing
Vice President and Medical Director
Vice President, Quality Control

International Pharamceutical management

Vice President, Canada, Asia and Pacific
Vice President, Continental Europe and Africa
Vice President, Marketing
Vice President, United Kingdom Group
Vice President, Latin America
Vice President, Finance

Worldwide Pharamaceutical Research and Development managment

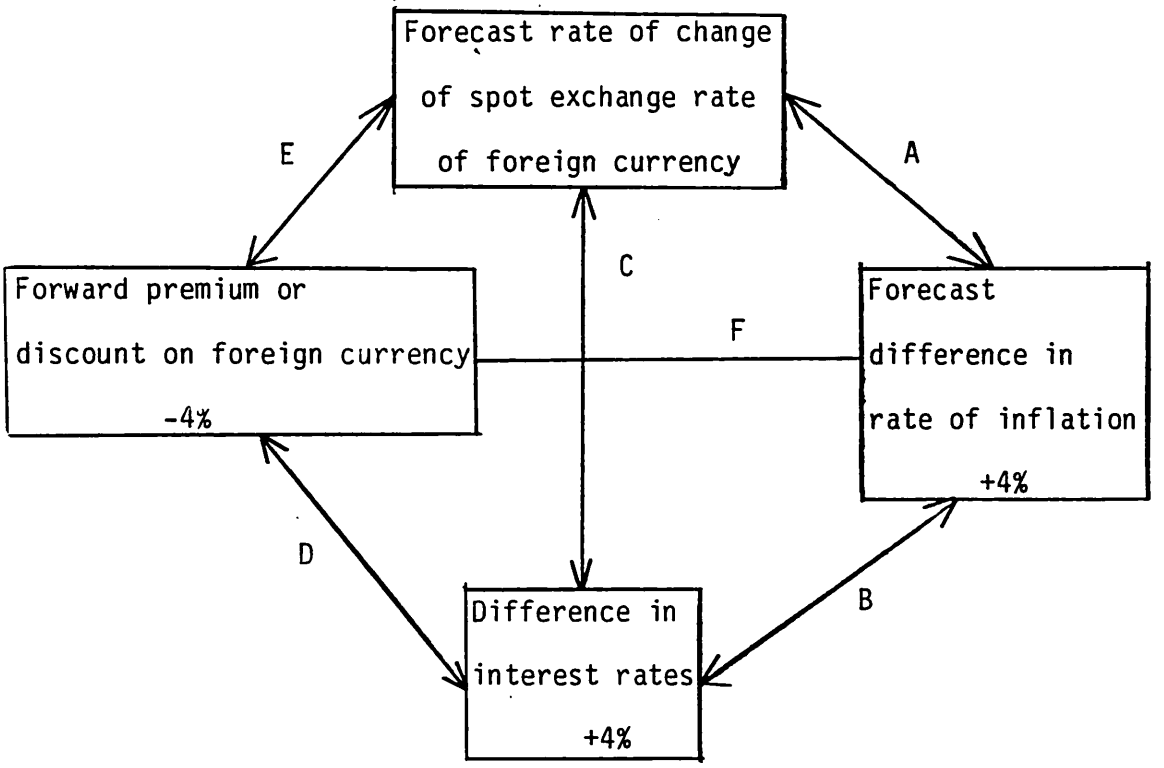
Director of Research, Recherche et Industrie Therapeutique
Vice President, Research (US)
Vice President, Planning and Operations
Vice President, Worldwide Development

(Source: Annual Report)

NG1ABF

Figure 2.3.3.4-1

Theoretical relationship among spot exchange rates, interest rates, and inflation rates



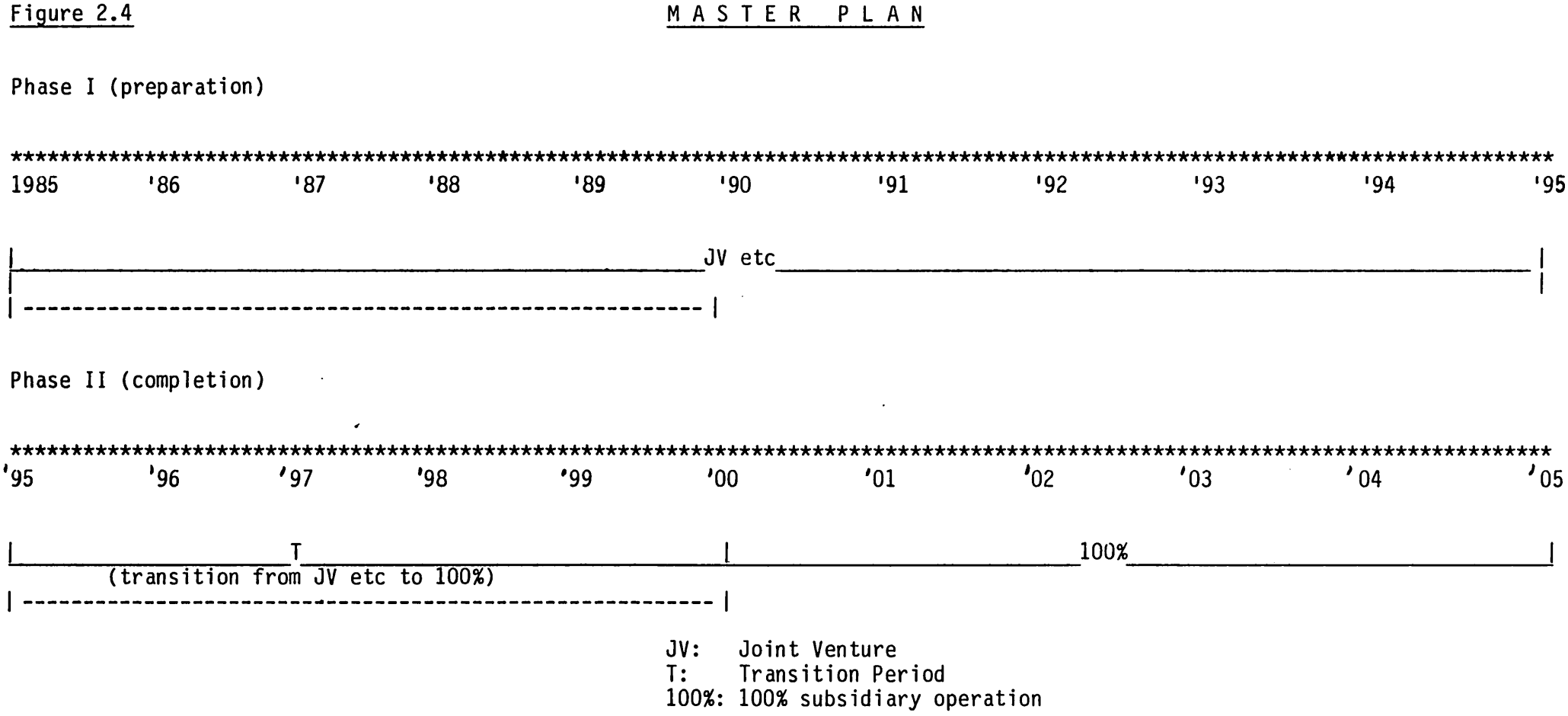
Assumptions:

1. Spot exchange rate today: £1.00 = $2.2000.
2. Forward exchange rate (one year): £1.00 = $2.1120.
3. Forward discount on pound = [(2.1120-2.2000)/2.2000] x 100 = -4%
4. Forecast spot exchange rate in one year: £1.00 = $2.1120
5. Forecast rate of change of spot exchange rate for pound: -4%
6. Forecast rate of inflation for one year: U.S. =9%; U.K. =13%
7. Forecast difference in rate of inflation: +4%
8. Interest rates on one-year government maturities: U.S. =12%; U.K. =16%
9. Difference in interest rates: +4%

(Source: Multinational Business Finance)

Figure 2.4

M A S T E R P L A N



JV: Joint Venture
T: Transition Period
100%: 100% subsidiary operation

JC1AAU

Figure 2.4.1-1(1) STRATEGY MATRIX

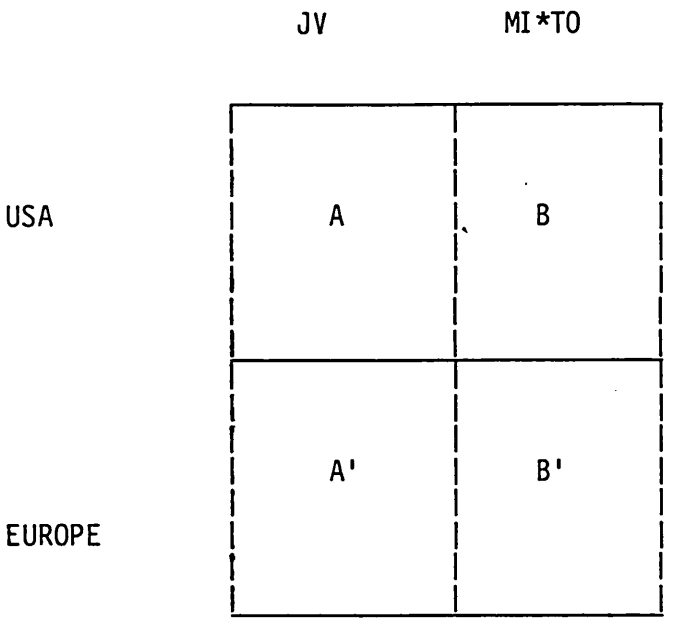


Figure 2.4.1-1(2) STRATEGY COMBINATIONS

1) A + A'

2) A + B'

3 A + (A' + B')

4) (A + B) + A'

5) (A + B) + B'

6) (A + B) + (A' + B')

Note: JV: Joint Venture

MI: Minority Interest

TO: Take over

Figure 2.4.1-1

Figure 2.4.2-1

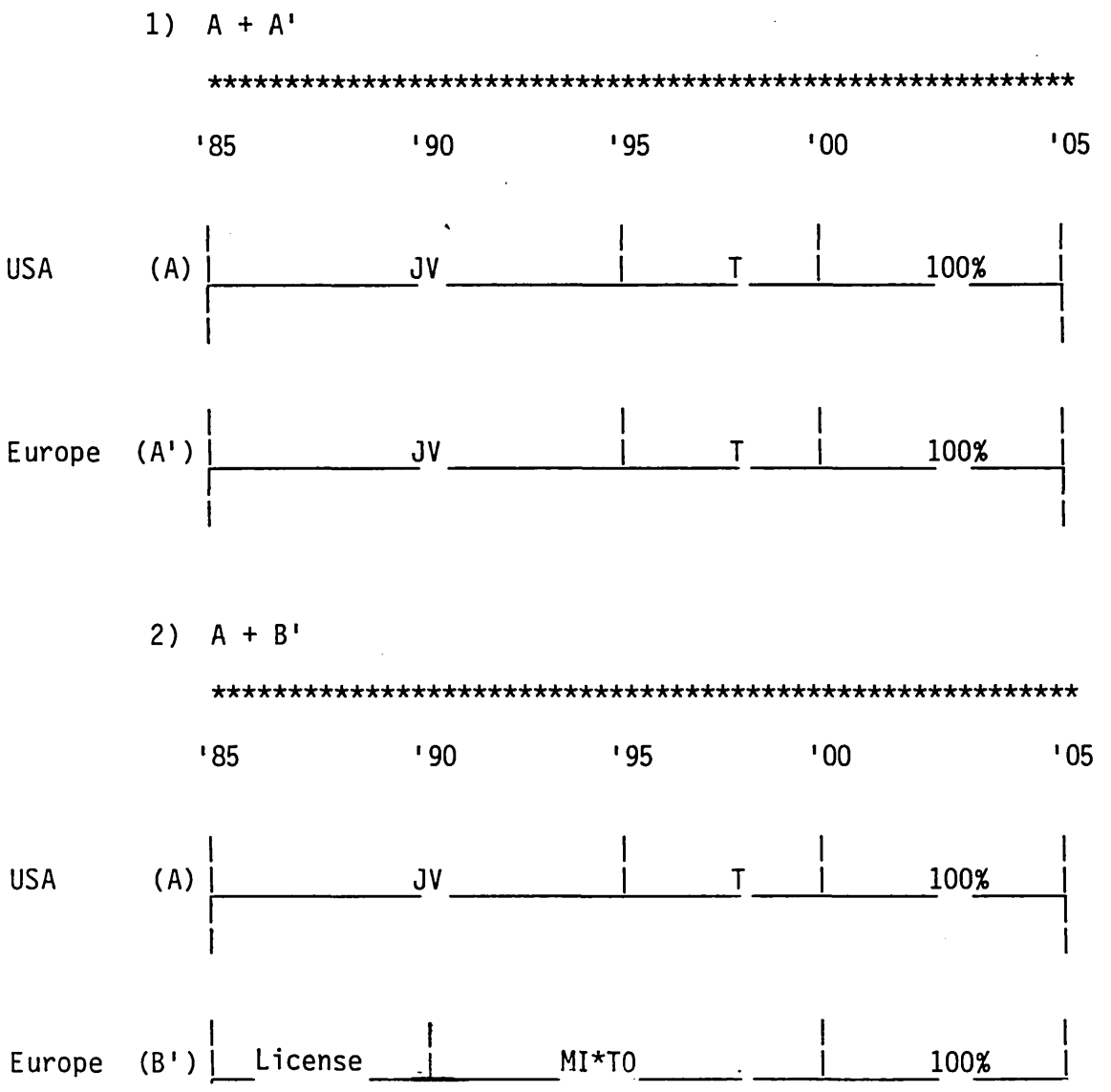
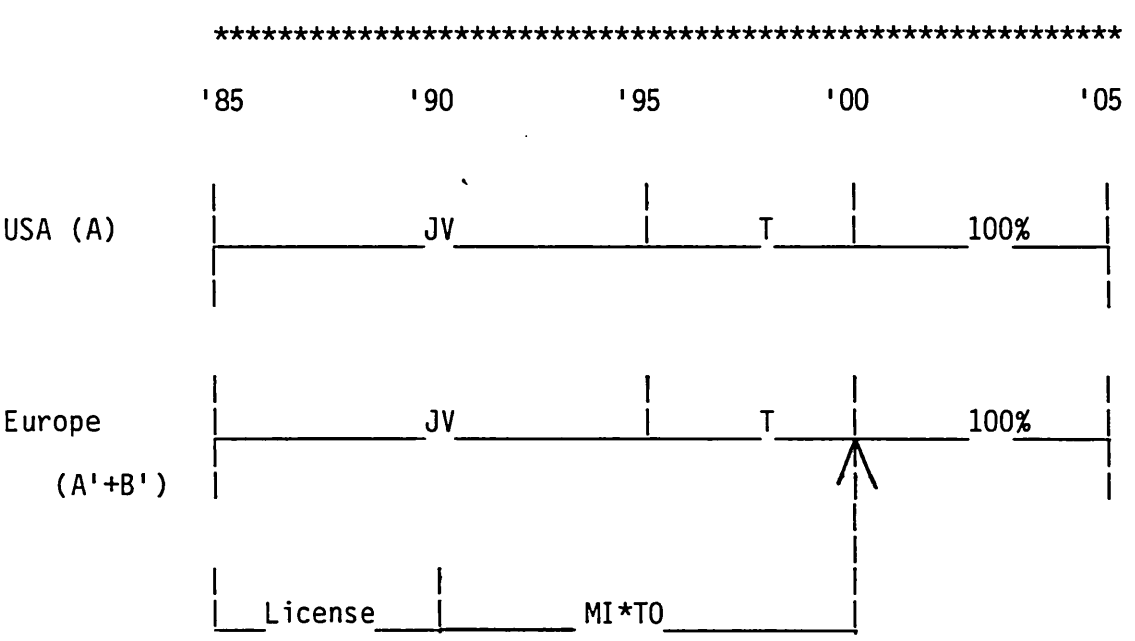

1) A + A'
'85
'90
'95
'00
'05
USA (A)
JV
T
100%
Europe (A')
JV
T
100%
2) A + B'
'85
'90
'95
'00
'05
USA (A)
JV
T
100%
Europe (B')
License
MI*TO
100%

Figure 2.4.2-2

3) A + (A' + B')



4) (A + B) + A'

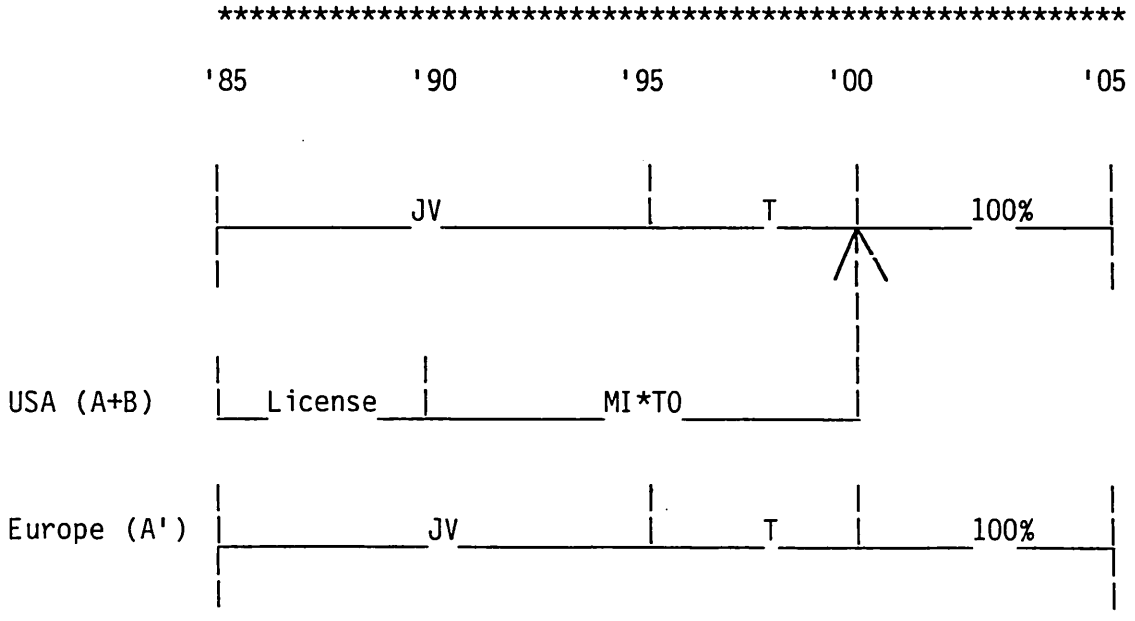


Figure 2.4.2-3

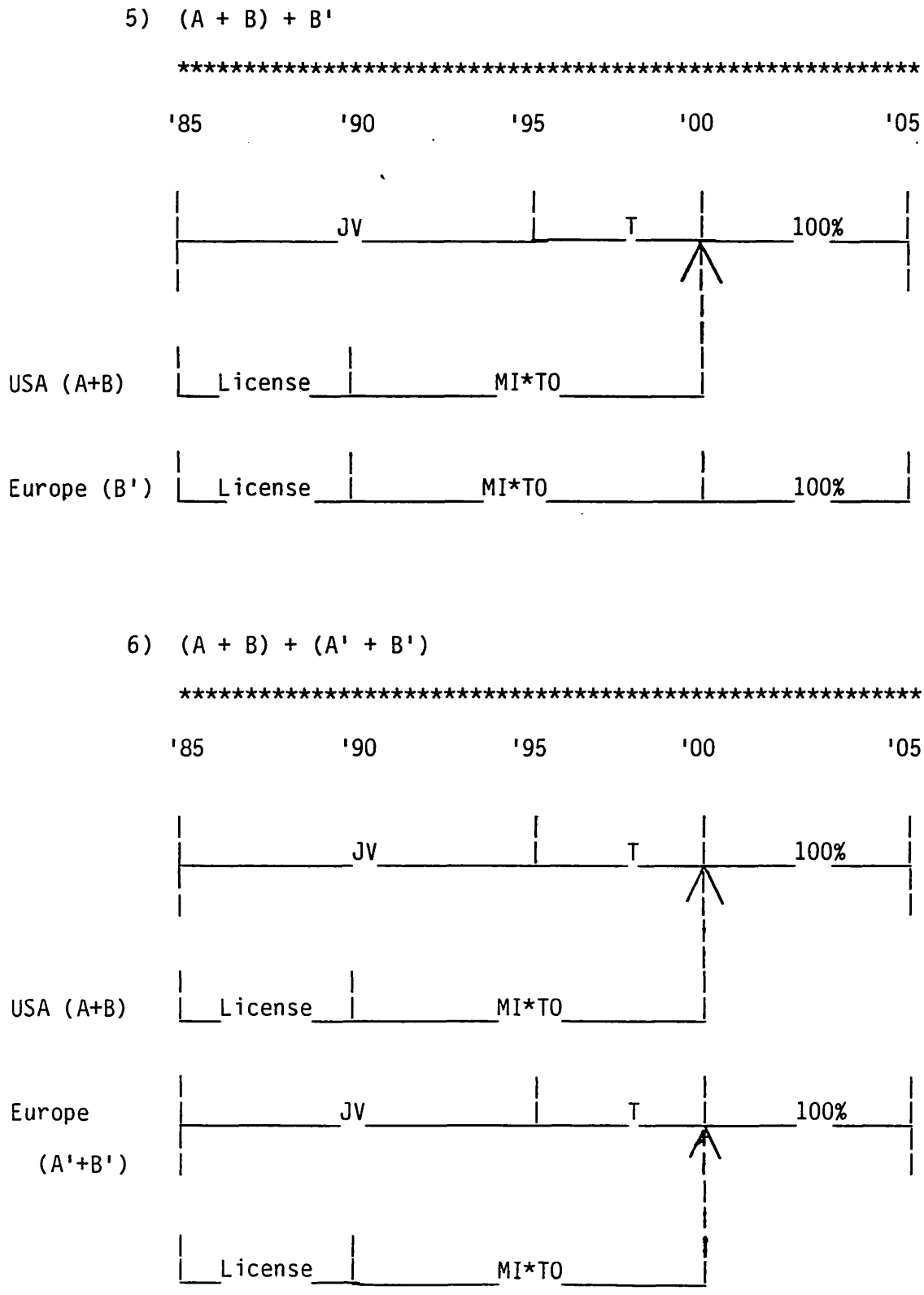

5) (A + B) + B'
'85
'90
'95
'00
'05
JV
T
100%
USA (A+B)
License
MI*TO
Europe (B')
License
MI*TO
100%
6) (A + B) + (A' + B')
'85
'90
'95
'00
'05
JV
T
100%
USA (A+B)
License
MI*TO
Europe
(A'+B')
JV
T
100%
License
MI*TO

Figure 3.1-1 Y A M A N O U C H I

	1980	1981	1982	(1982)
NET SALES	766 (11.7%)	857 (11.5)	945 (10.7)	£286M
COST OF SALES	342 (44.6)	382 (44.6)	419 (44.3)	127
ADMINISTRATION	281 (36.7)	316 (36.9)	351 (37.1)	107
(R & D)	70 (9.1)	80 (9.3)	89 (9.4)	27
I.B.I.T.	153 (20.0)	178 (20.8)	196 (20.7)	59
NET INCOME	56 (7.3)	57 (6.7)	63 (6.7)	19

(Yen 100M)

SALES BY PRODUCT CATEGORY (1982)

Cardiovascular & Resp.	207	(21.9)
Antibiotic	165	(17.5)
Metabolic agents	143	(15.2)
Vitamin	103	(10.9)
CNS	87	(9.2)
Hormones	37	(2.7)
Others	203	(22.7)
	945	(100.0)

ORIGINAL NEW PRODUCTS

Compound-A (Anti-ulcer)

Compound-B (Cardiovascular)

Compound-C (Cardiovascular)

Compound-D (Antibiotics)

Compound-E (Bronchodilator)

Figure 3.2-1 STRENGTHS (S) AND WEAKNESSES (W) OF THE COMPANY

S: RESEARCH AND DEVELOPMENT IN SECOND BEST ORIGINAL PRODUCTS

MARKETING IN DOMESTIC MARKET

FINANCIAL POSITION

W: RESEARCH AND DEVELOPMENT IN UNIQUE AND ORIGINAL PRODUCT BASED ON BASIC RESEARCH

EVERYTHING OUTSIDE HOME MARKET

INTERNATIONAL MARKETING

INTERNATIONAL DEVELOPMENT

HUMAN RESOURCES FOR INTERNATIONAL BUSINESS DEVELOPMENT

INTERNATIONAL MANAGEMENT SKILLS

(E.G. IN MERGERS/ACQUISITIONS)

COST COMPETITIVENESS

Figure 3.2-2 Cost/Depreciation/Return Ratios

Cost of Goods Sold (Sales) %

	1980	1981	1982
Merck	39.4	41.9	39.9
SKF	33.7	32.3	37.9
Y	44.6	44.7	44.3

Depreciation/Cost of Goods Sold %

	1980	1981	1982
Merck	9.2	9.1	11.0
SKF	5.9	6.7	7.5
Y	5.7	5.2	5.3

Return on sales %

	1980	1981	1982
Merck	15.2	13.6	13.5
SKF	17.4	18.6	15.3
Y	7.3	6.6	6.6

Basic idea of corporate planning

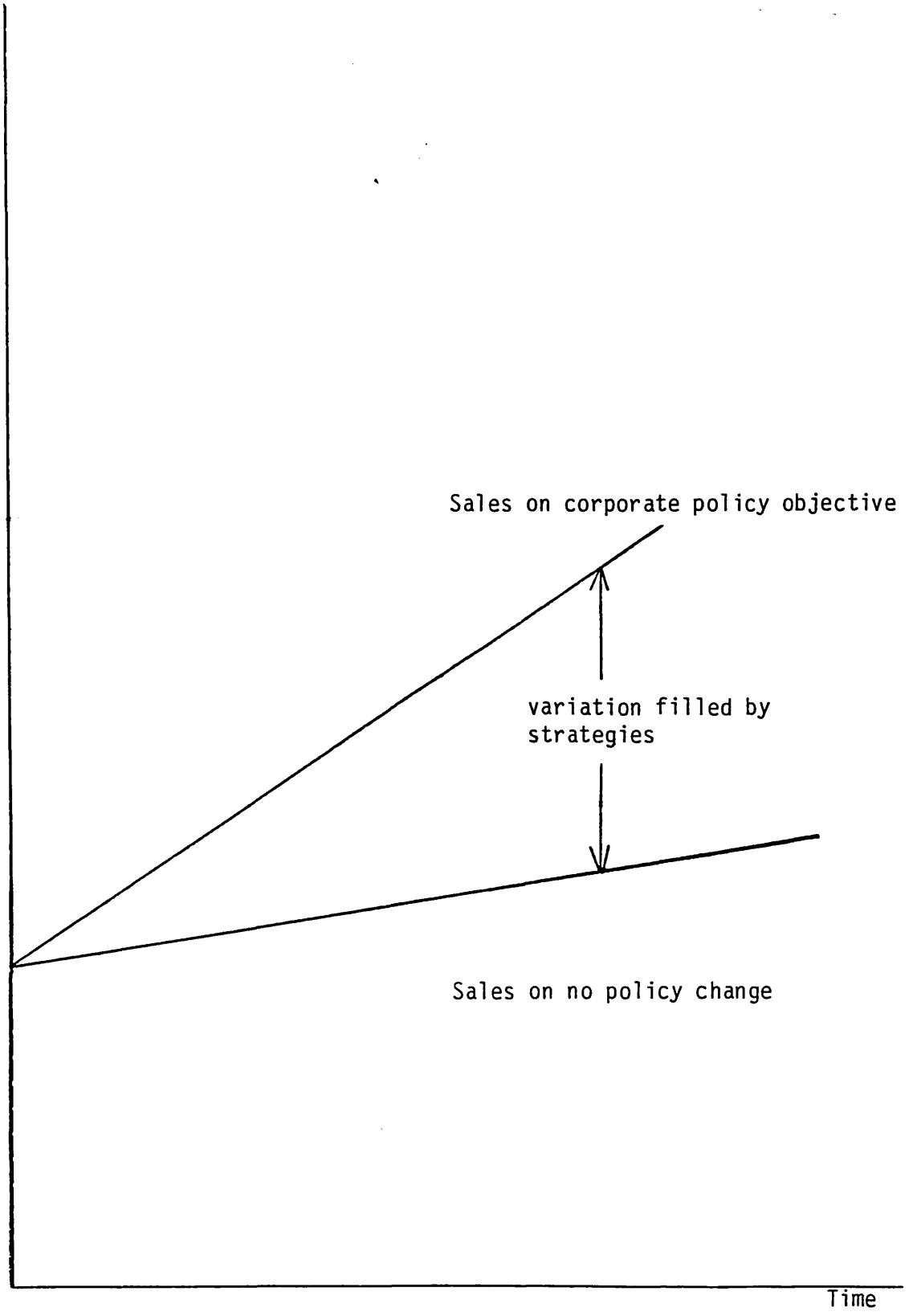


Figure 4.1.1-1

Figure 4.1.2-1 Data Availability

	Pharmacy					Hospital				
	78	79	80	81	82	78	79	80	81	82
W. Germany	X	X	X	X	X	X	X	X	X	X
France	X	X	X	X	X	N.A.				
Italy	X	X	X	X	X	N.A.				
U.K.				X	X	N.A.				
U.S.A.	X	X	X	X	X	X	X	X	X	X

JC1AAY

Figure 4.1.2 -2 Linear or exponential type of growth

Germany

	Linear Type (LT)	Exponential Type (ET)
(A) Anti-ulcer (Compound-A)	X	
(C) Cardiovascular, etc (Compound-B and C)		X
(J) Antibiotics (Compound-D)	X	
(R) Brochodilator (Compound-E)	X	

France

	LT	ET
(A)	X	
(C)		X
(J)	X	
(R)		X

Italy

	LT	ET
(A)	X	
(C)		X
(J)	X	
(R)		X

U.K.

	LT	ET
(A) - (R)	X	

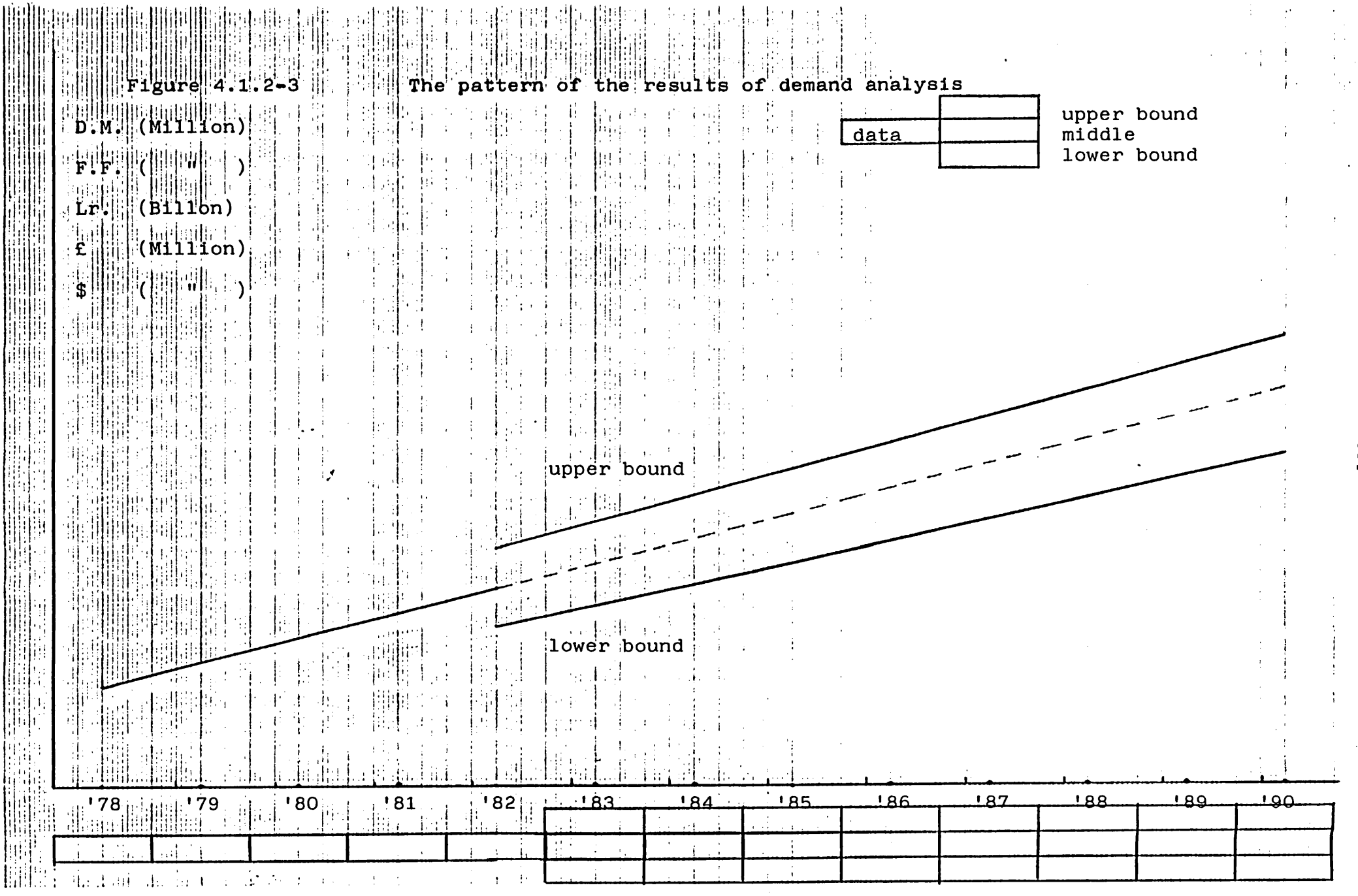
Due to the limited data availability, LT is used for U.K.

U.S.A.

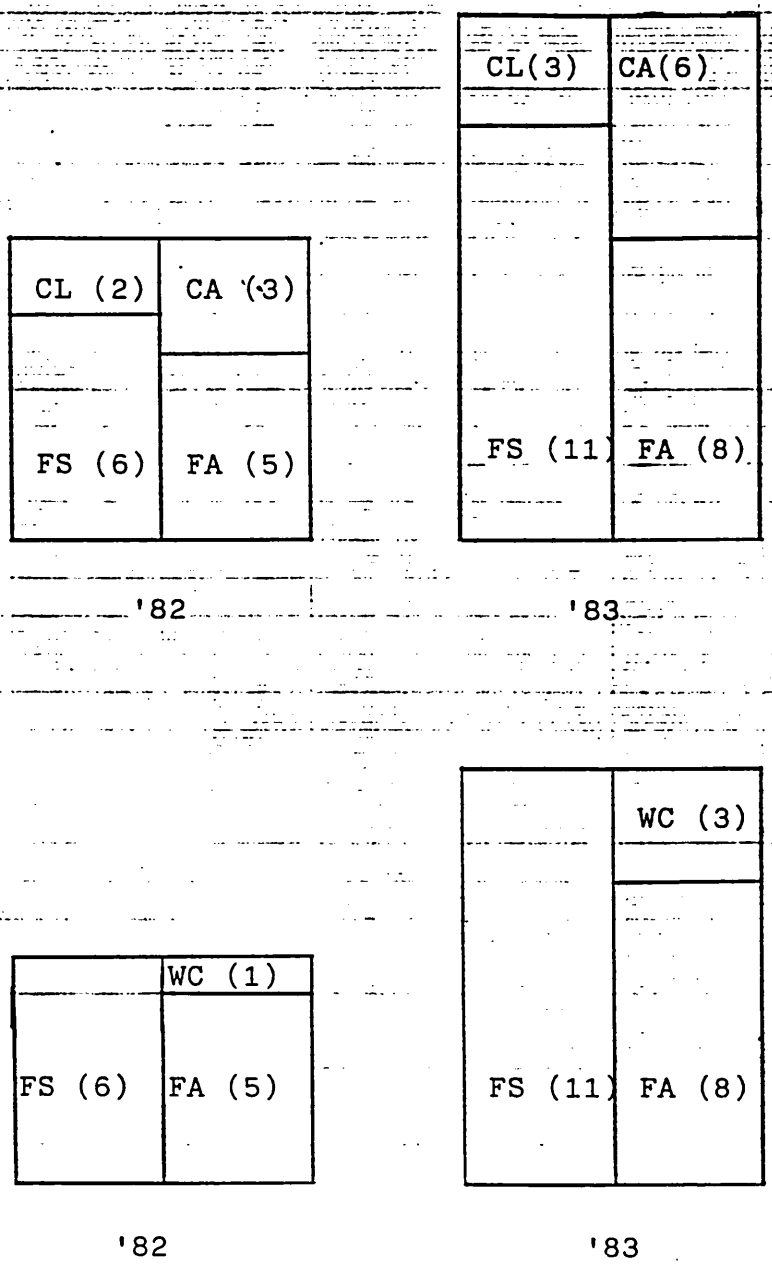
	LT	ET
(A)		X
(C)		X
(J)		X
(R)		X

JC1AAY

Figure 4.1.2-3 The pattern of the results of demand analysis



Funds Flow (Figure 4.1.6.4-1)



Basic relation of Fund flow statement:

Source of Funds = Use of Funds

FS'83 - FS'82 = (FA'83 - FA'82) +(WC'83 - WC'82)

11 - 6 = (8 - 5) +(3 - 1)

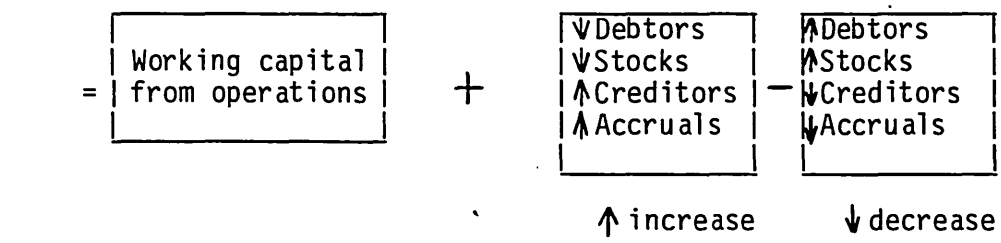
5 = 3 + 2

CL:Current Laibilities, CA:Current Assets

FA:Fixed Assets, FA:Financial Structure, WC:Working Capital

Cash Flow

Cash from operations



(Working capital from operations
= net income + depreciation + retirement)

Cash flow is as follows

Cash	Bank opening balance
(+) Inflows	Cash from operations
(-) Outflows	Purchases of plant and equipment
	Dividends
	Reduction in notes payable
	Increase in prepaids
	Decrease in taxes payable
(=) Cash	Bank closing balance

Figure 4.1.6.4-2

JC1AAY

The definition of financial ratios

Financial ratio analysis

Performance ratio

Return on Equity	=	$\frac{\text{Profit after Tax}}{\text{Equity}}$
Return on Capital Employed	=	$\frac{\text{Profit after Tax}}{\text{Capital Employed}}$
Return on sales	=	$\frac{\text{Profit after Tax}}{\text{Sales}}$
Total asset turnover	=	$\frac{\text{Sales}}{\text{Total assets}}$
Fixed asset turnover	=	$\frac{\text{Sales}}{\text{Fixed assets}}$
Stock turnover	=	$\frac{\text{Sales}}{\text{Stock}}$
Debtor turnover	=	$\frac{\text{Sales}}{\text{Debtor}}$
Collection period	=	$\frac{365}{\text{Debtor turnover}}$
Credit turnover	=	$\frac{\text{Sales}}{\text{Creditor}}$
Payment period	=	$\frac{365}{\text{Creditor tunover}}$

Financial status ratio

Gearing	=	$\frac{\text{Debt}}{\text{Capital employed}}$
Current ratio	=	$\frac{\text{Current assets}}{\text{Current liabilities}}$
Acid test	=	$\frac{\text{Current assets less stocks}}{\text{Current liabilities}}$

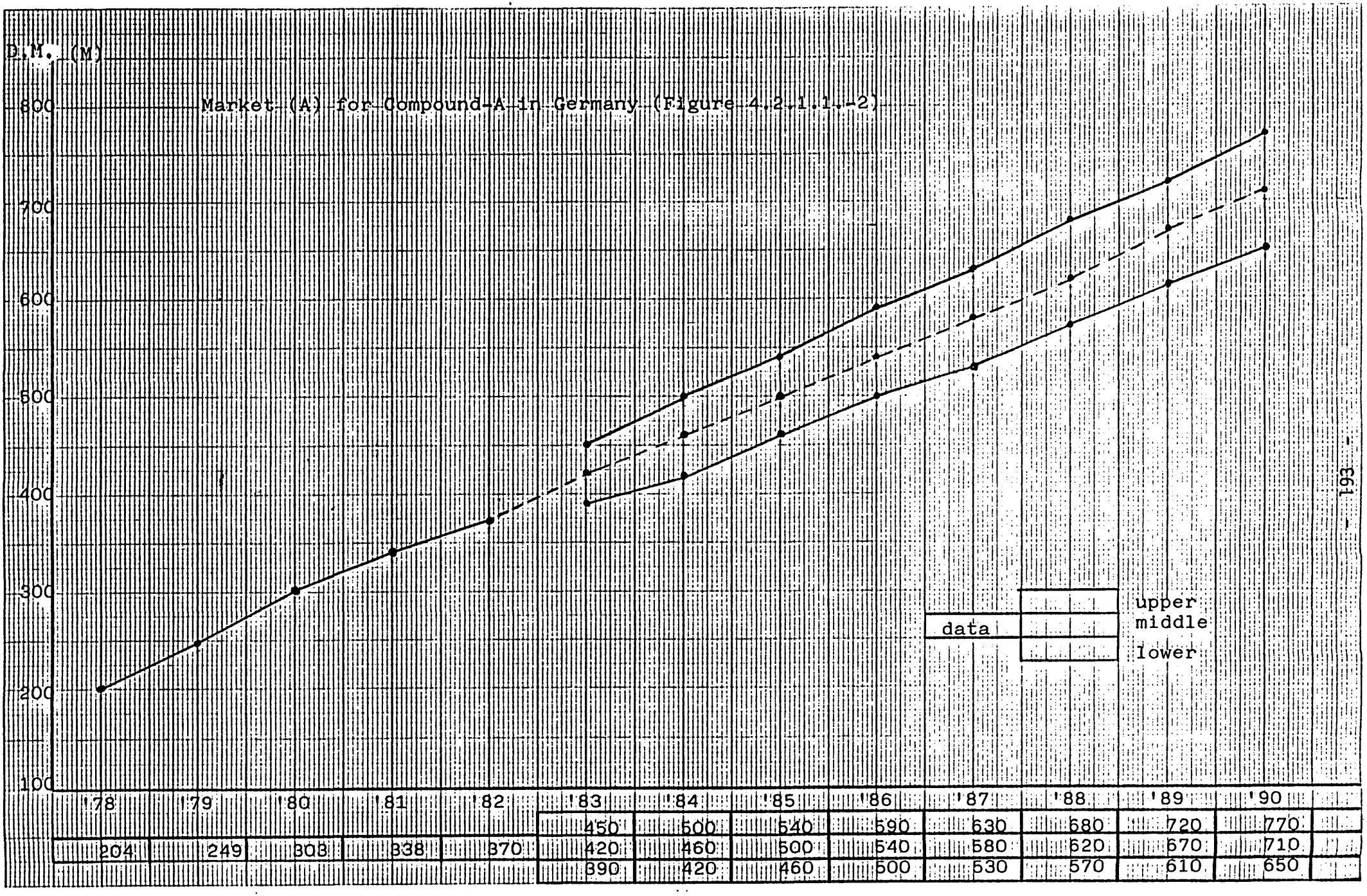
Figure 4.1.6.5

JC1AAY

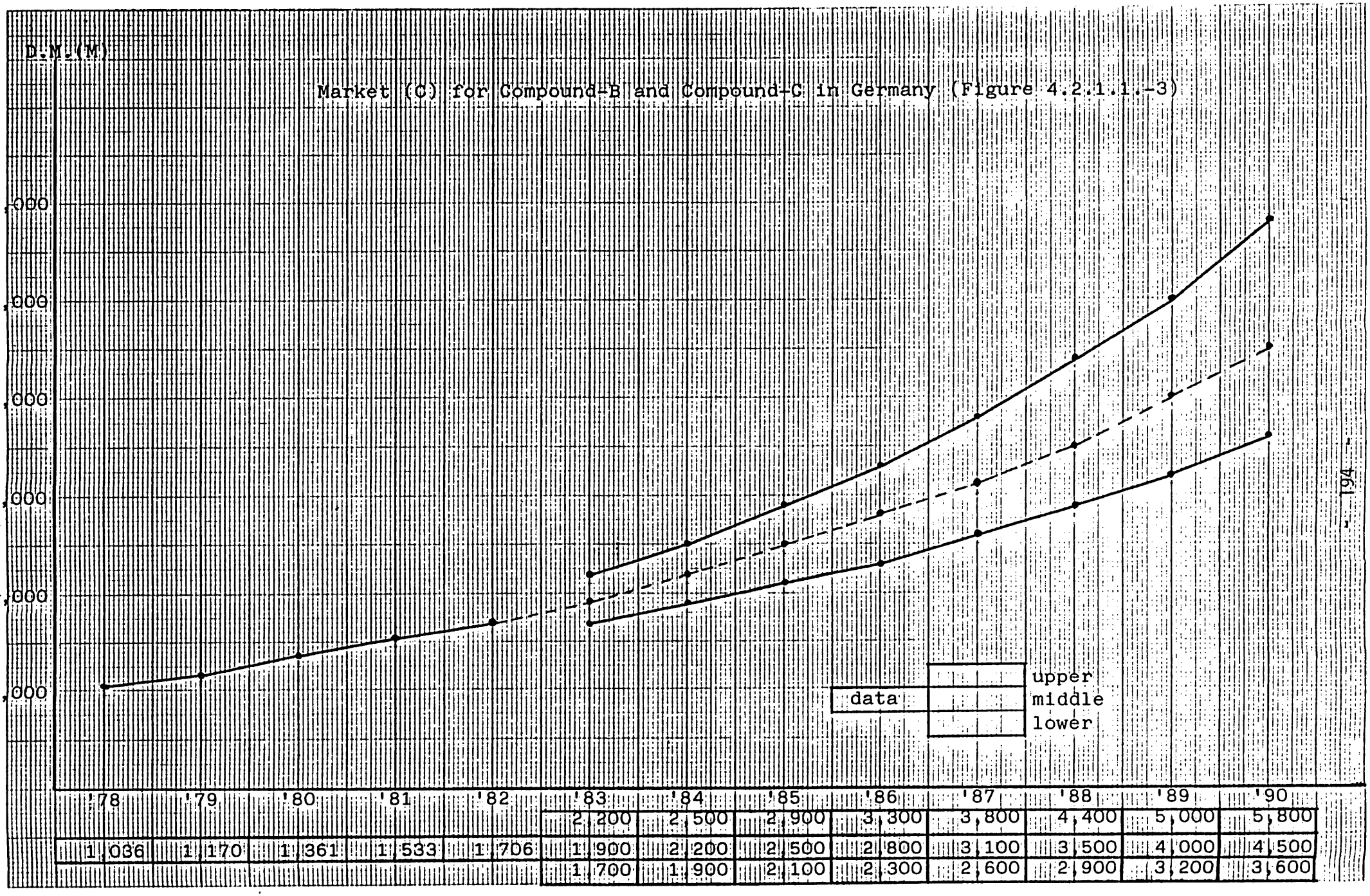
Germany DM(M)

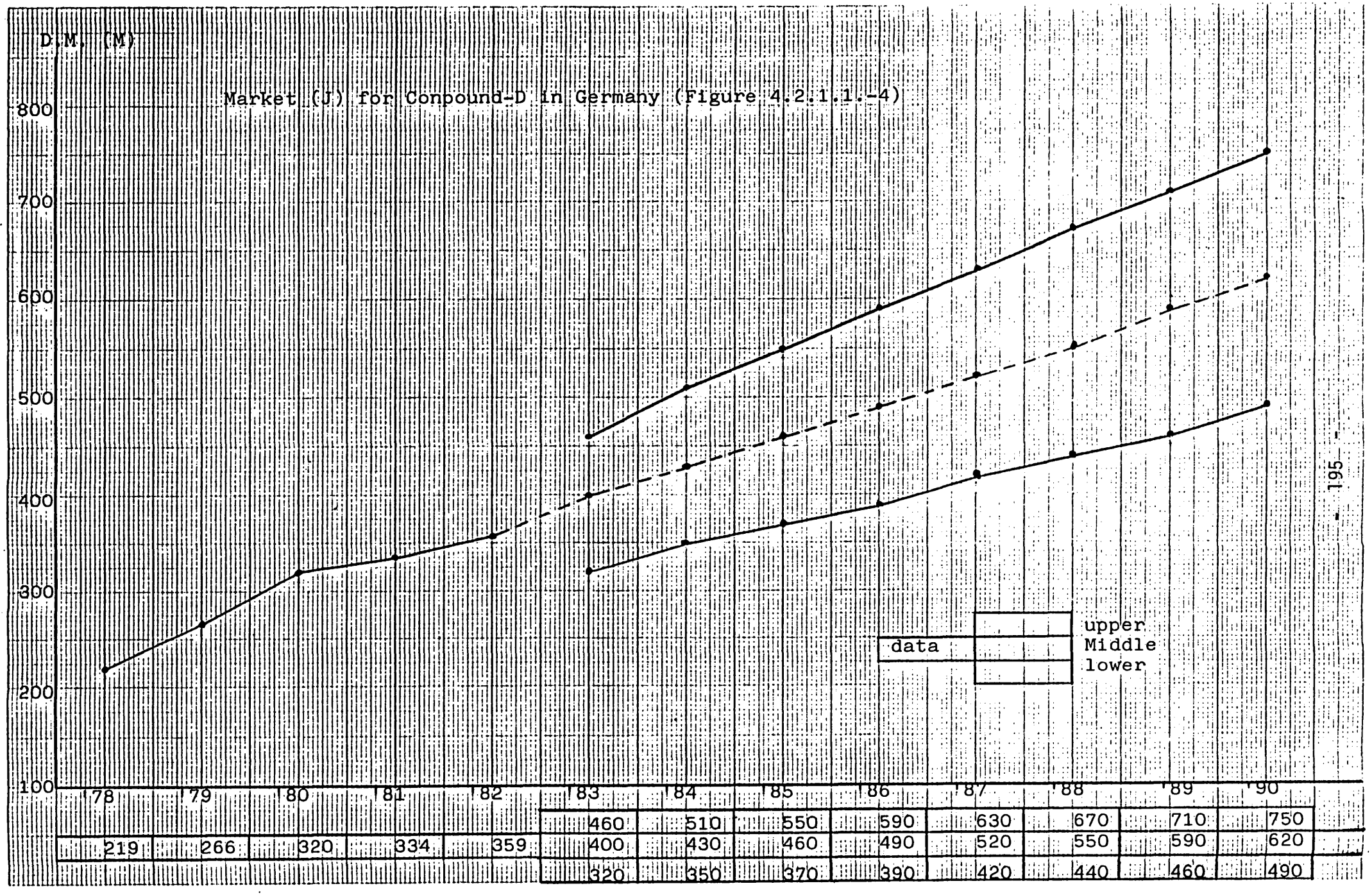
		1983	1984	1985	1986	1987	1988	1989	1990
Market	upper bound	450	500	540	590	630	680	720	770
(A)	middle	420	460	500	540	580	620	670	710
	lower bound	390	420	460	500	530	570	610	650
Market	upper bound	2200	2500	2900	3300	3800	4400	5000	5800
(C)	middle	1900	2200	2500	2800	3100	3500	4000	4500
	lower bound	1700	1900	2100	2300	2600	2900	3200	3600
Market	upper bound	460	510	550	590	630	670	710	750
(J)	middle	400	430	460	490	520	550	590	620
	lower bound	320	350	370	390	420	440	460	490
Market	upper bound	260	290	310	330	360	380	400	430
(R)	middle	240	260	280	300	330	350	370	390
	lower bound	220	240	260	280	300	310	330	350

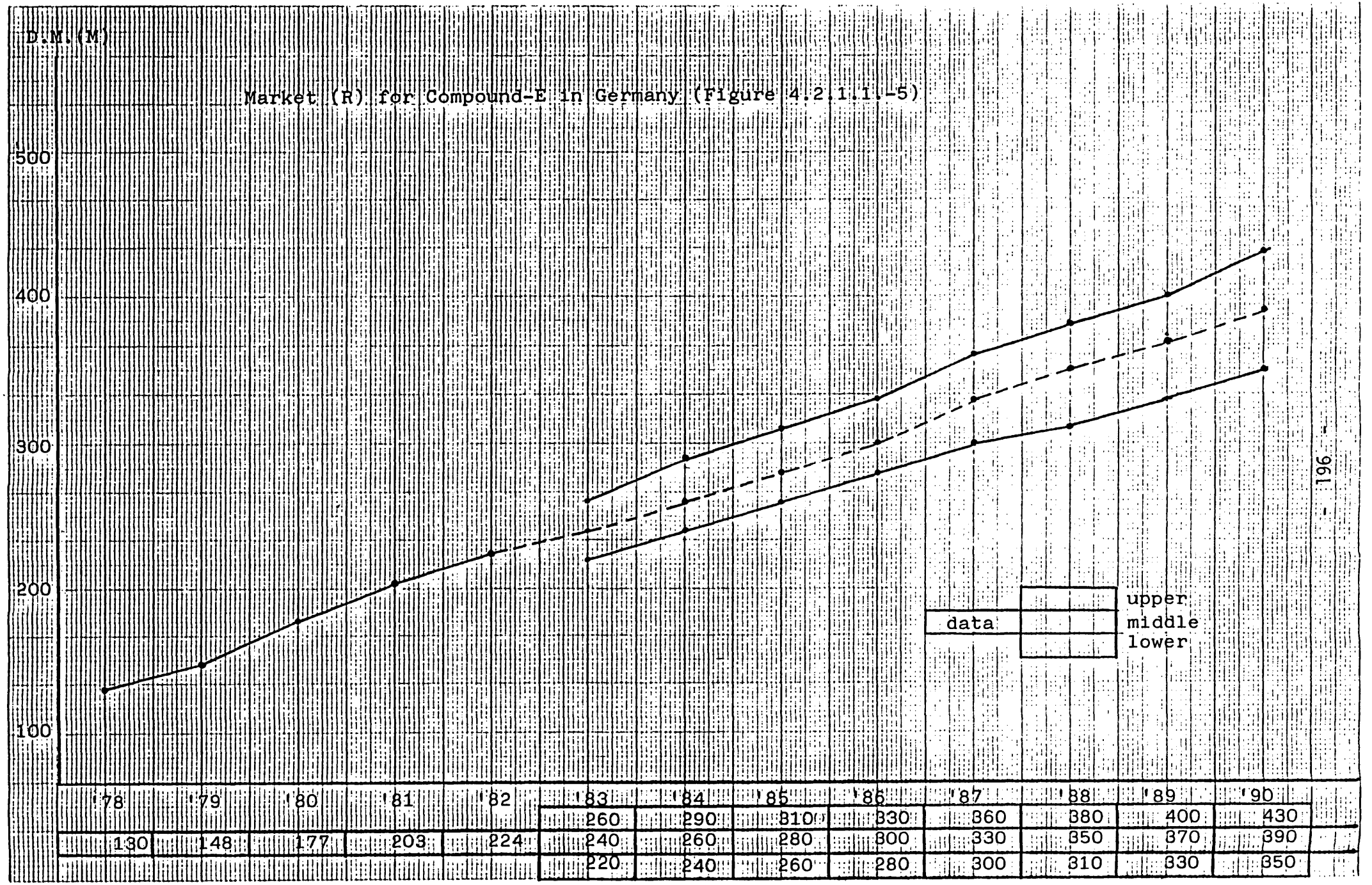
Figure 4.2.1.1.-1



'78	'79	'80	'81	'82	'83	'84	'85	'86	'87	'88	'89	'90
					450	500	540	590	630	680	720	770
204	249	308	338	370	420	460	500	540	580	620	670	710
					390	420	460	500	530	570	610	650


D.M.(M)
Market (C) for Compound-B and Compound-C in Germany (Figure 4.2.1.1.-3)
6,000
5,000
4,000
3,000
2,000
1,000
data
upper
middle
lower
'78 '79 '80 '81 '82 '83 '84 '85 '86 '87 '88 '89 '90
2,200 2,500 2,900 3,300 3,800 4,400 5,000 5,800
1,036 1,170 1,361 1,533 1,706 1,900 2,200 2,500 2,800 3,100 3,500 4,000 4,500
1,700 1,900 2,100 2,300 2,600 2,900 3,200 3,600

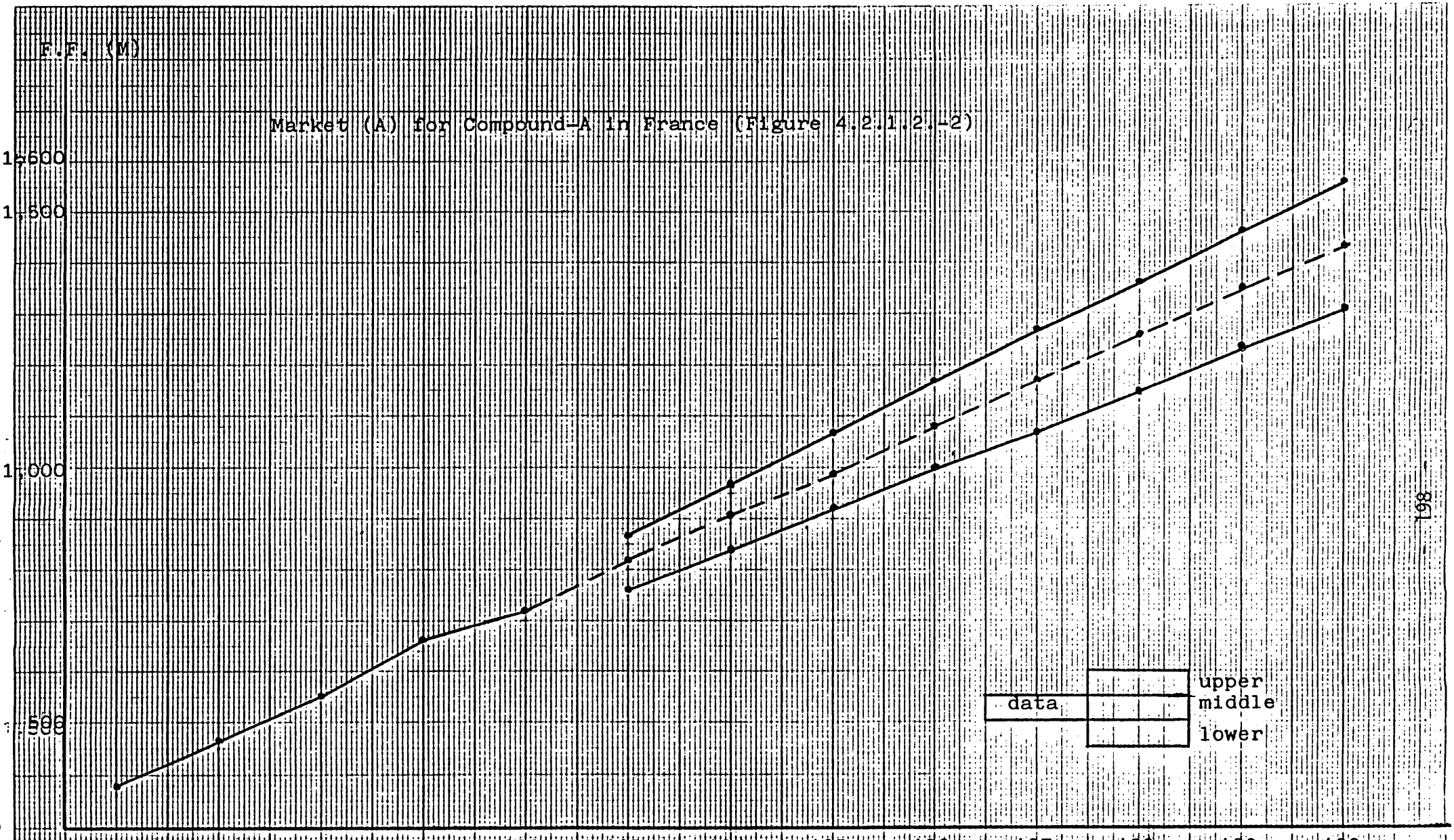

D.M. (M)
Market (J) for Conpound-D in Germany (Figure 4.2.1.1.-4)
800
700
600
500
400
300
200
100
'78
'79
'80
'81
'82
'83
'84
'85
'86
'87
'88
'89
'90
data
upper
Middle
lower
219
266
320
334
359
460
510
550
590
630
670
710
750
400
430
460
490
520
550
590
620
320
350
370
390
420
440
460
490


D.M.(M)
Market (R) for Compound-E in Germany (Figure 4.2.1.1.-5)
500
400
300
200
100
upper
data
middle
lower
'78 '79 '80 '81 '82 '83 '84 '85 '86 '87 '88 '89 '90
130 148 177 203 224
260 290 310 330 360 380 400 430
240 260 280 300 330 350 370 390
220 240 260 280 300 310 330 350

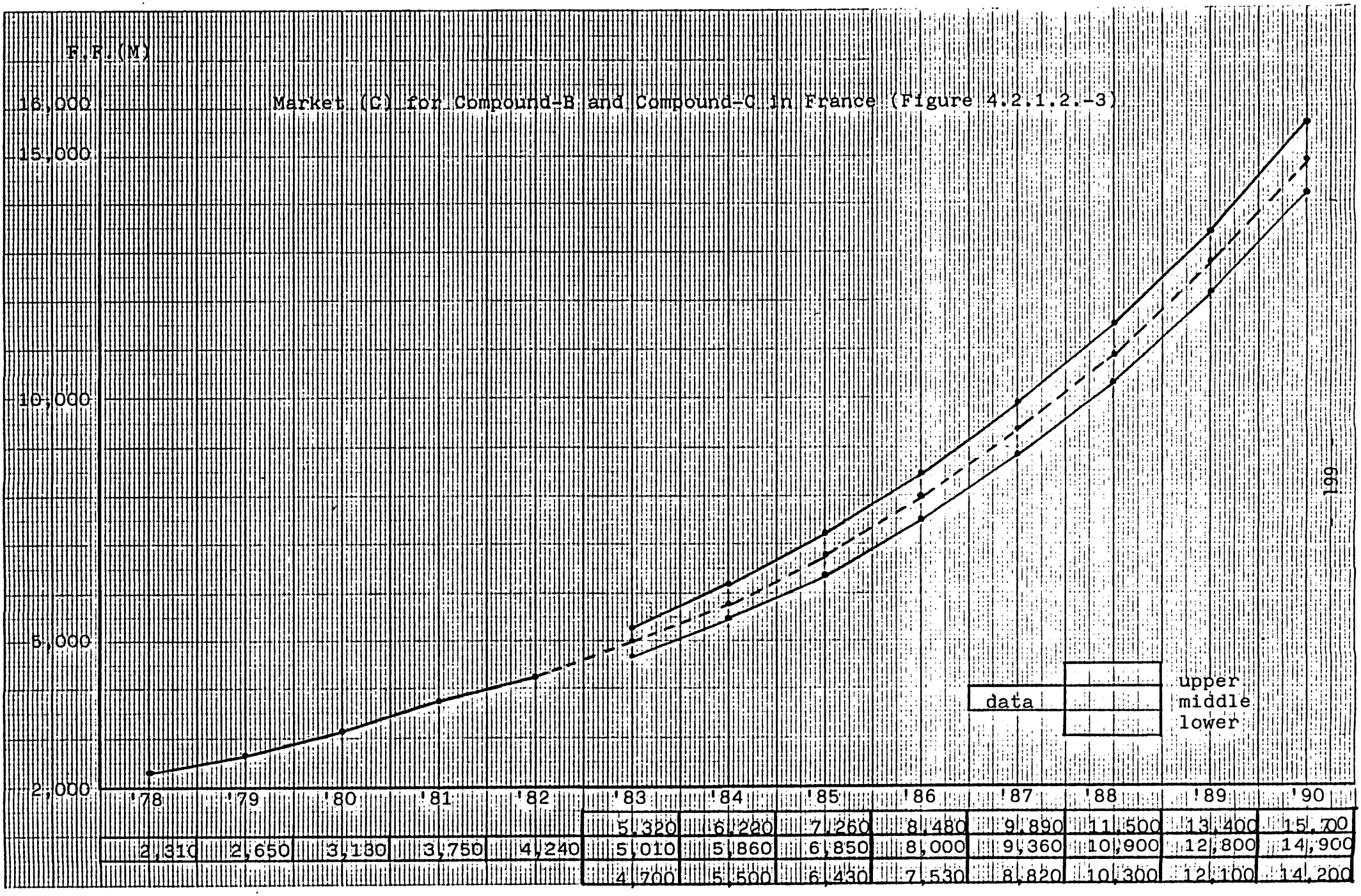
France FF(M)

		1983	1984	1985	1986	1987	1988	1989	1990
Market	upper bound	870	970	1070	1170	1270	1360	1460	1560
(A)	middle	820	910	990	1080	1170	1260	1350	1430
	lower bound	760	840	920	1000	1070	1150	1230	1310
Market	upper bound	5320	6220	7260	8480	9890	11500	13400	15700
(C)	middle	5010	5860	6850	8000	9360	10900	12800	14900
	lower bound	4700	5500	6430	7530	8820	10300	12100	14200
Market	upper bound	280	290	310	320	340	350	370	380
(J)	middle	235	244	250	260	270	270	280	290
	lower bound	200	200	200	200	200	200	200	200
Market	upper bound	410	500	610	750	930	1100	1400	1700
(R)	middle	340	410	490	580	690	830	990	1200
	lower bound	290	340	390	450	520	600	690	800

Figure 4.2.1.2-1

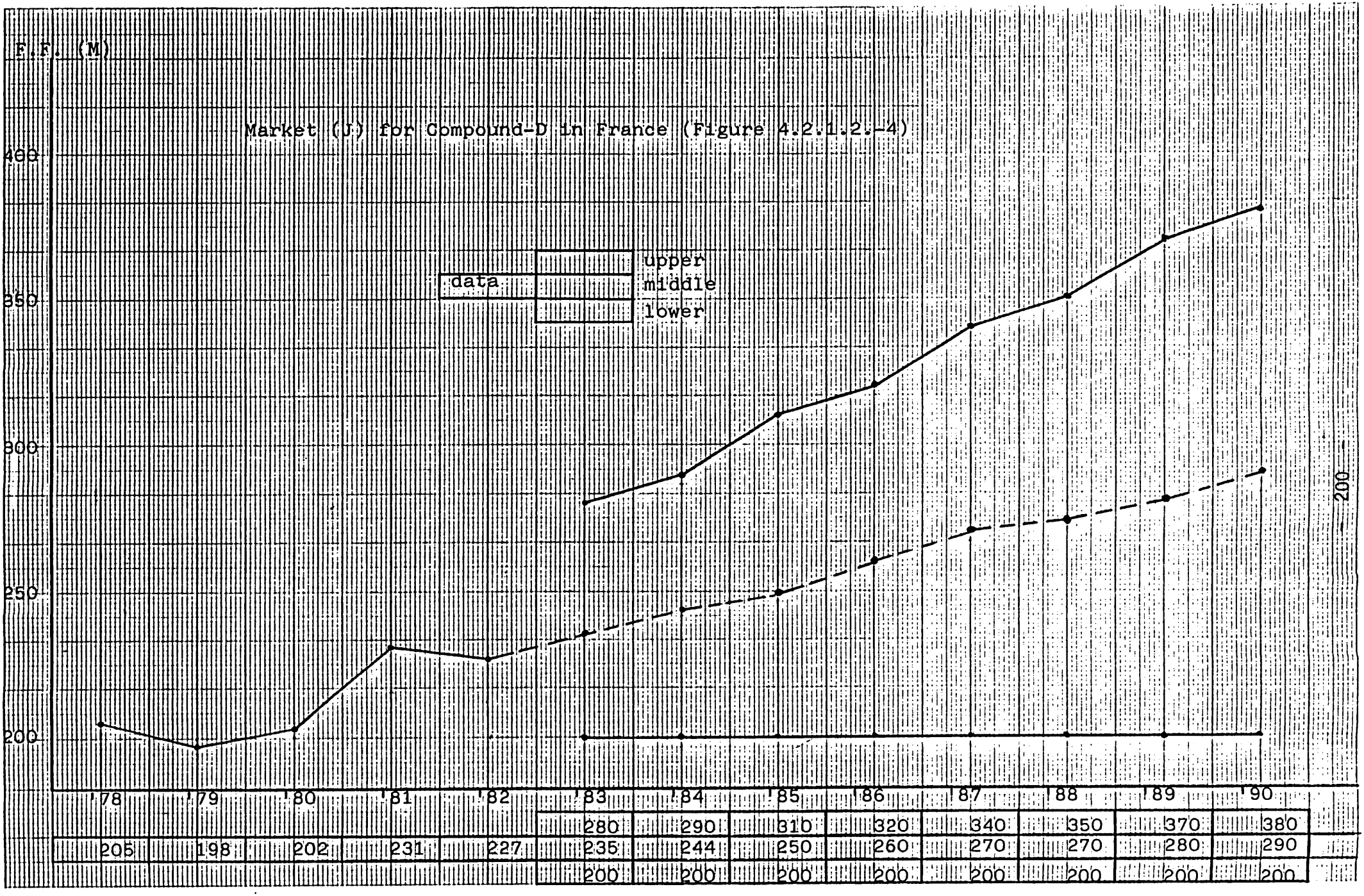


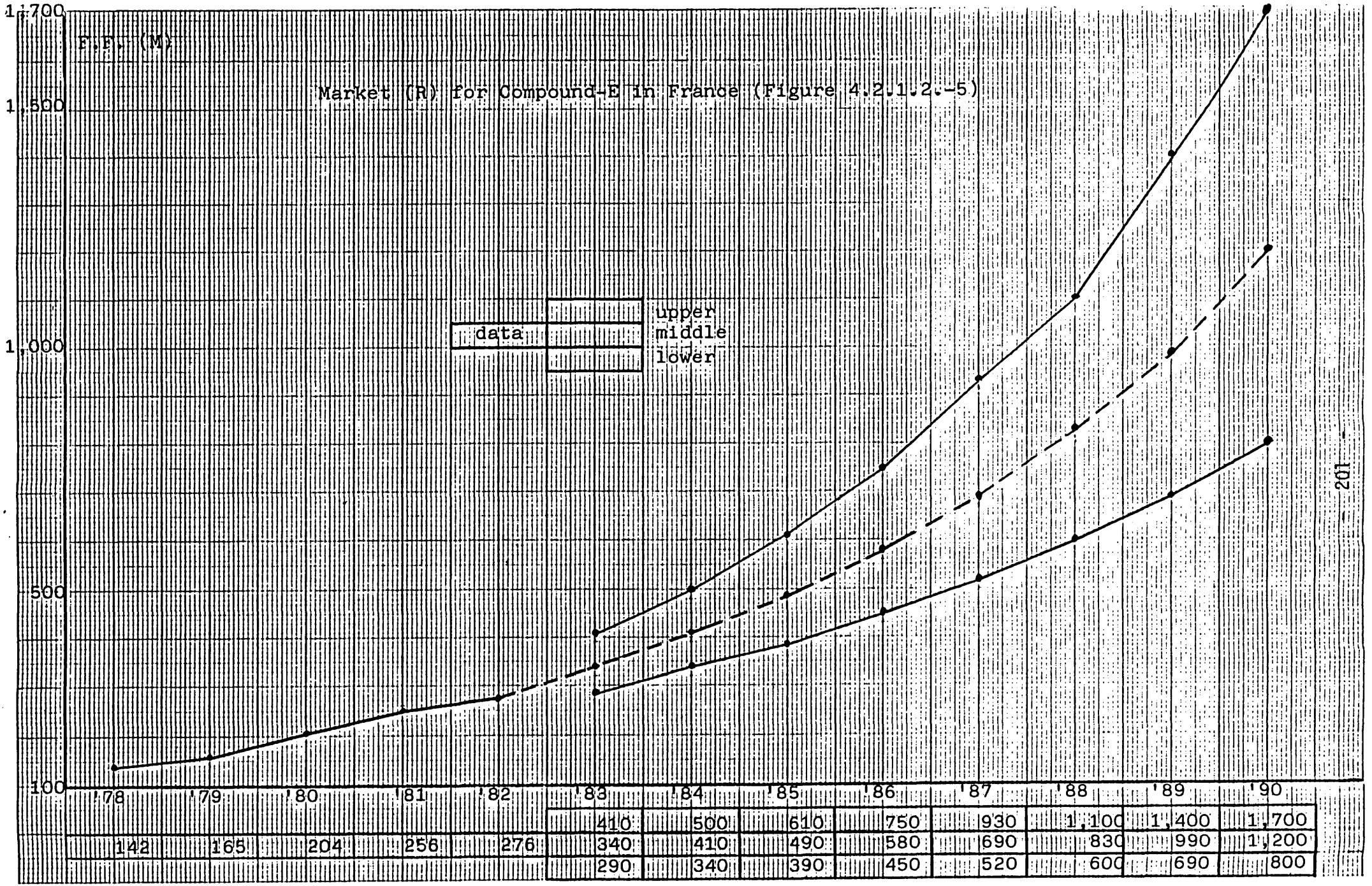
'78	'79	'80	'81	'82	'83	'84	'85	'86	'87	'88	'89	'90
					870	970	1,070	1,170	1,270	1,360	1,460	1,560
380	465	546	664	720	820	910	990	1,080	1,170	1,260	1,850	1,430
					760	840	920	1,000	1,070	1,150	1,230	1,310



Market (C) for Compound-B and Compound-C in France (Figure 4.2.1.2.-3)

	'78	'79	'80	'81	'82	'83	'84	'85	'86	'87	'88	'89	'90
upper						5,320	6,220	7,260	8,480	9,890	11,500	13,400	15,700
middle	2,310	2,650	3,180	3,750	4,240	5,010	5,860	6,850	8,000	9,360	10,900	12,800	14,900
lower						4,700	5,500	6,430	7,530	8,820	10,300	12,100	14,200


F.F. (M)
Market (J) for Compound-D in France (Figure 4.2.1.2.-4)
400
350
300
250
200
data
upper
middle
lower
'78 '79 '80 '81 '82 '83 '84 '85 '86 '87 '88 '89 '90
205 198 202 231 227
280 290 310 320 340 350 370 380
235 244 250 260 270 270 280 290
200 200 200 200 200 200 200 200


F.F. (M)
1,700
1,500
1,000
500
100
Market (R) for Compound-E in France (Figure 4.2.1.2.-5)
data
upper
middle
lower
'78
'79
'80
'81
'82
'83
'84
'85
'86
'87
'88
'89
'90
142
165
204
256
276
410
500
610
750
930
1,100
1,400
1,700
340
410
490
580
690
830
990
1,200
290
340
390
450
520
600
690
800

Italy

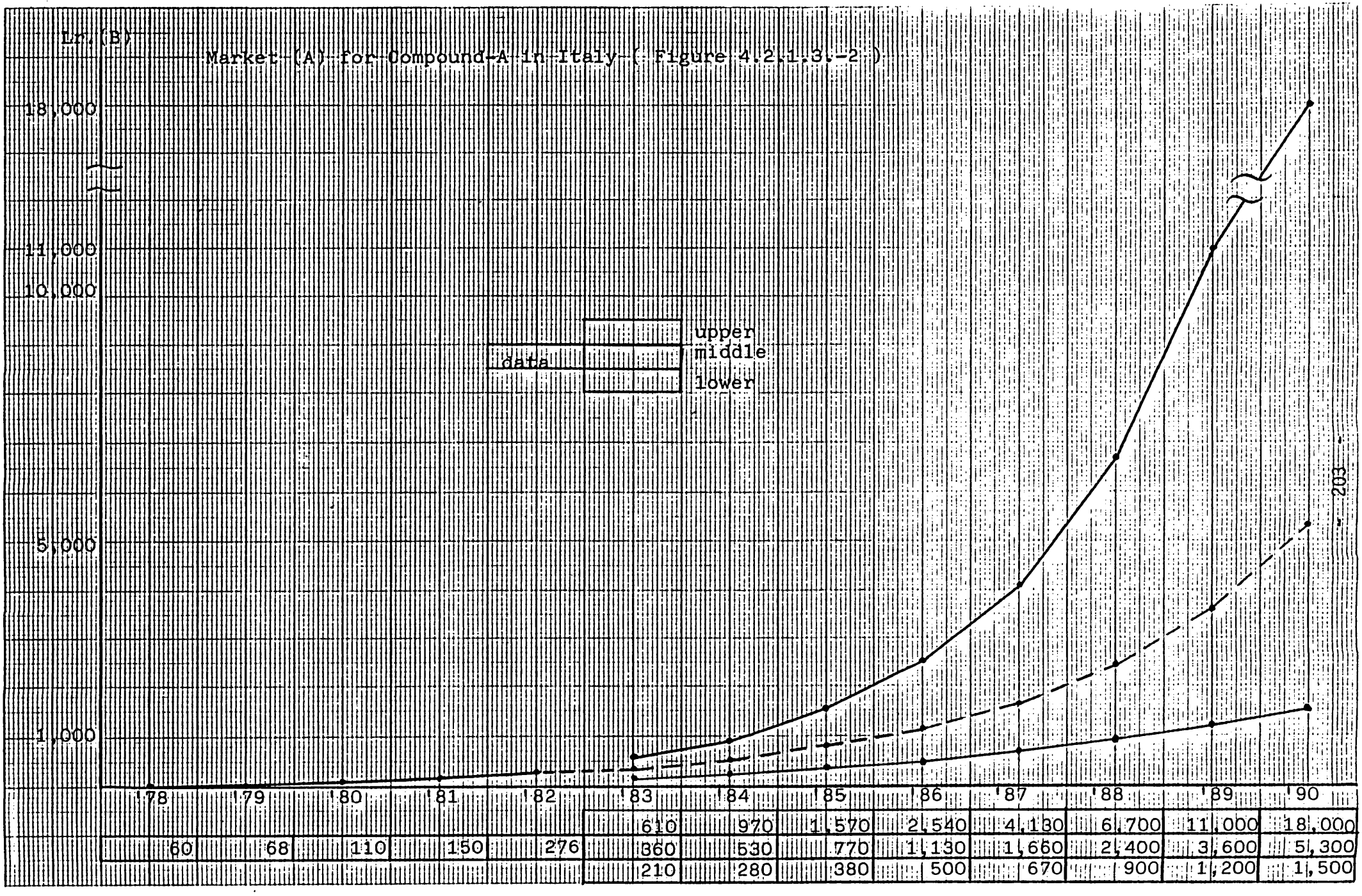
Lr(B)

		1983	1984	1985	1986	1987	1988	1989	1990
Market	upper bound	610	970	1570	2450	4130	6700	11000	18000
(A)	middle	360	530	770	1130	1660	2400	3600	5300
	lower bound	210	280	380	500	670	900	1200	1500
Market	upper bound	800	1120	1580	2250	3210	4600	6600	9500
(C)	middle	460	590	760	980	1260	1600	2100	2700
	lower bound	260	310	370	430	490	570	650	750
Market	upper bound	360	510	730	1050	1500	2100	3100	4400
(J)	middle	250	340	450	600	810	1100	1400	1900
	lower bound	180	220	280	350	430	540	670	830
Market	upper bound	70	90	110	140	180	230	300	380
(R)	middle	60	70	90	120	140	180	220	280
	lower bound	50	60	80	90	110	140	170	200

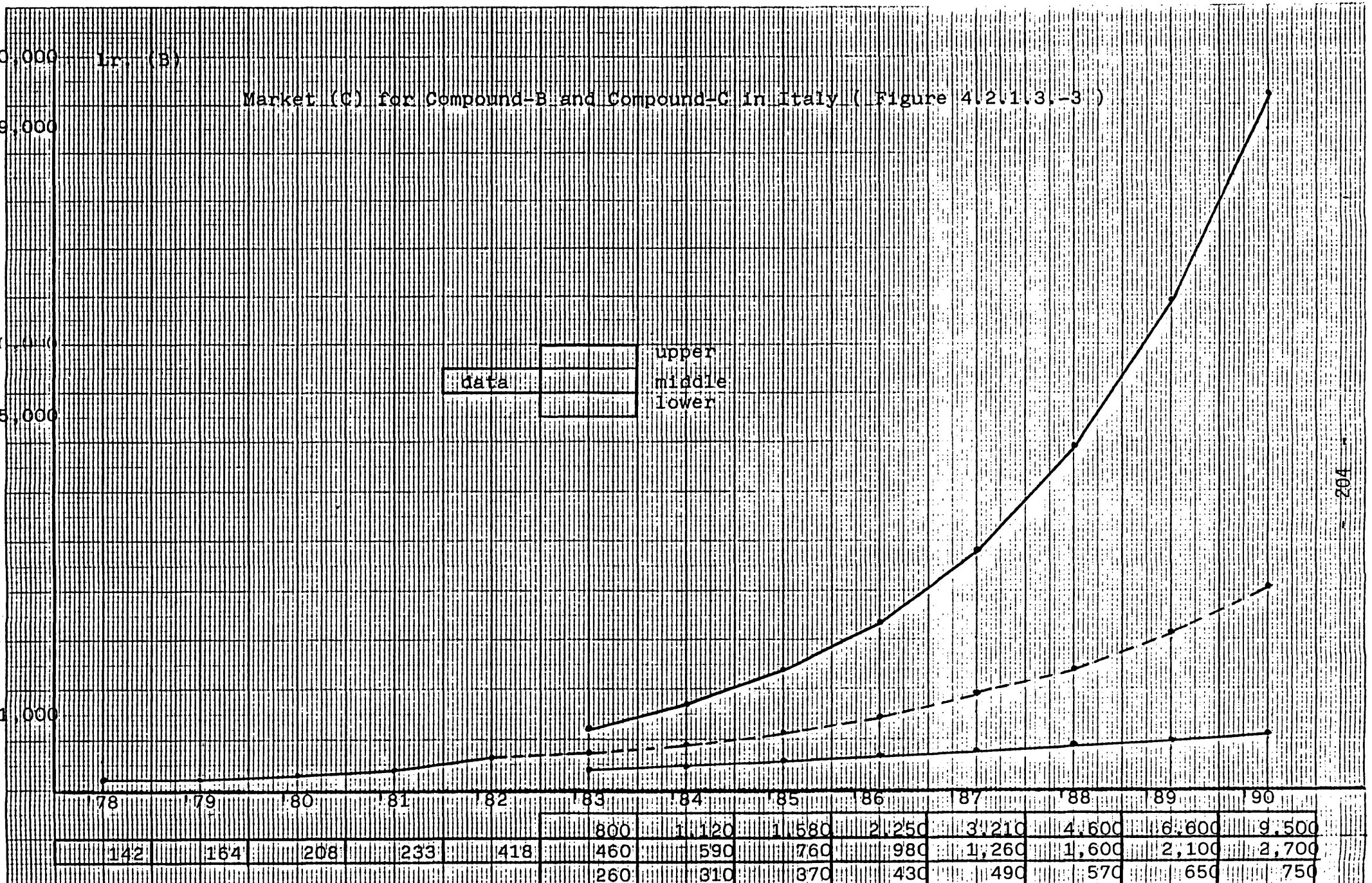
Figure 4.2.1.3-1

Lr.(B)

Market (A) for Compound-A in Italy (Figure 4.2.1.3.-2)

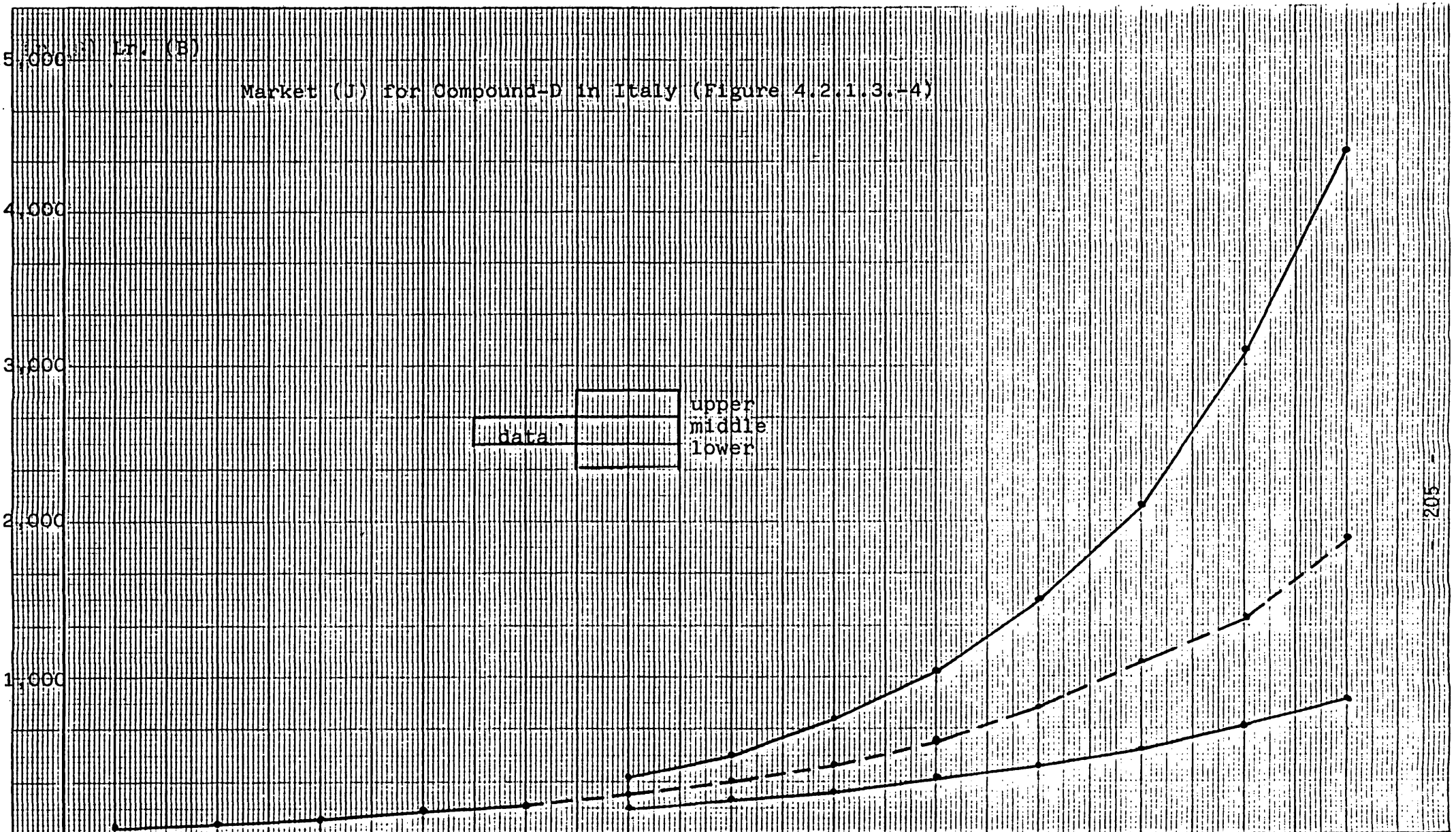


						610	970	1,570	2,540	4,130	6,700	11,000	18,000
60	68	110	150	276	360	530	770	1,130	1,660	2,400	3,600	5,300	
					210	280	380	500	670	900	1,200	1,500	

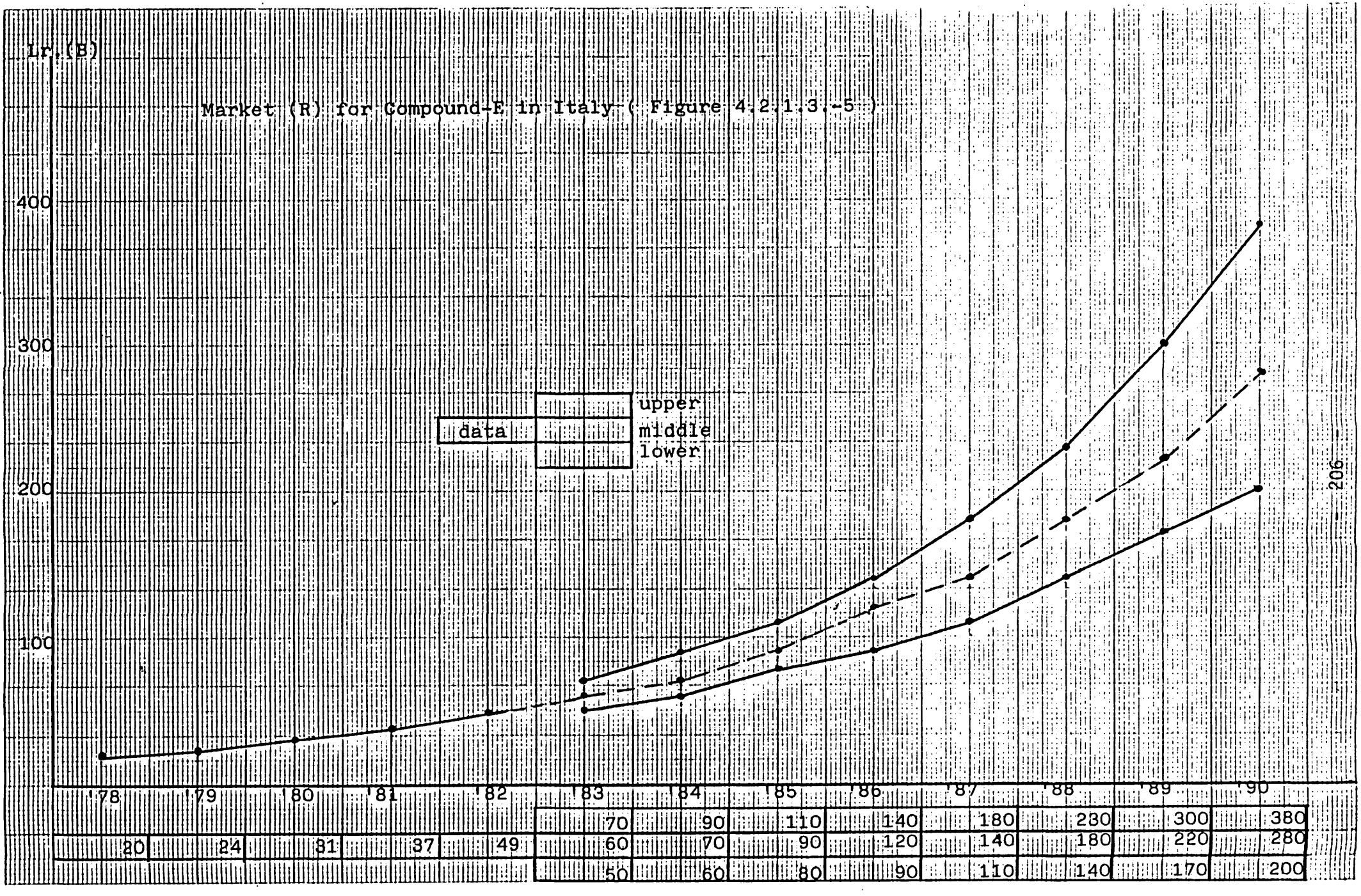

10,000
Lr. (B)
Market (C) for Compound-B and Compound-C in Italy (Figure 4.2.1.3.-3)
9,000
5,000
1,000
data
upper
middle
lower
'78
'79
'80
'81
'82
'83
'84
'85
'86
'87
'88
'89
'90
142
164
208
233
418
800
1,120
1,580
2,250
3,210
4,600
6,600
9,500
460
590
760
980
1,260
1,600
2,100
2,700
260
310
370
430
490
570
650
750

Lr. (B)

Market (J) for Compound-D in Italy (Figure 4.2.1.3.-4)



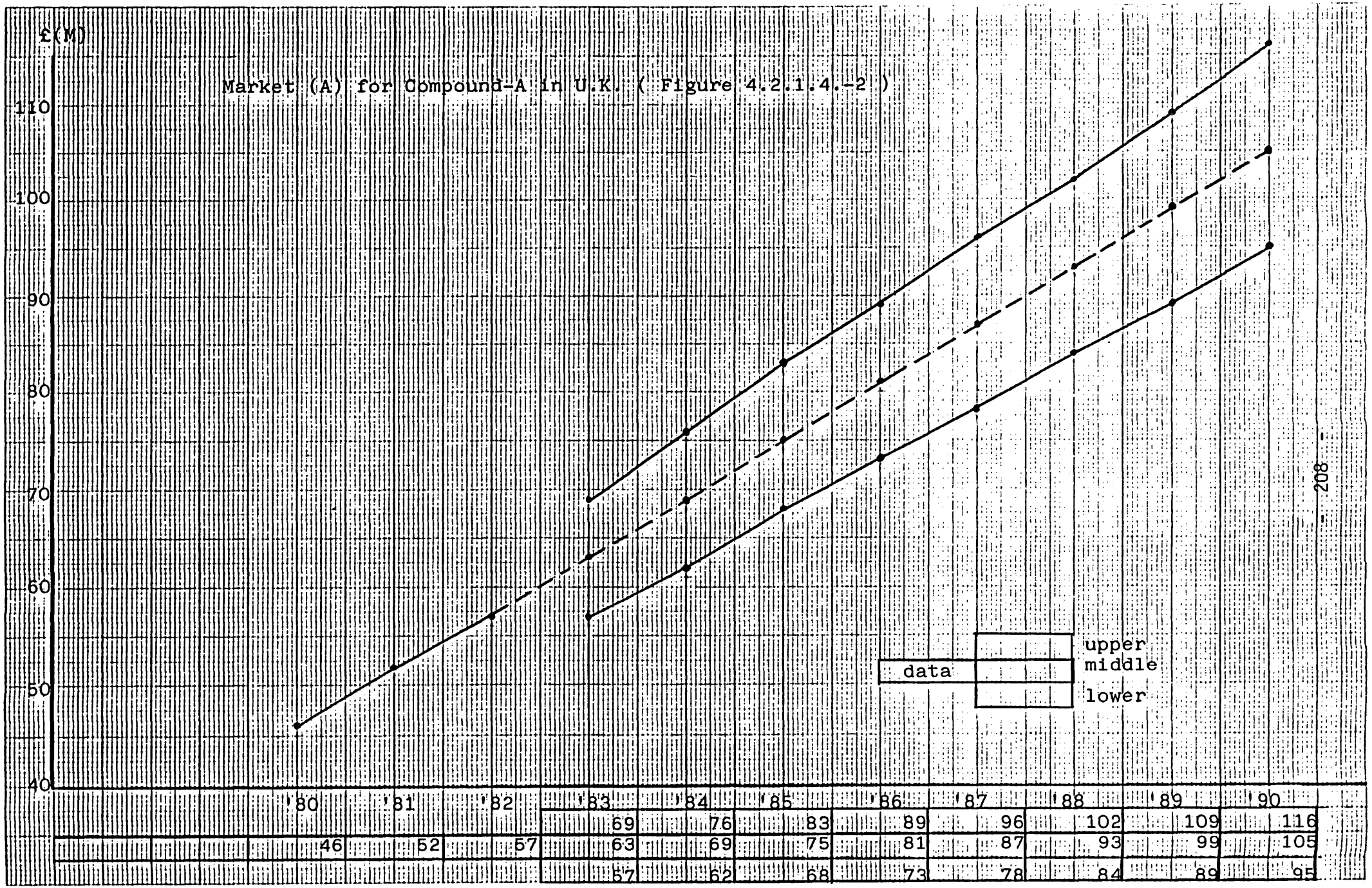
'78	'79	'80	'81	'82	'83	'84	'85	'86	'87	'88	'89	'90
					360	510	730	1,050	1,500	2,100	3,100	4,400
62	75	100	162	180	250	340	450	600	810	1,100	1,400	1,900
					180	220	280	350	430	540	670	830


Lr.(B)
Market (R) for Compound-E in Italy (Figure 4.2.1.3.-5)
400
300
200
100
data
upper
middle
lower
206
'78
'79
'80
'81
'82
'83
'84
'85
'86
'87
'88
'89
'90
20
24
31
37
49
70
90
110
140
180
230
300
380
60
70
90
120
140
180
220
280
50
60
80
90
110
140
170
200

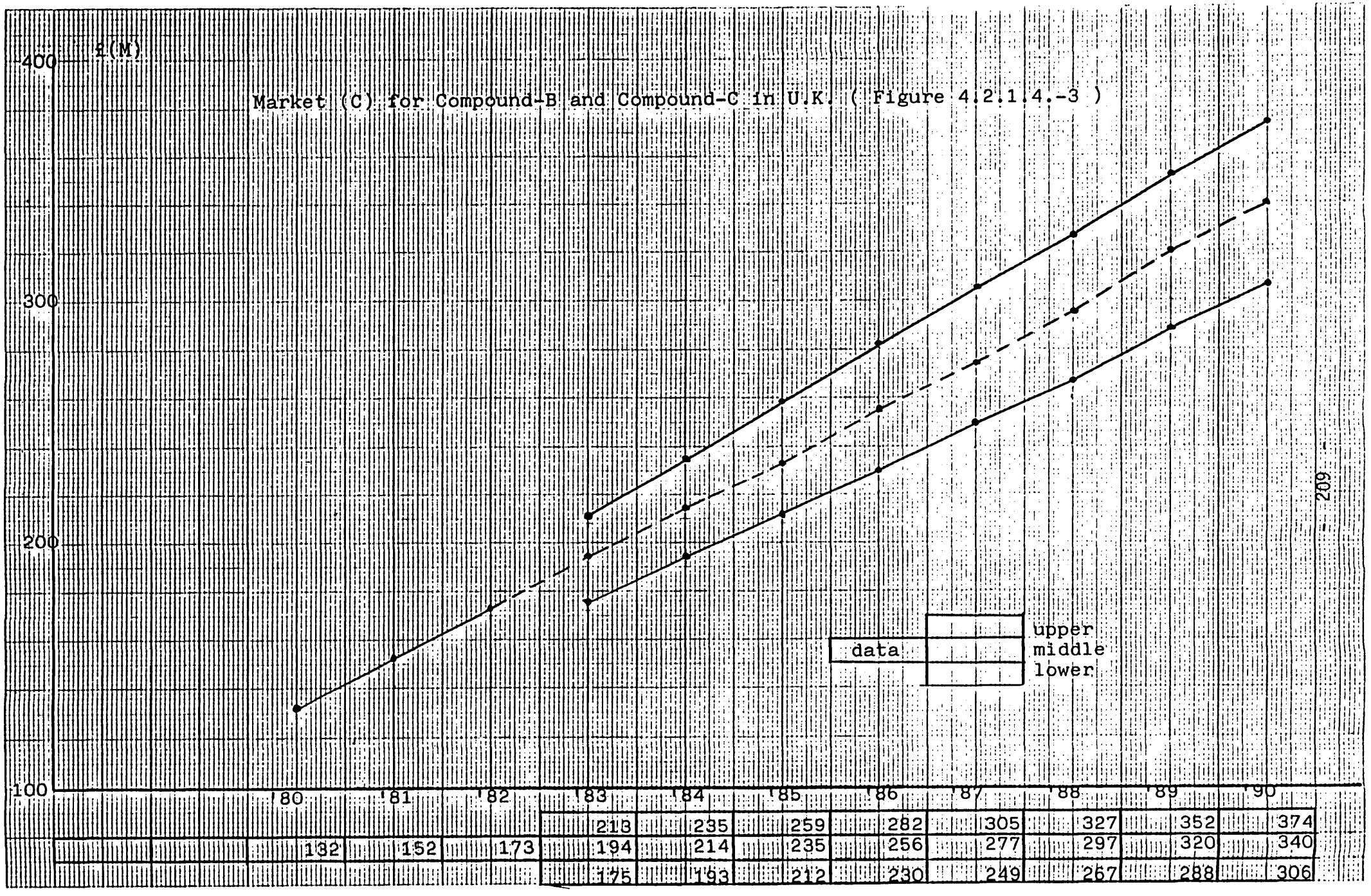
U.K. £(M)

		1983	1984	1985	1986	1987	1988	1989	1990
Market	upper bound	69	76	83	89	96	102	109	116
(A)	middle	63	69	75	81	87	93	99	105
	lower bound	57	62	68	73	78	84	89	95
Market	upper bound	213	235	259	282	305	327	352	374
(C)	middle	194	214	235	256	277	297	320	340
	lower bound	175	193	212	230	249	267	288	306
Market	upper bound	23	25	26	29	31	32	34	36
(J)	middle	21	23	24	26	28	29	31	33
	lower bound	19	21	22	23	25	26	28	30
Market	upper bound	98	109	120	132	143	154	165	176
(R)	middle	89	99	109	120	130	140	150	160
	lower bound	80	89	98	108	117	126	135	144

Figure 4.2.1.4-1

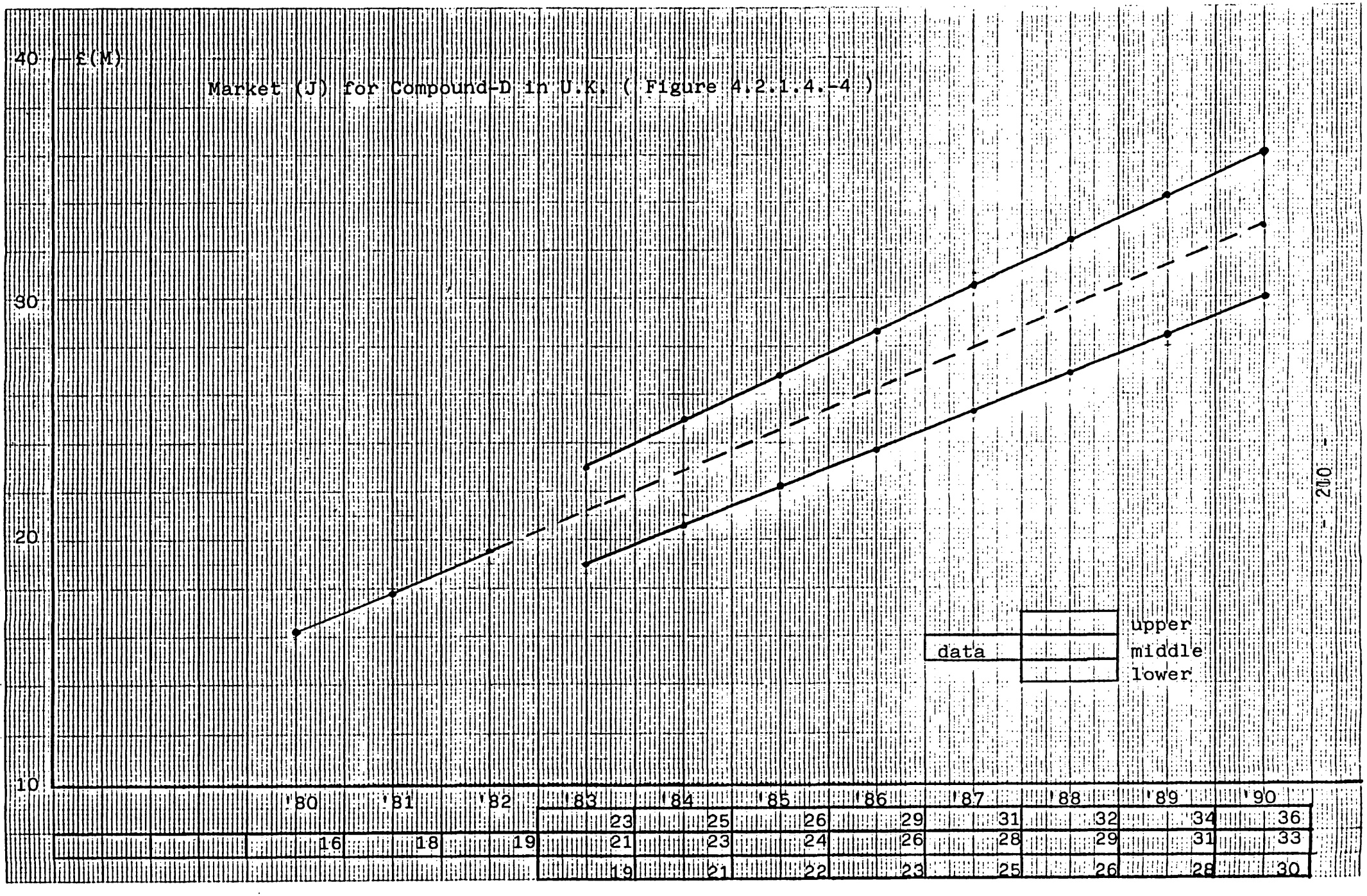

£(M)
Market (A) for Compound-A in U.K. (Figure 4.2.1.4.-2)
110
100
90
80
70
60
50
40
data
upper
middle
lower
'80 '81 '82 '83 '84 '85 '86 '87 '88 '89 '90
46 52 57 63 69 75 81 87 93 99 105
57 62 68 73 78 84 89 95
69 76 83 89 96 102 109 116

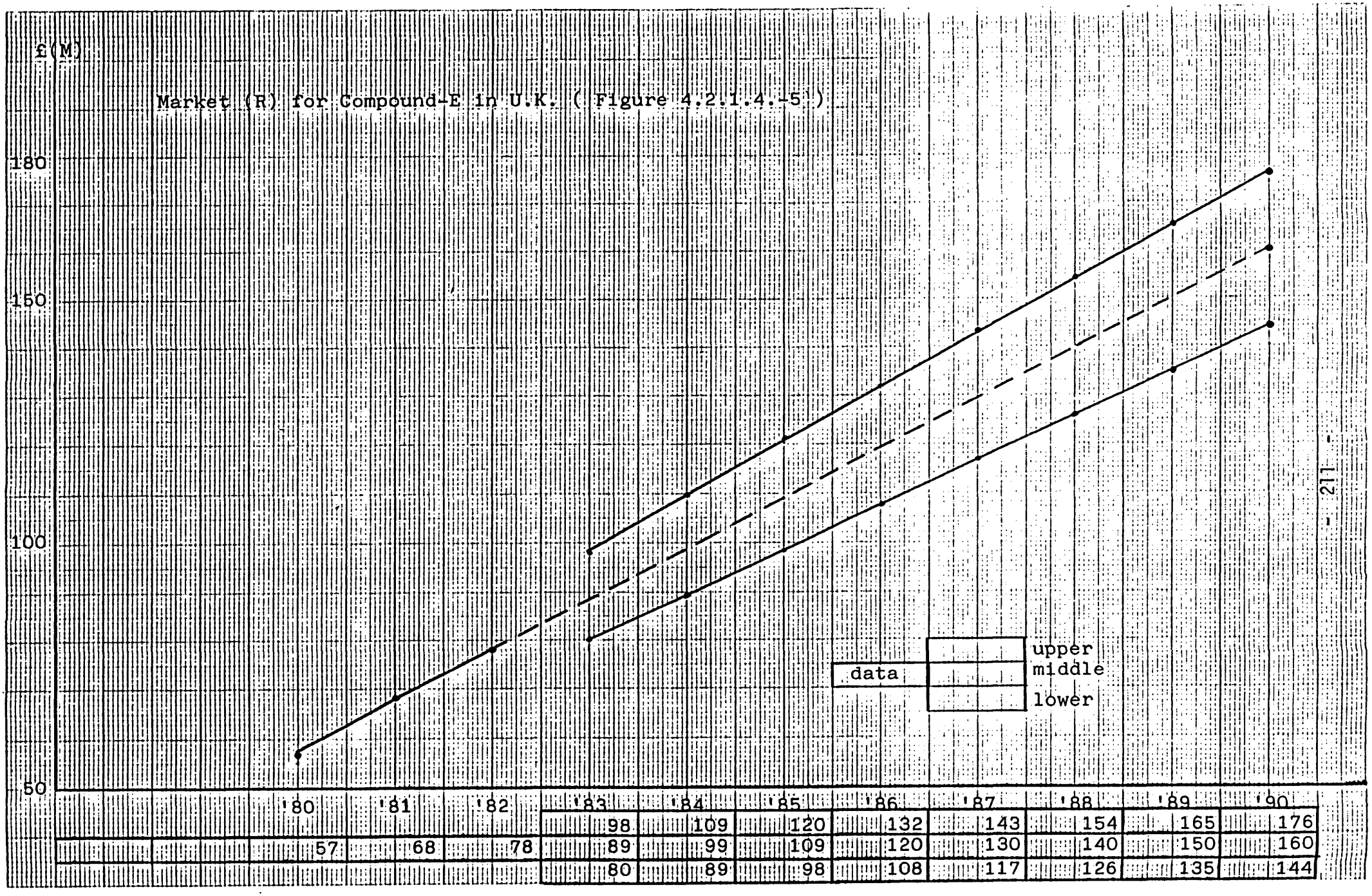
Market (C) for Compound-B and Compound-C in U.K. (Figure 4.2.1.4.-3)



					213	235	259	282	305	327	352	374
		132	152	173	194	214	235	256	277	297	320	340
					175	193	212	230	249	267	288	306

Market (J) for Compound-D in U.K. (Figure 4.2.1.4.-4)

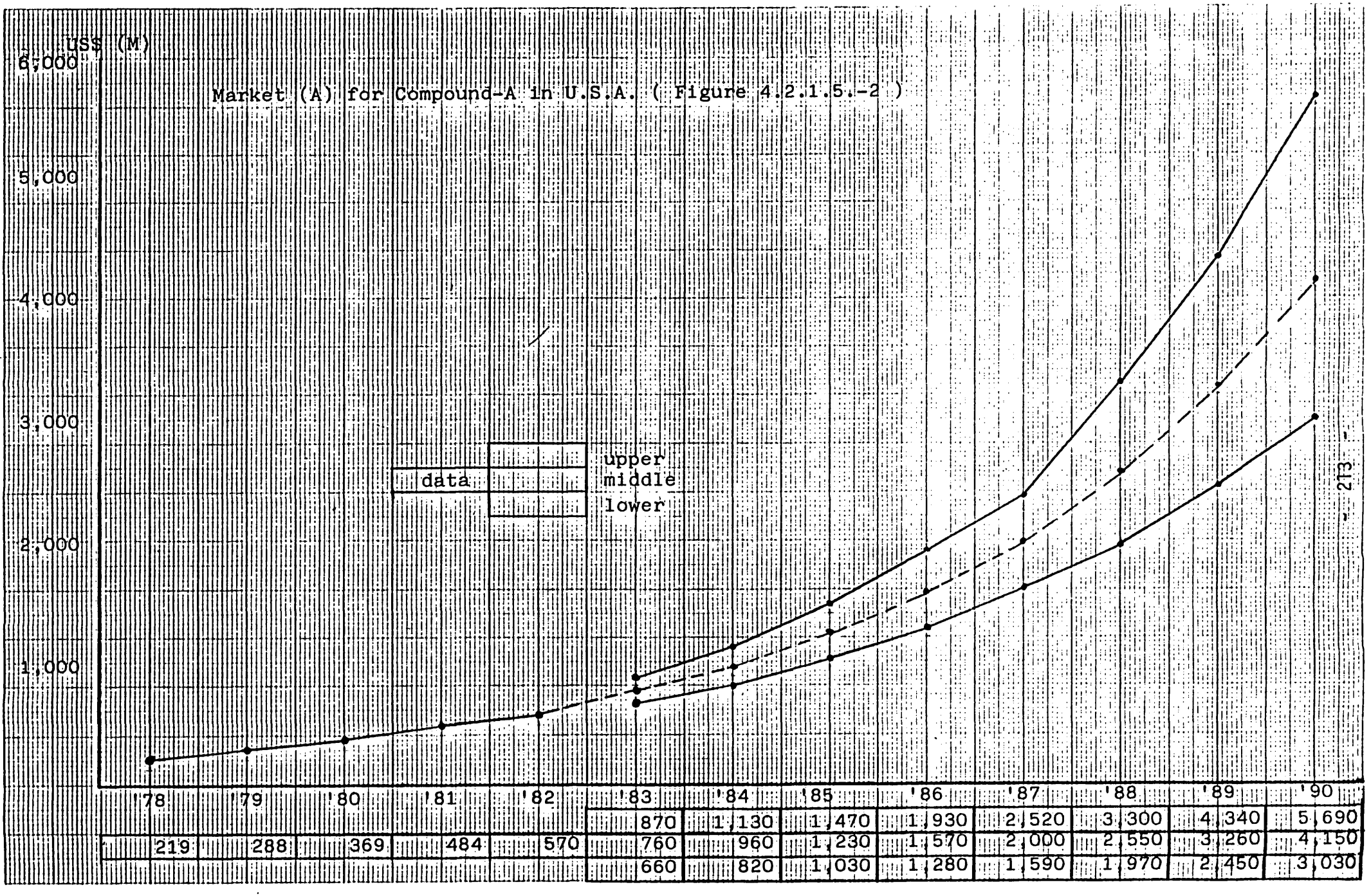



£(M)
Market (R) for Compound-E in U.K. (Figure 4.2.1.4.-5)
180
150
100
50
upper
middle
lower
data
'80 '81 '82 '83 '84 '85 '86 '87 '88 '89 '90
57 68 78 98 109 120 132 143 154 165 176
89 99 109 120 130 140 150 160
80 89 98 108 117 126 135 144

U.S.A. $(M)

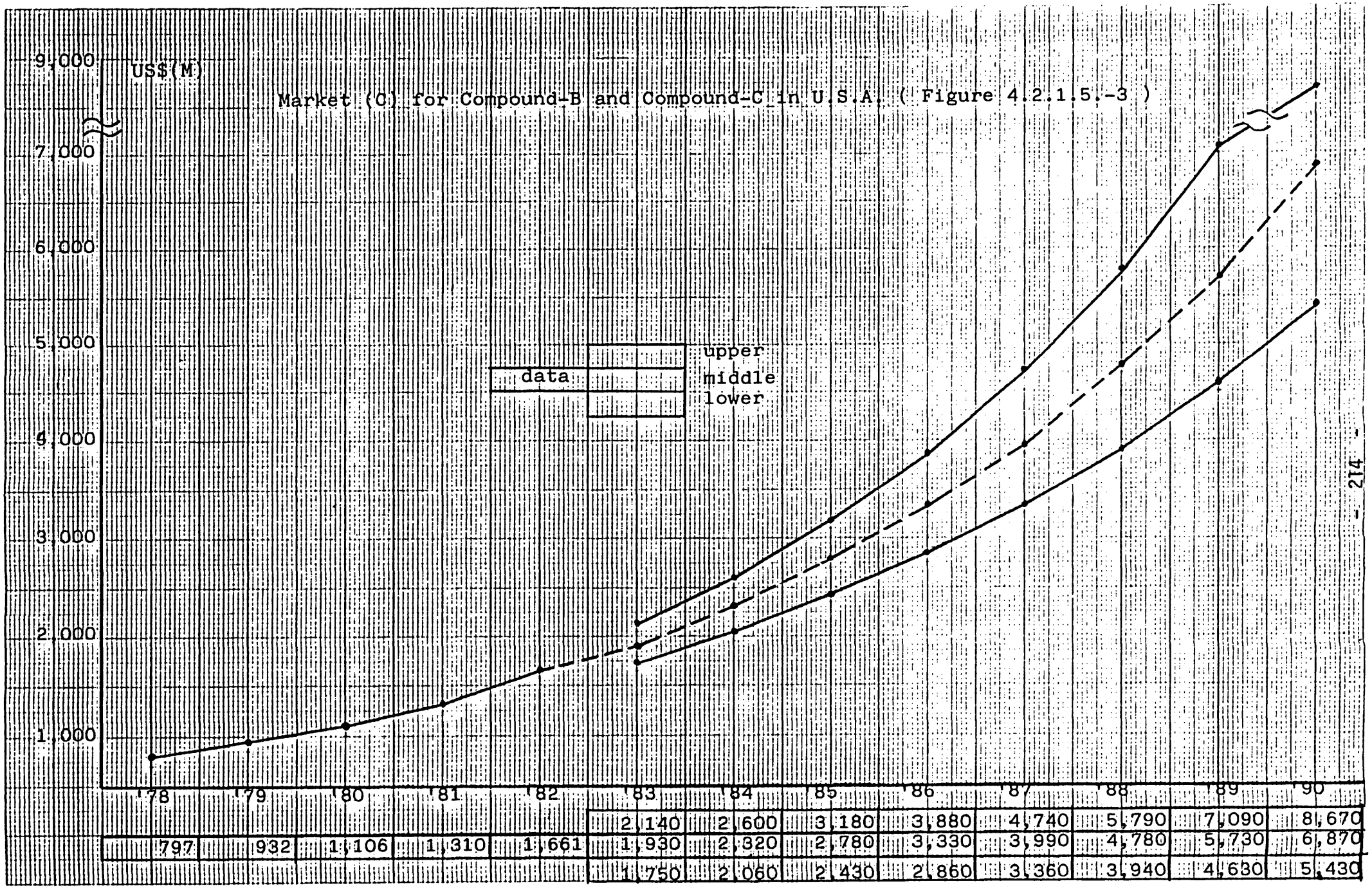
		1983	1984	1985	1986	1987	1988	1989	1990
Market	upper bound	870	1130	1470	1930	2520	3300	4340	5690
(A)	middle	760	960	1230	1570	2000	2550	3260	4150
	lower bound	660	820	1030	1280	1590	1970	2450	3030
Market	upper bound	2140	2600	3180	3880	4740	5790	7090	8670
(C)	middle	1930	2320	2780	3330	3990	4780	5730	6870
	lower bound	1750	2060	2430	2860	3360	3940	4630	5430
Market	upper bound	1310	1510	1710	1910	2110	2320	2530	2730
(J)	middle	1080	1240	1400	1560	1720	1880	2040	2200
	lower bound	850	970	1090	1200	1300	1440	1550	1660
Market	upper bound	400	460	540	630	740	860	1010	1180
(R)	middle	380	440	510	590	690	800	920	1070
	lower bound	370	420	490	560	640	740	850	970

Figure 4.2.1.5-1

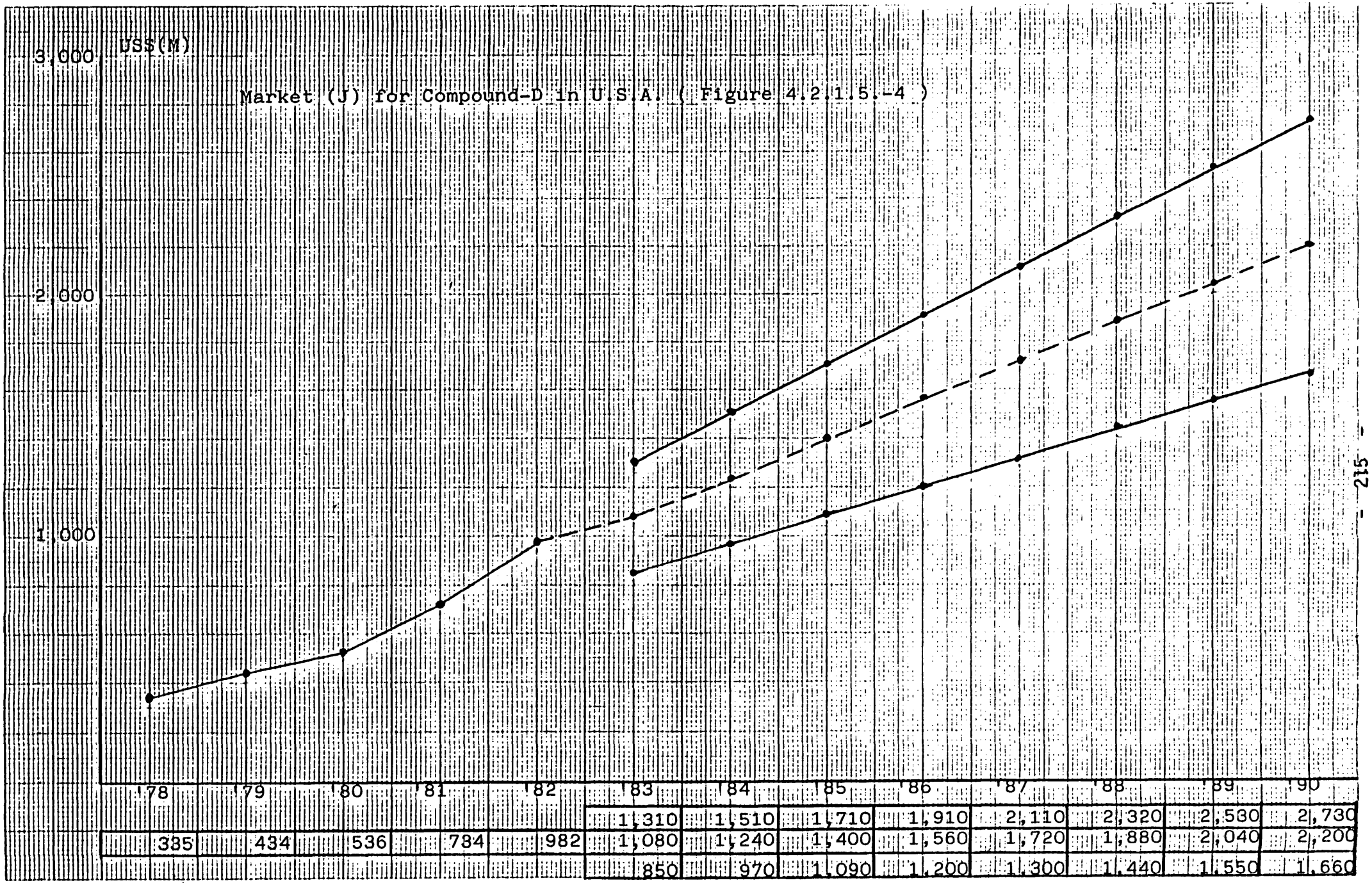


Market (A) for Compound-A in U.S.A. (Figure 4.2.1.5.-2)

Market (C) for Compound-B and Compound-C in U.S.A. (Figure 4.2.1.5.-3)

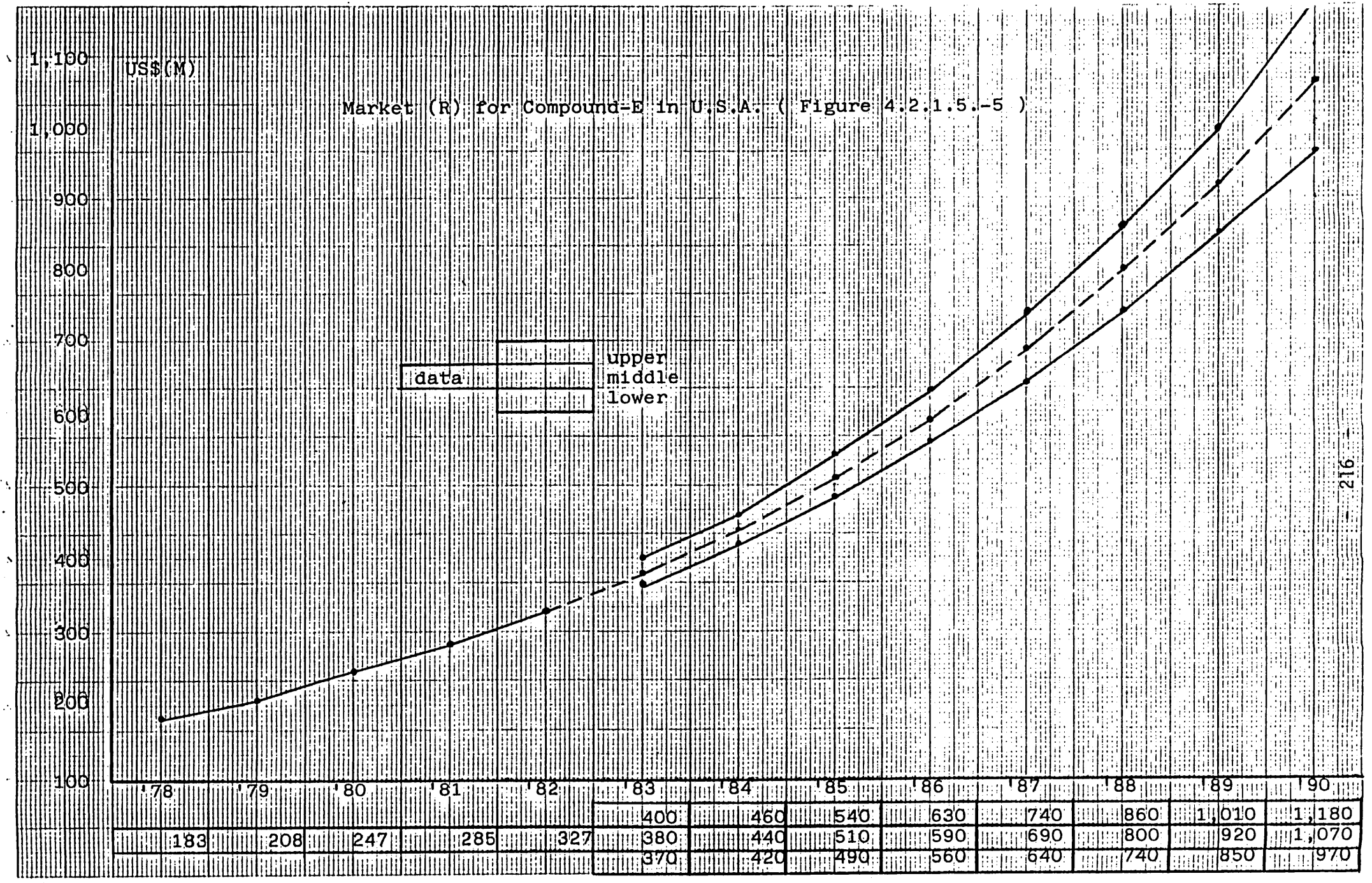


	'78	'79	'80	'81	'82	'83	'84	'85	'86	'87	'88	'89	'90
upper						2,140	2,600	3,180	3,880	4,740	5,790	7,090	8,670
middle	797	932	1,106	1,310	1,661	1,930	2,320	2,780	3,330	3,990	4,780	5,730	6,870
lower						1,750	2,060	2,430	2,860	3,360	3,940	4,630	5,430



'78	'79	'80	'81	'82	'83	'84	'85	'86	'87	'88	'89	'90
					1,310	1,510	1,710	1,910	2,110	2,320	2,580	2,730
385	434	536	784	982	1,080	1,240	1,400	1,560	1,720	1,880	2,040	2,200
					850	970	1,090	1,200	1,300	1,440	1,550	1,660

Market (R) for Compound-E in U.S.A. (Figure 4.2.1.5.-5)



	'78	'79	'80	'81	'82	'83	'84	'85	'86	'87	'88	'89	'90
upper						400	460	540	630	740	860	1,010	1,180
data	183	208	247	285	327	380	440	510	590	690	800	920	1,070
lower						370	420	490	560	640	740	850	970

Germany (Figure 4.2.2.1.1) DM(000)1982

(A) Market for Compound-A

Tagamet (SKF)	137,315	37.1%
Zantac (Glaxo)	44,495	1.2%
Others	188,378	61.7%
Total	370,188	100.0%

(C) Market for Compound-B and Compound-C

Myocardial Therapy			
	Adalat (Bayer)	87,593	5.1
	Isoptin (Knoll)	43,116	2.5
	Persumbran (Thomae)	35,981	2.1
Hypotensive			
	Minipress (Pfizer)	27,217	1.6
	Catapresan (Boehringer I.)	27,805	1.6
Hypotensive with diuretics			
	Briserin (Sandoz)	80,111	4.7
	Monoenol (Boehringer I.) (Galenus Mannheim)	37,179	2.2
Peripheral vasodilator			
	Trental (Albert Roussel)	86,921	5.1
	Hydergin (Sandoz)	58,661	3.4
	Dusodril (Lipha)	58,477	3.4
Beta blocker	Beloc (Astra)	45,214	2.7
	Dociton (ICI)	30,248	1.8
Total		1,705,843	100.0

(J) Market for Compound-D

J1D	Claforan (Hoechst)	65,037	18.1
	Mefoxitin (Sharp & Dohme)	19,256	5.4
	Zinacef (Hoechst, Glaxo)	15,727	4.4
	Mefoxitin (MSD Pharma)	13,841	3.8
	Gramaxin (B.M.)	12,760	3.5
	Moxalactam (Lilly)	12,600	3.5
	Mandokef (Lilly)	10,891	3.0
	Lefobis (Pfizer)	8,273	2.3
J1H	Isocillin (Hoechst)	26,274	7.4
	Baycillin (Bayer)	17,965	5.0
			(56.4)
Total		359,546	100.0%

(R) Market for Compound-E

J3A	Berotel (Boehringer I.)	17,198	7.7
	Intal (Fisons)	16,476	7.3
	Berodual (B.I.)	11,543	5.1
	Sultanol (Glaxo)	8,217	3.7
			(23.8)
Total		224,445	100.0%

France (Figure 4.2.2.1.2) FF(000)/1982

(A) Market for Compound-A

A2B	Tagamet (SKF)	320,802	44.5%
Total		720,360	100.0%

(C) Market for Compound-B and Compound-C

C1D	Persantine (B.I.)	138,667	3.3%
	Cordarone (Labaz)	95,270	2.2
	Tildiem (Dausse)	82,103	1.9
	Adalate (Bayer)	79,899	1.9
C2B	Aldomet (MSD Chibret)	187,995	4.4
	Catapressan (B.I.)	114,191	2.7
	Minipress (Pfizer)	41,027	1.0
C4A	Tankan (Ipsen)	357,931	8.4
	Praxilene (Oberval)	320,935	7.6
	Sermion (Specia)	254,830	6.0
	Duxil (Servier)	209,080	4.9
	Fonzylane (Lafon)	163,695	3.9
	Hydergine (Sandoz)	147,673	3.5
	Iskedyl (Fabre)	120,600	2.8
	Trental (Hoechst)	113,993	2.7
C7A	Sectral (Specia)	114,960	2.7
	Tenormine (ICI)	98,132	2.3
	Visken (Sandoz)	53,379	1.3
	Avlocardyl (ICI)	36,915	0.9
	Lopressor (Geigy)	32,709	0.8
	Trandate (Glaxo)	27,363	0.6
C7B	Transipressol (Ciba)	36,435	0.9
			(66.7)
Total		4,238,719	100.0

(J) Market for Compound-D

J1D	Alfatil (Lilly)	23,774	10.5%
	Ceporexine (Glaxo)	21,780	9.6
	Oracefal (Bristol)	20,218	8.9
	Keforal (Lilly)	18,534	8.2
J1H	Oracilline (Theraplix)	53,129	23.4
			(60.6)
Total		226,953	100.0%

(R) Market for Compound-E

R3A	Lomudal (Fisons Gerda)	37,789	13.7%
	Ventolin (Glaxo)	27,347	9.9
	Becotide (Glaxo)	14,265	5.2
			(28.8)
Total		275,766	100.0%

Italy (Figure 4.2.2.1.3) Lr(M)/1982

(A) Market for Compound-A: data not available

(C) Market for Compound-B and Compound-C

C1D	Adalat (Bayer)	22,933	5.5%
	Persantine (B.I.)	18,297	4.4
	Isoptin (Knoll)	8,777	2.1
C2B	Aldomet (MSD)	15,928	3.8
	Capoten (Squibb)	7,316	1.7
C4A	Nicholin (Cyanamid)	56,600	13.5
	Fluxartin (Zambeletti)	23,151	5.5
	Hydergina (Sandoz)	18,124	4.3
	Flugeral (Italfarmaco)	13,246	3.2
	Trental (Albert Farma)	10,060	2.4
C7A	Tenormin (ICI)	12,880	3.1
	Trasitensin (Ciba)	17,348	4.1
			(53.6)
Total		418,455	100.0%

(J) Market for Compound-D

J1D	Curoxim (Glaxo)	22,219	12.4
	Zariviz (Hoechst)	20,811	11.6
	Clarforin (Rouselle)	17,597	9.8
	Cefamezin (Carlo Elba)	12,257	6.8
	Ceporan (Glaxo)	8,029	4.5
			(45.1)
Total		179,778	100.0%

(R) Market for Compound-E

R3A	Ventolin (Glaxo)	3,663	7.4%
	Lomudal (Fisons)	3,374	6.8
	Dosberotec (B.I.)	3,055	6.2
R3B	Micorten (Geigy)	3,124	6.3
			(26.7)
Total		49,400	100.0

U.K. (Figure 4.2.2.1.4) £(000)/1981

(A) Market for Compound-A

A2B	Tagamet (SKF)	26,177	50.7%
	Zantac (Glaxo)	563	1.1
			(51.8)
Total		51,595	100.0%

(C) Market for Compound-B and Compound-C

C1D	Adalat (Bayer)	8,303	5.4%
	Persantine (B.I.)	3,452	2.3
C2B	Aldomet (MSD)	13,644	9.0
	Hypovase (Pfizer)	2,672	1.8
	Catapres (B.I.)	2,165	1.4
C4A	Hexopal (Winthrop)	5,894	3.9
	Praxilene (Lipha)	4,840	3.2
	Opilon (Warner)	2,628	1.7
C7A	Trasicor (Ciba)	18,373	12.1
	Tenormin (Stuart)	16,450	10.8
	Inderal (ICI)	16,149	10.6
	Sectral (May & Baker)	4,142	2.7
	Trandate (Allen & Hanburys)	3,735	2.5
	Betaloc (Astra)	3,252	2.1
C7B	Tendretic (Stuart)	5,187	3.4
	Transidrex (Ciba)	5,155	3.4
			(76.3)
Total		152,254	100.0%

(J) Market for Compound-D

J1D	Ceporex (Glaxo)	4,447	24.9
	Keflex (Lilly)	3,652	20.5
J1H	Floxapen (Beecham)	4,278	24.0
			(69.4)
Total		17,829	100.0%

(R) Market for Compound-E

R3A	Ventolin (Allen & Hanburys)	26,244	38.7
	Intal (Fisons)	9,097	13.4
	Becotide (AH)	8,814	13.0
			(65.1)
Total		67,749	100.0%

U.S.A. (Figure 4.2.2.1.5) US$(000)/1982

(A) Market for Compound-A

	Tagamet (SKF)	393,236	68.9%
	Total	570,407	100.0%

(C) Market for Compound-B and Compound-C

31110	Serapes (Ciba)	25,331	1.5
31130	Aldoril (MSD)	64,432	3.9
31140	Capoten (Squibb)	24,590	1.5
31190	Aldomet (MSD)	151,981	9.1
	Minipress (Pfizer)	65,450	3.9
	Catapress (MSD)	41,779	2.5
	Apresoline (Ciba)	29,592	1.8
31211	Isordil (Ives Lab)	61,173	3.7
	Nitrobid (Marion)	31,528	1.9
31212	Persantine (B.I.)	67,850	4.1
31220	Hydergine (Dorsey)	32,154	1.9
31400	Inderal (Ayerst)	247,477	14.9
	Lopressor (Geigy)	88,861	5.3
	Corgard (Squibb)	58,616	3.5
	Tenormin (Stuart)	54,845	3.3
31700	Procardia (Pfizer)	63,440	3.8
			(66.6)
Total		1,661,047	100.0

(J) Market for Compound-D

15130	Mandol (Lilly)	119,849	12.2
	Ceclor (Lilly)	57,173	5.8
	Keflin (Lilly)	43,101	4.4
	Keflex (Dista)	146,394	14.9
	Mefoxin (MSD)	110,045	11.2
	Ancef (SKF)	48,218	4.9
	Claforan (Hoe. Roussel)	46,588	4.7
15153	Pipracil (Lederle)	34,499	3.5
	Moxam (Lilly)	57,685	5.8
	Cleocin Phosphate (Upjohn)	66,647	6.8
			(74.2)
Total		982,086	100.0%

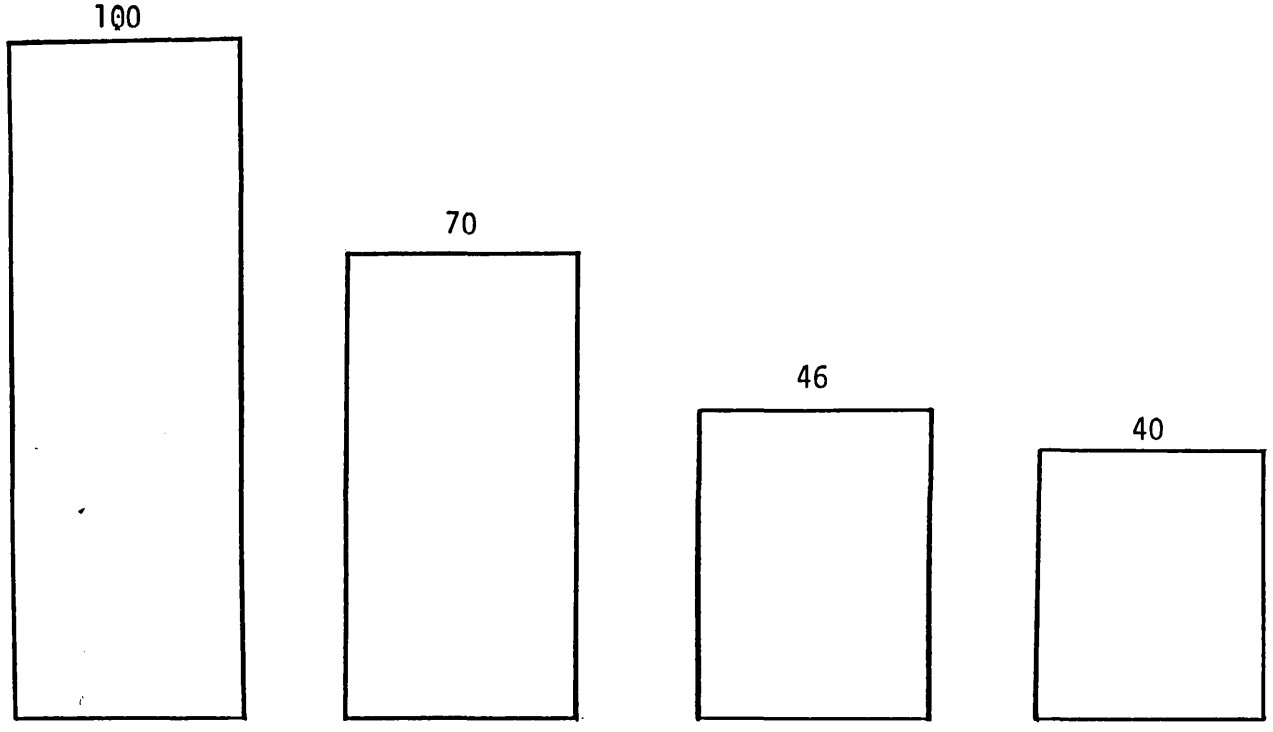
(R) Market for Compound-E

24000	Primatene (Whitehall)	21,674	6.6
28000	Bronkosol (Breon)	9,026	2.8
	Proventil (Schering)	12,815	3.9
	Ventolin (Glaxo)	11,105	3.4
			(16.7)
Total		327,529	100.0%

Note: Sources for Figures 4.2.2.1.1 to 4.2.2.1.5 are IMS based on data availability described in Figure 4.1.2-1.

Price comparison Germany with U.K., Italy and France

at wholesaler's prices (Figure 4.2.2.2)



Exchange rate at 1982

(Source: HealthEcon)

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Figure 4.2.2.2.1 Mark-ups in W.Germany

Wholesaler purchase price	Maximum margin
0.01 to 1.65	21%
1.74 to 3.33	20%
3.43 to 5.02	19.5%
5.16 to 7.14	19%
7.35 to 11.81	18.5%
12.15 to 17.80	18%
21.37 to 86.96	15%
108.82 and above	12%

Pharmacy trade price	Public price
0.01 to 2.40	+ 68%
2.64 to 7.60	+ 62%
8.27 to 14.28	+ 57%
16.97 to 23.75	+ 48%
26.51 to 38.00^	+ 43%
44.17 to 57.00	+ 37%
70.31 as above	+ 30%

(Source: WDMM)

Figure 4.2.3 Forecasted results

		1983	1984	1985	1986	1987	1988	1989	1990
Germany	(A)	450	500	540	590	630	680	720	770
DM(M)	(C)	1900	2200	2500	2800	3100	3500	4000	4500
	(J)	400	430	460	490	520	550	590	620
	(R)	220	240	260	280	300	310	330	350

		1983	1984	1985	1986	1987	1988	1989	1990
France	(A)	870	970	1070	1170	1270	1400	1500	1600
FF(M)	(C)	4700	5500	6430	7530	8820	10300	12100	14200
	(J)	200	200	200	200	200	200	200	200
	(R)	290	340	390	450	520	600	690	800

		1983	1984	1985	1986	1987	1988	1989	1990
Italy	(A)	210	280	380	500	670	900	1200	1500
Lr(B)	(C)	460	590	760	980	1260	1600	2100	2700
	(J)	250	340	450	600	810	1100	1400	1900
	(R)	60	70	90	120	140	180	220	280

		1983	1984	1985	1986	1987	1988	1989	1990
U.K.	(A)	57	62	68	73	78	84	89	95
£(M)	(C)	175	193	212	230	249	267	288	306
	(J)	19	21	22	23	25	26	28	30
	(R)	80	89	98	108	117	126	135	144

		1983	1984	1985	1986	1987	1988	1989	1990
U.S.A.	(A)	870	1130	1470	1930	2520	3300	4340	5690
$(M)	(C)	2140	2600	3180	3880	4740	5790	7090	8670
	(J)	1080	1240	1400	1560	1720	1880	2040	2200
	(R)	400	460	540	630	740	860	1010	1180

Policy making on market share

POLICY: TO CAPTURE 50% OF THE LEADING COMPETITOR'S MARKET SHARE IN FIVE YEARS FOR EACH OF THE NEW PRODUCTS EXCEPT FOR COMPOUND-A

EXAMPLE: PERDIPINE

DIRECT COMPETITOR AND LEADING PRODUCT

ADALAT 5.1%

TARGET MARKET SHARE 2.5% IN FIVE YEARS

Figure 4.3.1-1

DEMAND FORECAST

	'83	'84	'85	'86	'87	'88	'89	'90
GERMANY								
(A)	450	500	540	590	630	680	720	770
(C)	1,900	2,200	2,500	2,800	3,100	3,500	4,000	4,500
(J)	400	430	460	490	520	550	590	620
(R)	220	240	260	280	300	310	330	350
FRANCE								
(A)	870	970	1,070	1,170	1,270	1,400	1,500	1,600
(C)	4,700	5,500	6,430	7,530	8,820	10,300	12,100	14,200
(J)	200	200	200	200	200	200	200	200
(R)	290	340	390	450	520	600	690	800
ITALY								
(A)	210	280	380	500	670	900	1,200	1,500
(C)	460	590	760	980	1,260	1,600	2,100	2,700
(J)	250	340	450	600	810	1,100	1,400	1,900
(R)	60	70	90	120	140	180	220	280
U.K.								
(A)	57	62	68	73	78	84	89	95
(C)	175	193	212	230	249	267	288	306
(J)	19	21	22	23	25	26	28	30
(R)	80	89	98	108	117	126	135	144

U.S.A.

(A)	870	1,130	1,470	1,930	2,520	3,300	4,340	5,690
(C)	2,140	2,600	3,180	3,880	4,740	5,790	7,090	8,670
(J)	1,080	1,240	1,40Q	1,560	1,720	1,880	2,040	2,200
(R)	400	460	540	630	740	860	1,010	1,180

GERMANY: DM(M)

FRANCE: FF(M)

ITALY: Lr(B)

U.K.: £(M)

U.S.A.: $(M)

Figure 4.3.1-2

Market Share Table

	1	2	3	4	5	6	7	8
Compound-A								
Germany (G)	2	4	6	8	10	10	10	10
France (F)	2	4	6	8	10	10	10	10
Italy (I)	2	5	8	8	8	8	8	8
UK	3	5	7	9	10	10	10	10
USA	3	5	7	9	10	10	10	10
Compound-B								
G	0.5	1.0	1.5	2.0	2.5	3.0	3.5	4.0
F	0.4	0.8	1.2	1.6	2.0	2.4	2.8	3.2
I	0.6	1.1	1.7	2.2	2.8	3.3	3.9	4.5
UK	0.5	1.1	1.6	2.2	2.7	3.2	3.8	4.3
USA	0.4	0.8	1.2	1.6	2.0	2.4	2.8	3.2
Compound-C								
G	0.4	0.8	1.2	1.6	2.0	2.4	2.8	3.2
F	0.2	0.4	0.6	0.8	1.0	1.2	1.4	1.6
I	0.2	0.4	0.6	0.8	1.0	1.2	1.4	1.6
UK	0.2	0.4	0.6	0.8	1.0	1.2	1.4	1.6
USA	0.2	0.4	0.6	0.8	1.0	1.2	1.4	1.6

Figure 4.3.1-3

Market Share Table

	1	2	3	4	5	6	7	8
Compound-D								
G	1.1	2.3	3.4	4.5	5.6	5.6	5.6	5.6
F	1.3	2.5	3.8	5.0	6.3	6.3	6.3	6.3
I	1.3	2.5	3.8	5.0	6.3	6.3	3.3	6.3
UK	2.1	4.3	6.4	8.5	10.6	10.6	10.6	10.6
USA	2.0	4.0	6.0	8.0	10.0	10.0	10.0	10.0
Compound-E								
G	0.8	1.6	2.4	3.2	4.0	4.0	4.0	4.0
F	1.4	2.8	4.2	5.6	7.0	7.0	7.0	7.0
I	0.7	1.4	2.1	2.8	3.5	3.5	3.5	3.5
UK	2.0	4.0	6.0	8.0	10.0	10.0	10.0	10.0
USA	0.6	1.2	1.8	2.4	3.0	3.0	3.0	3.0

Figure 4.3.1-4

Figure 4.3.1-6

S A L E S F O R E C A S T (in local currencies) Final product at net sales

		'83	'84	'85	'86	'87	'88	'89	'90
Compound-A									
Germany	DM(M)				11.8	25.2	40.8	57.6	77.0
France	FF(M)					25.4	56.0	90.0	120.0
Italy	Lr(B)			7.6	25.0	53.6	72.0	96.0	120.0
UK	£(M)			2.0	3.7	5.5	7.6	8.9	11.4
US	$(M)				57.9	126.0	231.0	390.6	569.0
Compound-B									
Germany					14.0	31.0	52.5	80.0	112.5
France				25.7	60.2	105.8	164.8	242.0	340.8
Italy				4.6	10.8	21.4	35.2	58.8	89.1
UK					1.2	2.7	4.3	6.3	8.3
US						19.0	46.3	85.1	138.7
Compound-C									
Germany							14.0	32.0	54.0
France						17.6	41.2	72.6	113.6
Italy						2.5	6.4	12.6	21.6
UK							0.5	1.2	1.8
US								14.8	34.7
Compound-D									
Germany				5.1	11.3	17.7	24.8	33.0	34.7
France					2.6	5.0	7.6	10.0	12.6
Italy					7.8	20.3	41.8	70.0	119.7
UK				0.5	1.0	1.6	2.2	3.0	3.2
US						34.4	75.2	122.4	176.0
Compound-E									
Germany					2.2	4.8	7.4	10.6	14.0
France					6.3	14.6	25.2	38.6	56.0
Italy					0.8	2.0	3.8	6.2	9.8
UK					2.2	4.7	7.6	10.8	14.4
US							5.2	12.1	21.2

NG1ABC

Currency Translation table (most likely)

	Yen	£	$(US)
DM	85	0.266	0.37
FF	35	0.109	0.152
Lr	0.14	0.0004375	0.0006087
£	320	1	1.391
$(US)	230	0.719	1

(28/5/'84 FT)

Figure 4.3.1-7

Currency Translation table (lower bound)

	Yen	£	$(US)
DM	80	0.267	0.4
FF	30	0.1	0.15
Lr	0.12	0.0004	0.0006
£	300	1	1.5
$(US)	200	0.667	1

(EXPERIENCE)

Figure 4.3.1-8

Figure 4.3.1-9

SALES FORECAST (Yen 100M) Final product at net sales

	'83	'84	'85	'86	'87	'88	'89	'90
Compound-A								
Germany				10.0	21.4	34.7	49.0	65.5
France					8.9	19.6	31.5	44.8
Italy			10.6	35.0	75.0	100.8	134.4	168.0
UK			6.4	11.8	17.6	24.3	28.5	36.5
US				133.2	289.8	531.3	898.4	1,308.7
Compound-B								
Germany				11.9	26.4	44.6	68.0	95.6
France			9.0	21.1	37.0	57.7	84.7	119.3
Italy			6.4	15.1	30.0	49.3	82.3	124.7
UK				3.8	8.6	13.8	20.2	26.6
US					43.7	106.5	195.7	319.0
Compound-C								
Germany						11.9	27.2	45.9
France					6.2	14.4	25.4	39.8
Italy					3.5	9.0	17.6	30.2
UK						1.6	3.8	5.8
US							34.0	79.8
Compound-D								
Germany			4.3	9.6	15.0	21.1	28.1	29.5
France				0.9	1.8	2.7	3.5	4.4
Italy				10.9	28.4	58.5	98.0	167.6
UK			1.6	3.2	5.1	7.0	9.6	10.2
US					79.1	173.0	281.5	404.8
Compound-E								
Germany				1.9	4.1	6.3	9.1	11.9
France				2.2	5.1	8.8	13.5	19.6
Italy				1.0	2.8	5.3	8.7	13.7
UK				7.1	15.0	24.3	34.5	46.1
US						12.0	27.8	48.8

NG1ABC

Figure 4.3.1-10

S A L E S F O R E C A S T (rounded in Yen 100M) Final product at net sales

	'83	'84	'85	'86	'87	'88	'89	'90
Famotidine			17	190	413	711	1,142	1,623
Perdipine			15	52	146	272	451	685
Alpha-Beta Blocker					10	37	108	202
Cefotetan			6	25	129	262	421	617
Formoterol				12	27	57	94	140
Total			38	279	725	1,339	2,216	3,267
Germany			4	34	67	119	182	249
France			9	24	59	103	159	228
Italy			17	62	140	223	341	504
UK			8	26	46	71	97	125
US				133	413	823	1,437	2,161
Total			38	279	725	1,339	2,216	3,267

NG1ABC

Figure 4.3.1-11 SALES FORECAST (rounded in Yen 100M) Bulk CIF price

	'83	'84	'85	'86	'87	'88	'89	'90
Compound-A			3.4	38.0	82.6	142.2	228.4	324.6
Compound-B			3.0	10.4	29.2	54.4	90.2	137.0
Compound-C					2.0	7.4	21.6	40.4
Compound-D			1.2	5.0	25.8	52.4	84.2	123.4
Compound-E				2.4	5.4	11.4	18.8	28.0
Total			7.6	55.8	145.0	267.8	443.2	653.4
Germany			0.8	6.8	13.4	23.8	36.4	49.8
France			1.8	4.8	11.8	20.6	31.8	45.6
Italy			3.4	12.4	28.0	44.6	68.2	100.8
UK			1.6	5.2	9.2	14.2	19.4	25.0
US				26.6	82.6	164.6	287.4	432.2
Total			7.6	55.8	145.0	267.8	443.2	653.4
Total (rounded)			8	56	145	268	443	653

NG1ABC

Formula for assessing an impact of currency fluctuations

$$x = \frac{f_1x_1 + f_2x_2 + \ldots\ldots + f_nx_n}{N} \quad \left(= \frac{1}{N}\sum_{i=1}^{n} f_ix_i\right)$$

$$N = f_1 + f_2 + f_3 + \ldots\ldots + f_n \left(N = \sum_{i=1}^{n} f_i\right)$$

n = number of currencies

x_i = rate of decrease or increase of a currency from 'most likely' rates in currency i

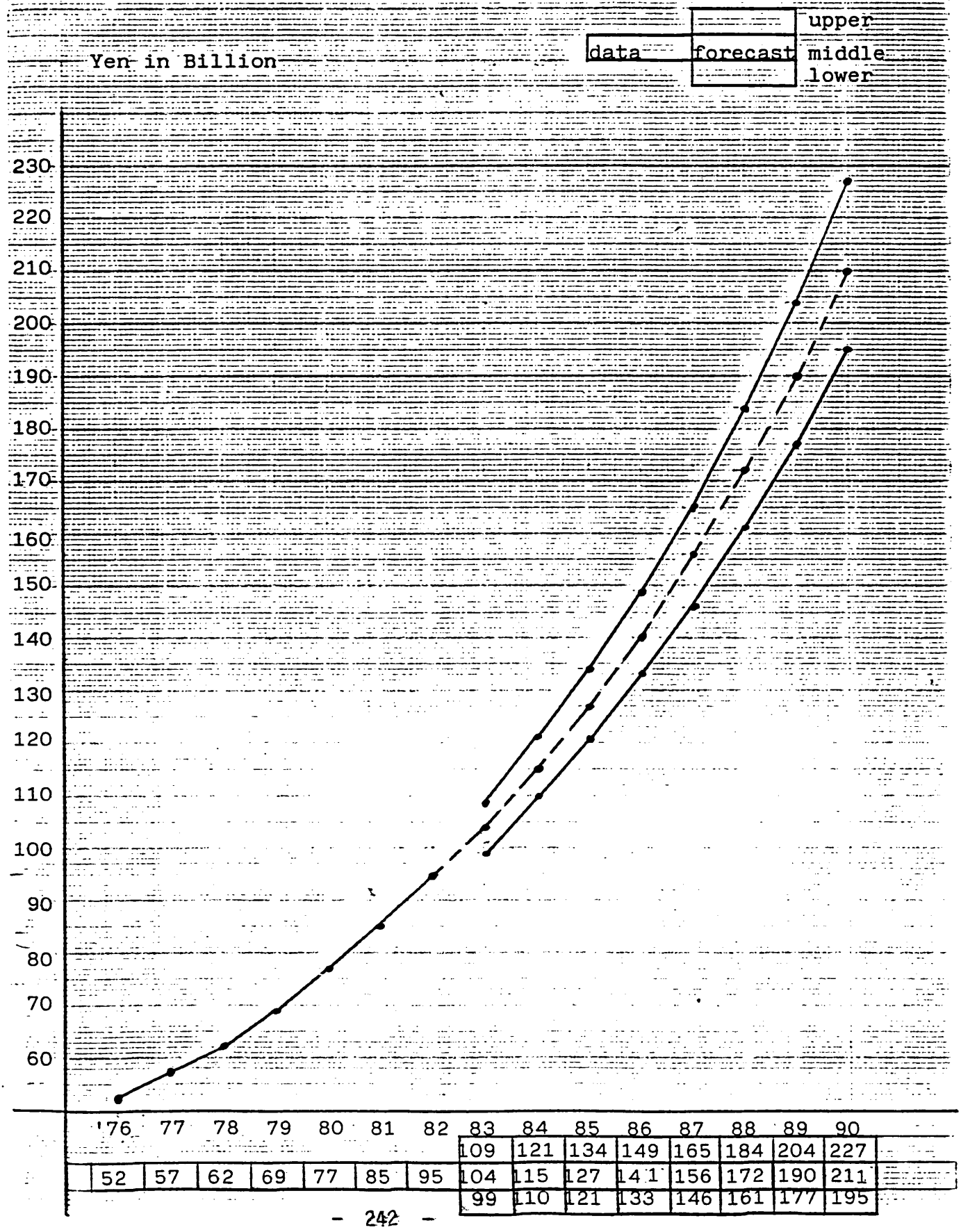
f_i = Yen value of currency i at a standard rate (most likely) (Figure 4.3.1-7)

x = rate of decrease or increase of all currencies expressed in Yen at weighted average

Figure 4.3.1-12

Sales projection for domestic for Y

(Figure 4.3.2-1)



Sales forecast in total (Yen £100M)

	Home	Abroad	Total
1982	945	-	945
1983	1,040	-	1,040
1984	1,150	-	1,150
1985	1,270	8	1,278
1986	1,410	56	1,466
1987	1,560	145	1,705
1988	1,720	268	1,988
1989	1,900	443	2,343
1990	2,110	653	2,763

Figure 4.3.3-1

Figure 4.4-1

T E N T A T I V E
C O R P O R A T E
O B J E C T I V E S

I ESTABLISH A FIRMER BASE IN THE DOMESTIC MARKET

TARGET SALES GROWTH IN THE DOMESTIC MARKET

OVER 10%

II INTERNATIONALISATION

SALES RATIO OF DOMESTIC TO NON-DOMESTIC SHOULD BE

80 : 20 in 1990 OR MORE IN THE INTERNATIONAL MARKET

(HOME MARKET AT NET SALES AND INTERNATIONAL MARKET AT CIF PRICES FOR THE ACTIVE INGREDIENTS)

ACCORDING TO BUM THE RATIO SHOULD BE AS BELOW:

76 : 24 in 1990

Sales objectives (Yen 100M)

Year	Home	Abroad	Total
1983	1,040	-	1,040
1984	1,150	-	1,150
1985	1,270	8	1,278
1986	1,410	56	1,466
1987	1,560	145	1,705
1988	1,720	268	1,988
1989	1,900	443	2,343
1990	2,110	653	2,763

Figure 4.4.1-1

Corporate Sales Objectives (Figure 4.5-1)

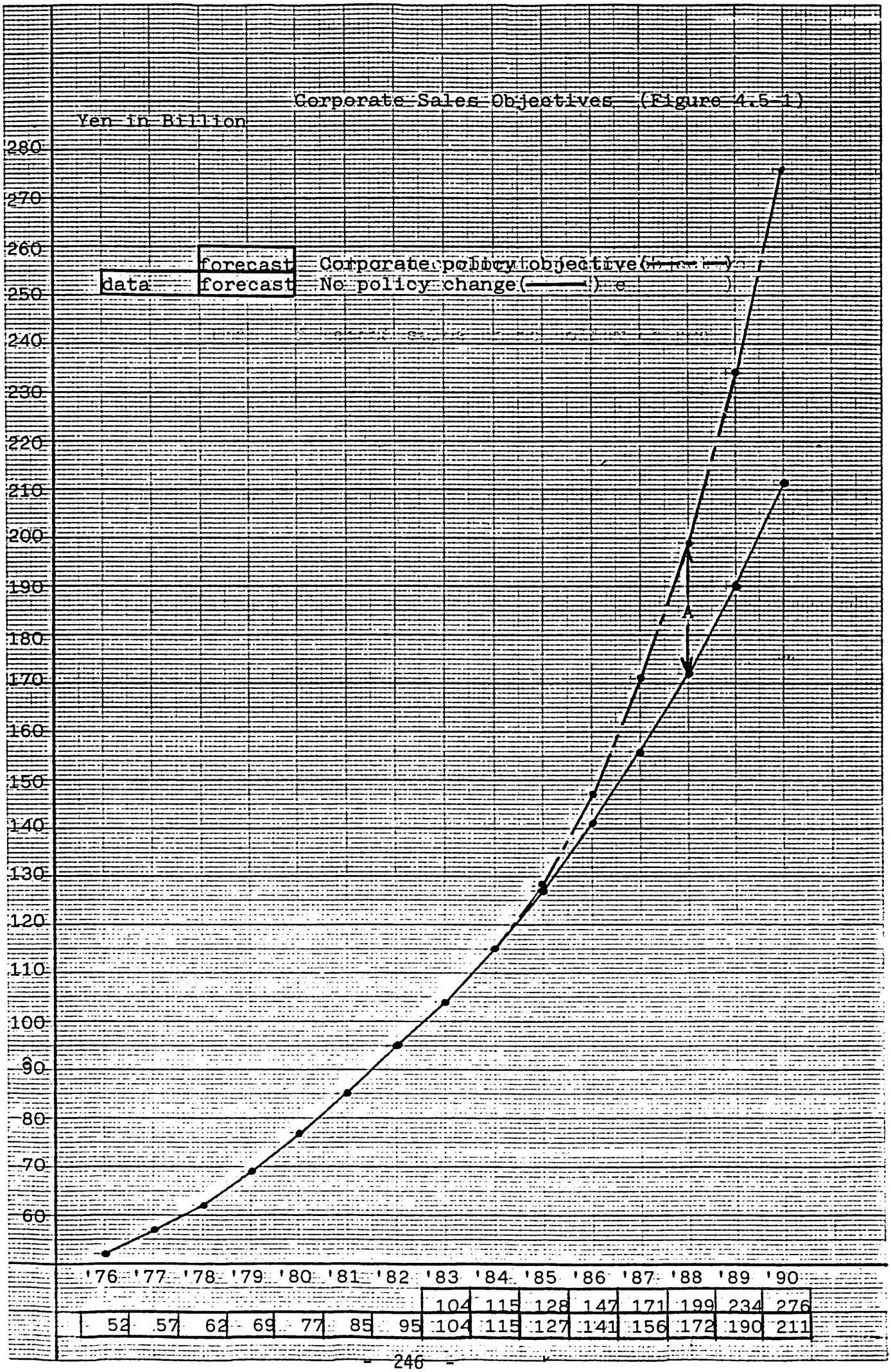


Figure 4.6.1-1 Balance sheet items to be examined

ASSETS

Current assets: Cash
Debtors
Stocks
Others (*)

Fixed assets

Investment (*)

LIABILITIES

Current liabilities: Short-term loans
Trade creditors
Accrued expenses
Others (*)

Long-term loans

Retained earning

Ordinary share capital

(*) Non-variable items in relation to sales, and other items are variable to sales.

Figure 4.6.1-2

Proforma Balance Sheet

	'82	'83	'84	'85	'86	'87	'88	'89	'90
ASSETS									
Current assets:									
Cash	521	550	583	621	677	749	834	941	1,067
Debtors	400	447	501	564	657	775	915	1,081	1,289
Stocks	98	108	119	132	151	176	205	241	284
Others	15	15	15	15	15	15	15	15	15
Fixed assets (net)	169	198	232	271	328	401	488	597	725
(Depreciation)	(227)	(244)	(264)	(287)	(321)	(364)	(416)	(481)	(558)
Investment	107	107	107	107	107	107	107	107	107
	1,310	1,425	1,557	1,710	1,935	2,223	2,564	2,982	3,487
LIABILITIES									
Current liabilities									
Short-term loans	15	15	15	15	15	15	15	15	15
Trade creditors	194	212	233	257	293	338	392	459	539
Accrued expenses	135	158	184	215	260	318	386	472	573
Others	13	13	13	13	13	13	13	13	13
Long-term loans (A)	230								
(Retirement)	(140)	(154)	(171)	(190)	(219)	(255)	(298)	(352)	(416)
Retained earning (B)	424	479	543	618	728	867	1,032	1,239	1,484
Ordinary share capital (C)	299								
(A)+(B)+(C)	953	1,027	1,112	1,210	1,354	1,539	1,758	2,023	2,347
(A)+(C)	529	548	569	592	626	672	726	784	863
	1,310	1,425	1,557	1,710	1,935	2,223	2,564	2,982	3,487

NG1AAV

Figure 4.6.2-1

PROFORMA INCOME STATEMENT

	'82	'83	'84	'85	'86	'87	'88	'89	'90
Net sales	945	1040	1150	1278	1466	1705	1988	2343	2763
Cost of goods sold	419	463	514	573	660	770	901	1065	1259
Gross profit	526	577	636	705	806	935	1087	1278	1504
Selling, general and Administration exp.	351	387	428	476	547	637	743	876	1034
Operating income	175	190	208	229	259	298	344	402	470
Other Income & (expenses)	21	27	34	42	54	69	87	110	137
Income before Tax	196	218	243	272	315	370	435	516	612
Income tax	133	149	168	190	222	262	310	370	441
Net income	63	69	75	82	93	108	125	146	171

NG1ABC

Figure 4.6.3-1

Proforma Funds Flow Statement

	'83	'84	'85	'86	'87	'88	'89	'90
SOURCE OF FUNDS								
Operations:								
Net Income	55	64	75	110	139	165	207	245
Depreciation	17	20	23	34	43	52	65	77
Retirement	14	17	19	29	36	43	54	64
Ordinary share capital (C)								
Long-term loans (A) (C) + (A) - Retirement	5	4	4	5	10	11	4	15
	91	105	121	178	228	271	330	401
USE OF FUNDS								
Fixed assets	46	54	62	91	116	139	174	205
INCREASE IN WORKING CAPITAL	45	51	59	87	112	132	156	196
	91	105	121	178	228	271	330	401

NG1ABC

Figure 4.6.4-1

C A S H F L O W A N A L Y S I S

	'82	'83	'84	'85	'86	'87	'88	'89	'90
Cash from operations:									
Net Income		55	64	75	110	139	165	207	245
Depreciation		17	20	23	34	43	52	65	77
Retirement		14	17	19	29	36	43	54	64
Debtors		(47)	(54)	(63)	(93)	(118)	(140)	(166)	(208)
Stocks		(10)	(11)	(13)	(19)	(25)	(29)	(36)	(43)
Trade creditors		18	21	24	36	45	54	67	80
Accruals		23	26	31	45	58	68	86	101
		70	83	96	142	178	213	277	316
CASH	381								
INFLOWS:		70	83	96	142	178	213	277	316
OUTFLOWS:									
Purchase of P & E		46	54	62	91	116	139	174	205
Dividends									
Reduction of Notes payable									
Increase in prepaids									
Decrease in tax payable									
		405	434	468	519	581	655	758	869

NG1AAV

Cost Analysis

	Production	Marketing & administration	R & D	Others	Return on Sales (ROS)
Merck	38.7	27.7	8.7	9.1	15.8
SKF	36.1	35.2	8.1	6.7	13.9
Y	44.2	27.9	9.2	11.9	6.8

Merck and SKF: average from 1973 to 1982

Y: average from 1979 to 1982

Note: Period taken for the above analysis for MPCs and Y are different. This may cause a danger that both groups were not in the same economic situation and may not be comparable. However, these MPCs are already mature and their ratios can be considered as MPC standards for the ten years includes the ups and downs of the business cycle.

Figure 4.6.5-5

External Funds

Formula for external funds requirements

$$\frac{A}{TR}(\Delta TR) - \frac{B}{TR}(\Delta TR) - bm(TR_2)$$

$\frac{A}{TR}$ = assets that increase spontaneously with sales as a percentage of sales

$\frac{B}{TR}$ = liabilities that increase spontaneously with sales as a percentage of sales

ΔTR = change in total revenue

m = profit margin on sales

b = earning retention ratio

TR_2 = total sales projected for the year

(Source: Managerial Finance by Weston & Brigham)

Figure 4.6.6-1

NG1ABF

External funds

Percentages of increase when sales increases by a monetary unit

Liabilities		Assets	
Ordinary share capital		Fixed assets	0.31
Retained earnings		Stocks	0.10
Long-term liabilities		Debtors	0.49
Trade creditor	0.19	Cash	0.30
Accrued expenses	0.24		
	0.43		1.20

$\frac{A}{TR}$ = 1.2 $\frac{B}{TR}$ = 0.43 TR is as shown in Figure 4.6.6.1

m: 6.5% on average from 1978 through to 1982
b: 25% of income will be distributed to shareholders
TR_2: Shown in Figure 4.3.3-3

Calculation

1.2 x 95 - 0.43 x 95 - 0.065 x 1,040 x 0.75 = 22.5

1.2 x 110 - 0.43 x 110 - 0.065 x 1,050 x 0.75 = 28.6

1.2 x 128 - 0.43 x 128 - 0.065 x 1,278 x 0.75 = 36.5

1.2 x 188 - 0.43 x 188 - 0.065 x 1,466 x 0.75 = 82.5

1.2 x 239 - 0.43 x 239 - 0.065 x 1,705 x 0.75 = 100.9

1.2 x 283 - 0.43 x 283 - 0.065 x 1,988 x 0.75 = 121.0

1.2 x 355 - 0.43 x 355 - 0.065 x 2,343 x 0.75 = 159.1

1.2 x 420 - 0.43 x 420 - 0.065 x 2,763 x 0.75 = 188.7

Figure 4.6.6-2

NG1ABF

Annual increase of sales (Yen 100M)

1982 - 1983	95
1983 - 1984	110
1984 - 1985	128
1985 - 1986	188
1986 - 1987	239
1987 - 1988	283
1988 - 1989	355
1989 - 1990	420

Figure 4.6.6-3

Ratio for proforma balance sheet

Fixed assets	0.3058
Stocks	0.1027
Debtors	0.4947
Cash	0.3003
Trade creditors	0.1894
Accrued expense	0.2409
Depreciation	0.1830
Retirement	0.1520
Retained earnings	0.5831

Ratio for proforma income statement

COGS	0.4617
GP	0.5382
SGAE	0.3760
OI(E)	0.0647
IBIT	0.2294
IT	0.1686
NI	0.0610

Figure 4.6.5-1 Financial Ratio Analysis

	SKF	Merck	Glaxo	Y
Performance ratio				
Return on investment				
Return on equity	25.1	22.6	20.3	12.0
Return on capital employed	21.4	19.9	14.9	8.8
Return on sales	13.9	15.8	8.1	6.8
Total asset turnover	1.07	0.91	1.01	0.85
Fixed asset turnover	4.18	2.27	3.51	7.73
Stock turnover	6.05	4.05	3.63	9.45
Debtor turnover	5.34	4.83	4.04	2.53
collection period	69	76	91	145
Creditor turnover	17.6	7.91	5.50	4.97
payment period	21	47	67	74
Financial status ratio				
Gearing	16.3	11.1	24.2	27.3
Current ratio	2.5	2.25	1.89	2.51
Acid test	1.78	1.28	1.08	2.22

Note: SKF, Merck and Glaxo average of 1973 to 1982

Y average of 1979 to 1982

Financial Ratio Analysis

(averages of SKF, Merck and Glaxo over 10 years).

Performance ratio

Return on investment	
Return on equity	23
Return on capital employed	19
Return on sales	13
Total asset turnover	1.0
Fixed asset turnover	3.3
Stock turnover	4.6
Debtor turnover	4.7
collection	80
Creditor turnover	10.3
payment	45

Financial status ratio

Gearing	17.2
Current ratio	2.2
Acid test	1.4

Figure 4.6.5-2

Proforma Balance Sheet for 1990

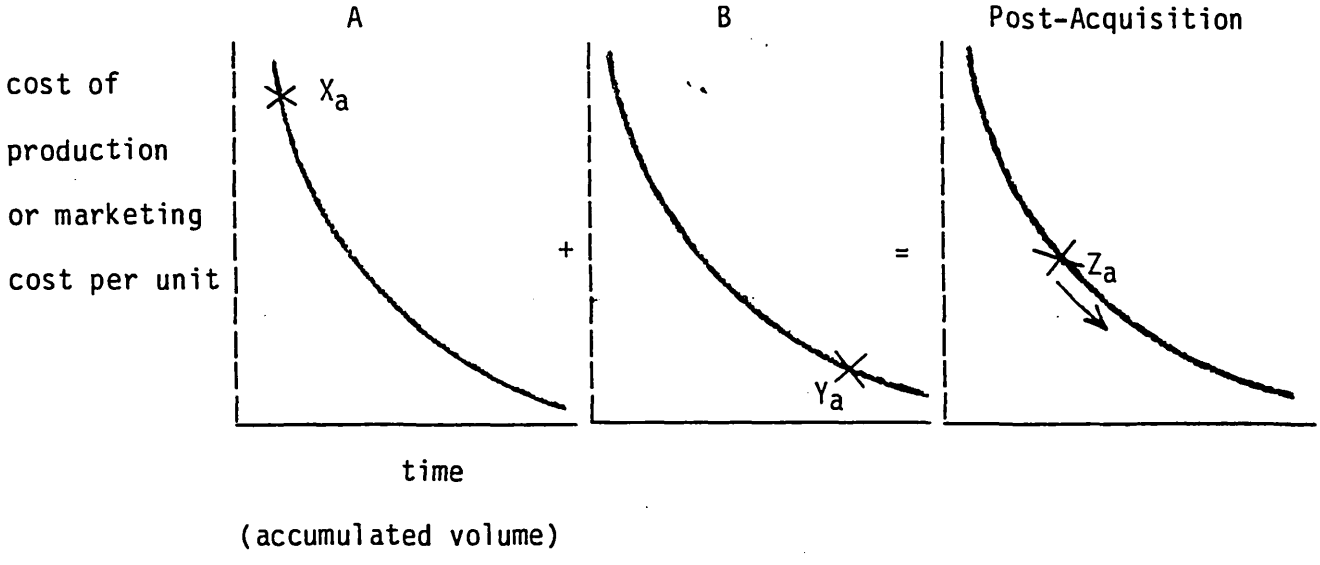
based on Financial Ratio Analysis (Yen 100M)

	MCP average (FRA-1990)	Forecast by POS method (POS-1990) (From Figure 4.6.1-1)
ASSETS		
Current assets:		
Cash	445	1,067
Debtors	590	1,289
Stocks	600	284
Others	15	15
Fixed assets (net)	840	725
Investment	107	107
	2,597	3,487
LIABILITIES		
Current liabilities		
Short-term loans		15
Accrued expenses	432	573
Trade creditors	270	539
Others	13	13
Long-term loans	330	
Retained earning		
	1,565	2,347
Ordinary share capital		
	2,597	3,487

Figure 4.6.5-4

Learning curves for acquisition and new business establishment

Acquisition



New business establishment

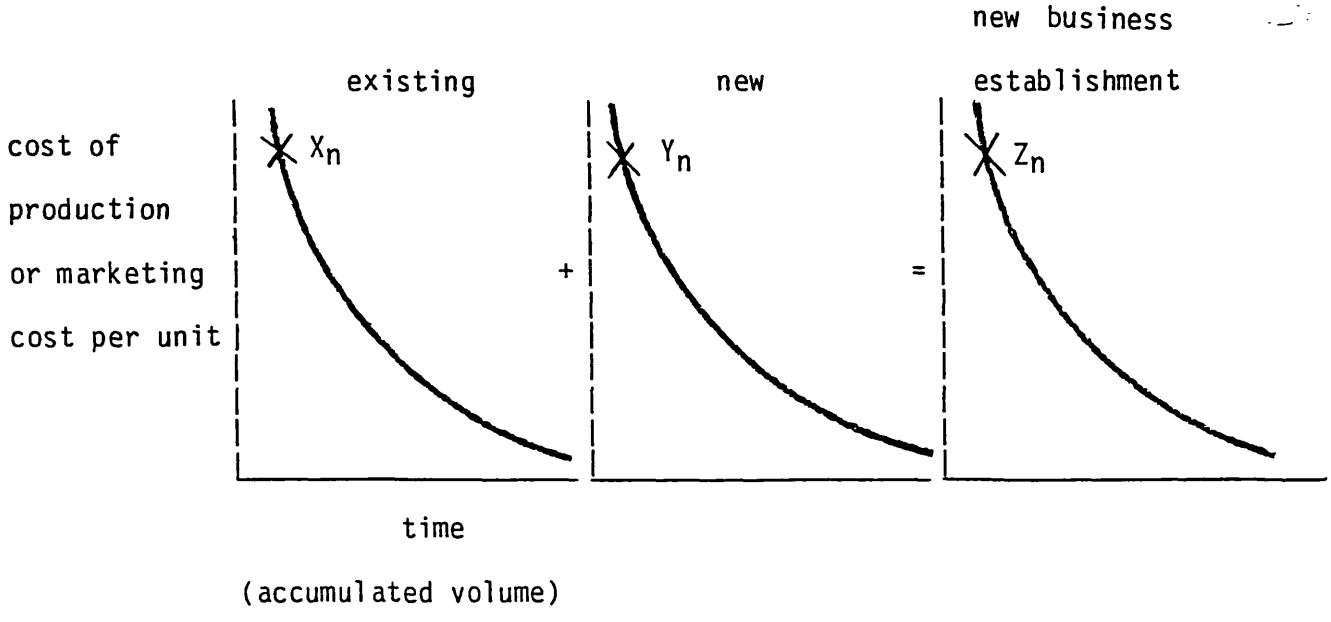


Figure 5.1.1-1

THE SOURCES OF INFORMATION

FILED DATA	Sales force
	Suppliers
	Market research firms
	Security analysts
	Trade associations
PERSONAL DATA	Personal contacts
	Direct approach
	Board of directors
PUBLISHED DATA	Articles
	Government documents
	Speeches by management
	Annual reports
	Analyst's reports
	Patent records
SPECIALISED INFORMATION	Brokers, finders
	Management consultants
	Investment bankers

(Source: Seminar by Kenmore)

Figure 5.1.4.1-1

Behavioural pattern of a negotiator

****

What to say

(the mental preparations in terms of arguments and proposals)

****

Actually say

(what is actually said and its implications under the pressure of negotiation)

****

Listen

(the negotiator should listen to what has been said)

****

Understand

(understanding the meaning of what has been said in the context of the overall deal)

****

Remember

(remembering what has been said for future reference and coming arguments)

(Source: Seminar by Kenmore)

Figure 5.1.5-3

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APPENDIX A Product Profile

Compound-A

This compound blocks histamine releasing sites (H_2 receptor) and inhibits the gastric secretion. Acid and pepcin are the most important attacking factors and the compound inhibits the secretion of pepcin and acid. As peptic ulcer is thought to be caused by these factors, classification A2 is chosen for the relevant market.

Compound-B

This compound dilates vessels by blocking calcium entry into the smooth muscle cells, eventually reducing the total peripheral resistance in vessels. It thus inhibits hypotensive activity and elevation of cerebral blood flow.

This compound also dilates coronary arteries and increases blood flow inside coronary vessel, thereby supplying efficient oxygen to miocardy.

Therefore, relevant markets are, C1, C2, C4 and C7.

Compound-C

This compound blocks beta receptors being distributed on the heart and causes negative entropic activity and eventually decreases the consumption of oxygen of miocardy.

While alpha receptors being distributed on vessels are blocked by the compound, it dilates peripheral vessels and also decreases the total peripheral resistance. It eventually inhibits hypotential activity together with the negative entropic activity of the beta blocking effect.

Indications for diseases for Perdipine and alpha-beta blocker are similar to each other. Therefore, the same classifications are selected. However, when the detailed demand analysis is made, the more precise identification of the classification should be done. The principle of simplicity is applied to this case.

Compound-D

This compound has a broad spectrum anit-viral activity being stable against beta lactamase, which is covered by J sub groups.

Compound-E

This compound has bronchodilating activity by beta stimulant activity, which stimulates beta receptor. Being distributed on trachea and bronchea, it eventually dilates the airway.

APPENDIX B

Data classification for five new products

Compound-A

A	Alimentary tract and metabolism
A 2	Antacids, anti-flatulents and anti-peptic ulcerants
A 2A	Antacids, anti-flatulents
A 2A1	Plain antacids
A 2A2	Plain anti-flatulents
A 2A3	Antacids with anti-spasmodics
A 2A4	Antacids with anti-flatulents
A 2A5	Antacids with anti-spasmodics and anti-flatulents
A 2A6	Antacids with other drugs
A 2A7	Anti-flatulents with other drugs

Data classification for five new products (continued)

Compound-B	C	Cardiovascular system
Compound-C	C 1	Cardiac therapy
	C 1D	Miocardial therapy
	C 1D1	Coronary vasodilators
	C 1D3	Nitrites and analogous compounds
	C 2	Hypotensives
	C 2A	Rauwolfia alkaloids and derivatives, plain and in combination, excluding combinations with diuretics
	C 2B	Synthetic hypotensives, plain and in combination, excluding combinations with diuretics
	C 2C	Hypotensive combinations with diuretics
	C 4	Peripheral vasodilators
	C 7	Beta-blocking agents
	C 7A	Beta-blocking agents, plain
	C 7B	Beta-blocking agents, combinations
JC1AAX		

Data classification for five new products (continued)

Compound-D	J	General anti-infectives systemic
	J11D	Cephalosporines
	J 1H	Other penicillines
	J 1J	Penicilline streptomycin combinations
	J 1K	Aminoglicosides
	J 1L	Carbenicillin and similar types
Compound-E	R	Respiratory system
	R 3	Anti-asthmatics
	R 3A	Bronchodilators and other anti-asthmatics
	R 3A1	Inhalants
	R 3A2	Others
	R 3B	Other anti-asthmatics and respiratory stimulants

JC1AAX

(A) Anti-ulcer (Compound-A)

Company	Product	Type	Development Stage
Hoechst	Hoe-892	prostaglandin	Pharmacology
Johnson & Johnson			
	etintidine	H2-antagonist	Phase I
	fenoctimine sulfate	Anti-ulcer	clinical trial
Smithkline	oxmetidine	H2-antagonist	Phase III
	SKF-93479	H2-antagonist	suspended
Bristol-Myers	BL-6341A	H2-antagonist	Phase I
	etintidine	"	Phase I
Lilly	nizatidine	H2-antagonist	Pharmacology
Pfizer	pp907	H2-antagonist	Pharmacology
	pp477	prostaglandin	"
Merck & Co.	famotidine	H2-antagonist	Phase III
	L643441	"	Pharmacology
	MK-447	Anti-ulcer	Phase I
Ciba-Geigy	Zy-15029	Anti-ulcer	clinical trail

Company	Product	Type	Development Stage
Boehringer I.	DA-4577	H2-antagonist	Pharmacology
Upjohn	16, 16-dimethyl	dinoprostone prostaglandin	clinical trial
	arbaprostil	"	Phase III
	OU-1308	"	Phase II
Glaxo	lamitidine	H2-antagonist	Pharmacology
	loxtidine	H2-antagonist	Pharmacology
	ranitidine	H2-antagonist	launched

(C) Cardiovascular products (Compound-B and Compound-C)

Company	Product	Type	Development stage
Hoechst	tiamenidine	alpha-antagonist	pre-registration
	forskolin	antihypertensive vasodilator, peripheral	clinical trial
	propentofylline	vasodilator, peripheral	Phase II
	penbutolol	beta-blocker (non-cardioselective)	launched

Company	Product	Type	Development stage
Johnson & Johnson	bepridil	calcium antagonist	launched
	flunarizine	"	"
	lidoflazine	"	"
	ketanserin	antihypertensive	phase III

Company	Product	Type	Development stage
Smithkline	SK&F-64139	Vasodilator, coronary antihypertensive (dopamine agonist)	phase II
	prizidilol	beta-blocker vasodilator, peripheral	phase III
	levobunolol	beta-blocker	phase III
	SK&F-38393	cardiovascular	clinical trial
	SK&F-82526-j	" (dopaminargic agent)	phase II

Company	Product	Type	Development stage
Bristol-Myers	bucinodolol	beta blocker	phase III
	sabotalol	"	launched

Company	Product	Type	Development stage
Lilly	penacidile	antihypertensive vasodilator, peripheral	phase III
	penbutolol	beta blocker	launched

Company	Product	Type	Development stage
Pfizer	doxazosin	antihypertensive alpha antagonist	phase I
	trimazosin	antihypertensive	phase III

Company	Product	Type	Development stage
Merck & Co.	enarapril	antihypertensive ACE-inhibitor	phase III
	MK-521	"	phase I

Company	Product	Type	Development stage
Ciba Geigy	CGS-13945	antihypertensive ACE-inhibitor	phase I
	cadralazine	antihypertensive vasodilator, peripheral	phase III

Company	Product	Type	Development stage
American Home Products			
	guanabenz acetate	antihypertensive alpha antagonist	launched
	indoramin	antihypertensive	launched
	vinvocetine	vasodilator, peripheral	launched
	acebutolol	beta blocker	launched
	cetamolol	"	phase II

Company	Product	Type	Development
Roche	tiapamil	calcium antagonist	phase III
	carprazidil	antihypertensive vasodilator, peripheral	phase II
	bufuralol	beta blocker	phase III
	Ro-31-1118/001	"	clinical trial

Company	Product	Type	Development
Sandoz	PY-108-069	calcium antaginist	phase II
	guanfacine	antihypertensive alpha antagonist	launched
	endoralazine	antihypertensive	launched
	bopindolol	beta blocker	phase II
	spirendolol	beta blocker	clinical trial

Company	Product	Type	Development
Boehringer Ingelheim			
	alinidine	antianginal	phase II
	azepexole	antihypertensive alpha antagonist	phase II
	bunitrol	beta blocker	launched

Compnay	Product	Type	Development
Warner-Lambert	diltiazem	calcium antagonist	launched
	CI-906	antihypertensive ACE-inhibitor	phase II
	CI-907	"	phase I
	bevantolol	beta blocker	phase III
	lavebunolol	"	phase III

Company	Product	Type	Development
Bayer	niludipine	calcium antagonist	clinical trial
	nimodipine	"	phase II
	nisoldipine	"	phase I
	nitrendipine	"	phase II
	guanadrel	antihypertensive alpha antagonist	registered
	acebutolol	beta blocker	launched

Company	Product	Type	Development
Schering-Plough	labetalol	alpha beta blocker	launched
	Sch-19927	beta blocker	phase II

Company	Product	Type	Development
Upjohn	nicorandil	vasodilator, coronary	pre-registration
	guanadrel	antihypertensive alpha antagonist	registered
	epoprestenol	"	"
	minoxidil	"	"
	alprostadil	vasodilator, peripheral	launched
	minoxidil	"	"

Company	Product	Type	Development
Abbott	KB-944	calcium antagonist	phase II
	terazosin	antihypertensive alpha antagonist	phase III
	buflomedil	vasodilator, peripheral	launched
	carteolol	beta blocker	launched

Company	Product	Type	Development
Squibb	captoril analogues	antihypertensive ACE-inhibitor	phase I
	" combinations	"	clinical trial
	"	" + Diuretic	clinical trial
	nadolol	beta blocker	launched
	nadolol combinations		"

Compnay	Product	Type	Development
Beecham	BRL-40015	antianginal	clinical trial
	PP14	vasodilator, peripheral	phase I
	iprocrolol	beta blocker	phase III

Company	Product	Type	Development
Glaxo	labetalol	alph beta blocker	launched

(J) Antibiotics (Compound-D)

Company	Product	type	Development
Hoechst	cefodizime	cephalosporine, inj.	phase I
Smithkline	cefatrizine	" oral	launched
	cefonicid sodium	inj.	pre-registration
	ceftizoxime	----"-----	launched
	cefmetazole	cephmicin	launched
Bristol-Myers	cefatrizine	cephalosporin, oral	phase I
	ceforanide	inj.	pre-registration
	T-1982	cephamicin	"
	BL-P2013	beta-lactamase inhibitor	phase I

Company	Product	Type	Development
Lilly	cefaclor	cephalosporin, oral	launched
	cephamandol	" ,inj.	launched
	ceftazidime	-----"---------	pre-registration
	latamoxef	beta-lactam antibiotic	launched
Pfizer	cefoperazone sodium	cephlo. inj.	launched
	pivsulbactam	beta-lactamase inhibitor	phase III
	sulbactam	"	clinical trial

Company	Product	Type	Development
Merck & Co.	imipemide	beta-lactam antibiotics beta-lactamase inhibitor	phase II
	latamoxef	beta-lactam antibiotics	launched
	MK-791	" beta-lactamase inhibitor	phase II
	fosfomycin	antibiotics	launched
Ciba-Geigy	cefroxadine	cephalosporin, oral	launched
	cefotiam	--"--- , inj.	"
	cefsulodin	------"-----	"
Roche	ceftriaxone	cephalosporin, inj.	"
Sandoz	fosfomycin	antibiotics	launched

Company	Product	Type	Development
Schering-Plough	Sch-29482	beta-lactam antibiotic	phase II
Upjohn	AC-1370	cephalosporin, inj.	phase III
Abbott	cefmenoxime	cephalosporin, inj.	launched
	cefotiam	"	launched
	cefsulodin	"	launched
Squibb	azatreonam	beta-lactam antibiotic	phase III

Company	Product	Type	Development
Beecham	augmentin	penicilline, oral beta-lactamase inhibitor	launched
	clavulanic acid combinations	beta-lactamase inhibitor	clinical trial
	timentin	penicilline, oral beta-lactamase inhibitor	clinical trial
Glaxo	cefuroxime axetil	cephalosporin, oral	clinical trial
	ceftazidime	" , inj.	pre-registration
	cefuroxime	"	launched

(R) Bronchdilator (Compound-E)

Company	Product	Type	Development
Hoechst	sudexanox	antiallergic/antastomatic	clinical trial
	trimexlline	" bronchdilator	"
Smithkline	SK&F-78729-A	antiallergic/antiasthmatic	phase II
	carbuterol	bronchodilator	launched
Bristo-Myers	BL-5255	antiallergic/antiasthmatic	phase II
	BL-5617	"	phase I
	tiprenast	"	"
	fenprinast	bronchodilator	clinical trial
Pfizer	pirbuterol	bronchodilator	launched
Merck & Co.	budeson.de	antiasthmatic corticos.roid	lanuched

Company	Product	Type	Development
American Home Products		antiallergic/antiasthmatic	clinical trial
	thiazinamium chlride		
	Wy-41195	"	"
Roche	DHLA	"	phase II
	Ro-21-7634	"	phase II
	tretoquinol	bronchodilator	launched
Boehringer Ingelheim			
	clenbuterol	bronchodilator	lanuched
	oxitropium bromide	"	registered
Warner-Lambert	procaterol	antiallergic/antiasthmatic	lanuched
	carbuterol	bronchodilator	lanuched
	procate.	bronchodilator	lanuched

Company	Product	Type	Development
Upjohn	lodoxamide ethyl	antiallergic/antiasthmatic	phase II
Abbott	tulobuterol	bronchodilator	launched