

studies

**Advantages and disadvantages
of an integrated market compared
with a fragmented market**

European Communities — Commission

Report of study

“Advantages and disadvantages of an integrated market compared with a fragmented market”

Dr. Hartmut Schmidt
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This study was made by Dr Hartmut Schmidt, Professor in the University of Hamburg, at the request of the Commission of the European Communities.

The purpose of the study is to set out a comparative analysis of secondary markets and to assess the respective advantages and disadvantages of integrated and fragmented markets, particularly from the point of view of the efficient operation of these markets, the development of domestic and international dealings in securities, and the protection of savers.

The first part of the study deals with the criteria used in assessing the various ways in which securities markets are organised.

In the second part, the different systems of organisation and operation of markets in the nine Member States and in Japan and the United States are reviewed. The aim of this investigation is to determine for each country, whether the secondary market in the broad sense is integrated or fragmented i.e. whether there are one or more markets and what different kinds of securities are traded on them.

The third part of the study compares, both from a practical and theoretical point of view, the respective merits of integrated secondary markets and fragmented markets. This part also draws certain conclusions about the Community's future policy with regard to stock markets.

The Commission believes that this study will play a significant part in determining certain specific objectives for its work in this field. It would emphasise, however, that the opinions expressed in the study are those of the author alone.

COMMISSION OF THE EUROPEAN COMMUNITIES

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with a fragmented market**

by

Dr. Hartmut Schmidt

Professor of Finance
University of Hamburg

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LIST OF ABBREVIATIONS

AEB	Amsterdamse Effectenbeurs
AIS	Automated Investment Service
Amex	American Stock Exchange
Ariel	Automated Real-Time Investments Exchange Limited
BAS	Block Automation System
BSE	Boston Stock Exchange
CBOE	Chicago Board Options Exchange
Cedel	Centre for the Delivery of Securities
CLOB	Central Limit Order Book
COB	Commission des Opérations de Bourse
CONSOB	Commissione Nazionale per le Società e la Borsa
CQS	Consolidated Quotations Service
CSE	Cincinnati Stock Exchange
DIMOS	Dealer Inter-Market Order-Switching System
DSE	Detroit Stock Exchange
FRBNY	Federal Reserve Bank of New York
Instinet	Institutional Network
mm	market maker
MPDS	Market Price Display System
M.R.	Mercato Ristretto
MSE	Midwest Stock Exchange
MSRB	Municipal Securities Rule-Making Board
NASD	National Association of Securities Dealers
Nasdaq	NASD Automated Quotations

NMA	National Market Association
NMAB	National Market Advisory Board
NSCC	National Securities Clearing Corporation
NSE	National Stock Exchange
NYSE	New York Stock Exchange
OBO	Order Book Official
OCC	Options Clearing Corporation
OIS	Order Indication System
OTC	over the counter
PBW	Philadelphia-Baltimore-Washington Stock Exchange
PSE	Pacific Stock Exchange
SE	Stock Exchange
SEC	Securities and Exchange Commission
SIAC	Securities Industry Automation Corporation
SIPC	Securities Investor Protection Corporation

S U M M A R Y

1. The point of departure is what many regard as the normal situation: a security is listed on a stock exchange and is traded on that exchange exclusively. However, from this appealing and orderly situation there are deviations, varying in extent from country to country. Thus the question arises why some securities are traded on several exchanges or even both on and off exchanges while others are not traded on an exchange at all.

2. These deviations must be measured against a well founded criterion if their advantages and disadvantages are to be established convincingly. Procedural efficiency is such a criterion. It is developed in Part 1 on the basis of the interests of investors and issuers. An increase in procedural efficiency will reduce the difference between the effective yield of the investor and cost of capital of the issuer. Procedural efficiency includes criteria such as market depth, market breadth, low commissions, competition and investor protection.

3. Part 2 describes how securities are traded on the secondary markets of the member countries of the European Communities, in Japan and in the United States. The detailed analysis shows that concentration of dealings on one stock exchange is the exception, rather than the rule. Even where a high degree of concentration is achieved, the securities are not traded according to a single procedure, but trading of active and inactive

securities is organized differently (vertical segmentation). In addition, dealings in a security are often spread over several markets (horizontal segmentation). Segmentation results from the efforts of security-dealing firms to reduce the cost of producing transaction services, and to adjust the quality of transaction services to investor needs.

4. Vertical segmentation enhances the procedural efficiency of the secondary market. Where a large number of securities are traded, ranging from exceptionally active securities to issues usually not dealt in at all, four vertical segments are useful. In the upper two segments, the auction principle will normally determine trading procedures, in the third segment trading is founded on the market-maker principle, while for securities rarely dealt in, plain brokerage techniques suffice. In order to ensure that technical progress and changes in investors' preferences are promptly translated into improved transaction services and advanced trading procedures, there should be competing market organizers for individual vertical segments or parts thereof, even if certain facilities have to be duplicated. For the lower segments, it is of no consequence whether the market organizer is a stock exchange or not.

5. Horizontal segmentation is characterized by two types of trading: trading off the principal market at that market's prices, e. g. in-house crossing, and trading on sub-markets on which prices are established autonomically, e. g. parallel markets.

In the first case the positive effects on procedural efficiency generally dominate. On balance, there are more disadvantages than advantages to the second type of trading. In particular, this applies to intra-country parallel markets if competition with other markets is restrained.

6. A securities market policy of the European Communities should not seek to influence directly the structures of the national secondary markets, but should lay the foundations for the competition of market organizers, so as to indirectly achieve markets properly segmented and adapted to the conditions prevailing in each country. These foundations would also help to eliminate distortions in intra-Community competition, which will tend to become keener as economic and monetary integration progresses.

P R E F A C E

Towards the end of 1974 I was asked to produce a study by the end of 1975 for the staff of the Commission of the European Communities on the structure of the securities markets in the member countries and to consider whether, in the interests of the proper functioning of the Common Market, similar organization forms are needed for the secondary markets in the various countries of the Community. I accepted this task for three reasons: in the first place, the study would be of value to the division planning the securities market policy of the Commission; secondly, securities market organization lies at the heart of my research activity; thirdly, when a scholar is asked to comment on questions of public interest, he should do so.

This report was submitted in two parts. The original request concerned only the secondary markets in the countries of the Community. The study report was filed in December 1975. A second agreement brought Japan and the United States into the scope of the study as well. In November 1976 I completed the second report. The work now presented is a consolidation of the two reports. In some cases the earlier reports have been updated.

Without the invaluable support from many sides I would surely not have been able to submit this report. Many stock exchanges, bankers, brokers and supervisory authorities have kindly provided me with information and sent me their publications.

Many experts have made themselves available and have patiently answered my questions (see pages 442 - 444). I am particularly grateful to them.

Mr. Pierre Welter, Principal Administrator in the division XV/A/3 of the Commission, made valuable suggestions after reading the first part of the report as to which problems required analysis in depth from the point of view of his department. I thank Dr. Hans-Jürgen Lwowski for the useful contacts he arranged for me. I am indebted to my assistants, Mr. Hermann Reuter and Mr. Eckart Mildenstein, who consulted experts in Italy and France, collected material there and collated it for me; to Mrs. Ursula Lüders and Mrs. Lieselotte Bode for typing various versions of the report; to Mr. Michael Doberenz, who helped me in preparing the manuscript; and to Mrs. Irene Otto and Mr. Joachim Daduna, who relieved me of proofreading and of much of the library work.

Hamburg, March 1, 1977.

H.S.

I N T R O D U C T I O N

Most observers of the stock exchange scene will at some time have asked themselves one of the following questions:

- Is it a good idea to have several stock exchanges existing side by side?
- Why are different prices quoted on different stock exchanges at the same time for one and the same security?
- Why do not all stock exchanges use the same trading procedures?
- Why do not all securities enjoy the benefit of orderly and "transparent" stock exchange dealing?
- Is there a trend towards a central stock exchange?

Isolated questions like these can be subsumed into the main question of the advantages and disadvantages of an integrated as opposed to a fragmented secondary stock market. There are several such advantages and disadvantages. To set them out would seem at first glance a simple matter. One can list the tasks of a stock market and examine the contribution of one or other types of market structure to the fulfilling of these tasks.

The tasks of a stock market are basically:

- to enable investors to buy or sell securities regularly or even instantly;
- to determine and publish prices of a certain quality;
- to improve the liquidity and marketability of securities and to improve the depth of the market;
- to protect investors and to put all users of the market on equal footing;
- to keep the cost of security-transaction services as low as possible;
- to reduce the difference between the cost of capital to issuers or borrowers and the yield to investors.

Obviously this method would produce a more or less systematic enumeration of the advantages and disadvantages. But what is required is not merely a listing of pros and cons but an appraisal of various possible market structures. In order to arrive at least at a starting-point for an appraisal, we must link the above-mentioned criteria and merge them into a single overall criterion. Part 1 of the study is devoted to this aim. Part 2 gives a detailed description of the secondary stock markets of the countries of the European Community, Japan and the United States to provide a vivid understanding of existing and developing market structures. Finally in Part 3 typical elements of these market structures are evaluated.

In order to arrive at a single, multi-dimensional criterion we use as our starting-point the most comprehensive of the criteria already mentioned, that of the margin between borrowers' cost of capital and investors' yields; it includes all other criteria stated above. The emphasis of the examination thus falls on the cost of the financial services provided by the security-dealing firms, whether they be banks or specialist undertakings such as broker firms. This approach is not unusual; it focusses on the efficiency of the stock markets. It is only new insofar as it takes into account defective investor protection in concrete terms as expected losses to the investor rather than as a deviation from abstract ideals of justice.

This approach has implications with which not all readers will agree. In a basic way the problems connected with including investor protection in considerations of efficiency can be illustrated by the following thesis: if certain expected losses to the investor amounting to a million marks a year can be prevented only by measures costing more than a million marks a year, the efficiency of the securities market is not increased by such measures. Only if measures can be devised which will cost less than a million does it make economic sense to improve investor protection. We are well aware that it could be said that investors only notice in the most exceptional cases that they have been cheated and by how much; that this approach would therefore result in excessive investor protection and that efforts should be confined to refurbishing the image of stock and share dealing from time to time, after glaring malpractices had come to light, by introducing apparent or actual reforms. We are well aware, too, that all the securities markets examined, all the major stock exchanges, form

part of democratic and constitutional social systems which are especially pledged to protect their citizens from unjust attacks on their property. One could therefore demand a perfect degree of investor protection even if it cost far more than the amount by which it reduced the expected losses. The reader, in reading the critical passages, is free to choose where he stands between the attitude of "Fiat iustitia et pereat mundus" on the one hand and complete neglect of investor protection on the other, and to modify our findings in the light of his preferences. All the same it remains sensible, for the purposes of an efficiency analysis, to measure defective investor protection in terms of the losses that investors can expect to sustain or, rather more accurately, as is done in Part 1, in terms of the cost of (self-)insurance against transaction and custody risks.

For many readers the analytical "unbundling" of financial services will seem an approach just as unusual as does the "integrating" concept for developing a criterion for assessing market structures. It is often assumed, in studies of stock markets, that investors merely "buy and sell" certain securities. This sometimes gives the false impression that firms dealing in securities offer only a standardized, homogeneous transaction service to the investor in the manner of single-product firms and that there is no point in bothering with the composition of this transaction service. In reality, however, the service which security-dealing firms offer to investors varies widely. When it comes to examining the question why transactions in a security are sometimes effected through a stock exchange and sometimes outside the stock exchange, sometimes on one market and sometimes on several, it is very important to realize this.

One would never gain an adequate understanding of the hotel trade or the motor industry if one proceeded from the assumption that they offered the customer only a single homogeneous product, say a standardized bed-unit or a standardized four-wheel motorized vehicle with a minimum of passenger comfort and safety components. Investors are no more likely than hotel guests or motorists to be satisfied with a standard design of the product they seek. Investors are not merely interested in being able to buy and sell securities; they want a more complex service. It is true that the central element in this service is very often a homogeneous transaction, but this transaction is supplemented as occasion demands with other complementary financial services in many different ways. For that reason security-dealing firms are not treated as single-product undertakings in this study but as actual or potential suppliers of a whole range of primary and complementary financial services. On the basis of this range, service packages tailored to the needs of certain groups of investors are offered; sometimes the client is able to undo such packages easily, sometimes he cannot do so at all.

The securities markets, whatever their structure, have substantial achievements to their credit. Their contribution to the financing of industry is most obvious. The costs arising on security transactions bear comparison with the cost of transactions in any other asset. The cost is often less than 1% of the value of the transaction. Any improvement in the market structure could not, consequently, reduce these costs by whole percentage points but only by fractions of a point. They would involve only tenths of a per cent of the value of a transaction - which seems microscopically small.

Admittedly, the annual purchases and sales on the markets in question amount to many thousands of millions, even measured in pounds sterling. But one or two thousandths of this figure do not on their own produce a high enough sum to give the question of the improvement of the market structure any great importance or urgency.

In fact, in the countries with well developed financial markets, all that can be expected from any effort to improve the efficiency of secondary stock markets is a minor reduction in the cost of capital and a modest increase in the yields from securities. At first it may seem as though the possible effect does not justify such an effort. It is well known, however, that even small relative changes in the yields of various investment media can trigger off substantial switching of investments. Moreover, a reduction in the cost of capital will tend to lead to a higher rate of growth of productive assets. Its effect may be barely noticeable after two or three years but it will be very clear after a generation, particularly if other countries, which are being adduced as a comparison, neglect their capital markets. There are some countries which devote more care and attention to their security markets than the security dealers in those countries would like. Every country in the European Community should seek to avoid being one of the countries merely referred to for purposes of unfavourable comparison.

P a r t 1

CRITERIA FOR THE ASSESSMENT OF DIFFERENT
STRUCTURES OF STOCK MARKETS

A. CRITERIA FOR THE ASSESSMENT OF STOCK MARKETS

I. USING THE PARTICIPANTS IN THE MARKET AS THE
STARTING-POINT

The question as to the advantages and disadvantages of fragmented stock markets versus integrated markets, with special reference to securities markets in the Member States of the European Communities can be answered unequivocally only if criteria are available against which a given market structure can be measured and if these criteria enable consistent findings to be arrived at. Such criteria cannot simply be stated without further analysis. They will therefore be developed below.

Stock markets do not exist for their own sake. Rather, just like any other market, they are intended to serve buyers and sellers and those who organize the market and bring the two sides together. These groups, who for our present purposes will be investors, issuers and stock market financial service organizations (dealing firms, stock exchanges and other organizations which facilitate dealing in securities), place different demands on a stock market as a result of their special interests. It may for that reason seem inappropriate

to try to build up the desired criteria from the interest of these groups. But if we do proceed from these conflicting group interests, we do so in the knowledge that any other approach entails the risk of awarding the best marks to those hypothetical or real market structures that are shunned by investors, dealing firms or issuers and that are little more than an end in themselves. From this it is already clear that any intervention by the authorities under a policy for the furthering of stock markets must go no further than the safeguarding and reconciliation of the interests of those involved in security dealings, provided such interests are deserving of protection.

Convincing as the chosen approach may be, it nevertheless has certain disadvantages. Firstly, it does not allow us immediately to concentrate exclusively on the secondary stock market, which is the object of this study; before this can be done, some aspects of the stock market as a whole, i.e. including the new issues or primary market, must be considered. Secondly, this procedure does not take into account whether or not statistics are available or can readily be compiled on the values which will prove to be crucial or particularly important for judging the markets, with the result that for this reason it will be very difficult, within the time allowed for producing this study, to make recommendations that are backed up by quantitative analyses. Thirdly, we will have to focus on the common and longer-term interests of a small number of participant groups only if our presentation is to remain simple and clear. Therefore in the first, and general, part of the study we will in principle not deal with the parties with special interests

who are everywhere in evidence and who frequently oppose any alteration of the market structure, as is only to be expected in such a traditional and tradition-conscious activity as security dealing. The task given us compels us to accept this third disadvantage. The two other disadvantages also seem unavoidable if this study is to be constructed on a broad and firm foundation. We shall therefore use the common interests of the groups participating in the market as our point of departure.

In order to develop criteria for the assessment of stock markets in this way, we shall start from the interests of the investor and the issuer when a bond is issued. Our observations will make use of the basic model of security valuation that has been employed by investment analysts for decades, particularly for bonds, and that has been accepted in a many other branches of economics. Tax aspects will be left out of account. As our investigations progress, we will cease to confine our attention to bonds alone. Stock market financial service organizations will then be brought into the study. Finally, it will be shown what criteria still remain relevant if one disregards new issues - i.e. transactions in which securities are sold to investors for the first time - and concentrates on dealings in issues that are already in circulation, that is to say on the secondary stock market. The statements on the next few pages are supplemented by Annex 1 at the end of the study to help the reader gain a thorough understanding of this rather complicated matter.

II. CRITERIA FROM THE POINT OF VIEW
OF INVESTORS AND ISSUERS

If an issuer wishes to issue a bond himself or wishes to arrange to have a bond issued, there will be three groups of investors who are potential buyers:

1. Investors who are absolutely certain that they will hold the bond until maturity. Such investors will discount the promised interest and redemption payments, less the cost of custody of the bond, at the minimum rate of interest they wish to obtain from an investment in bonds of this type and quality, in order to ascertain whether the bond is attractive to them at the intended issue price. If the bond is offered for sale by tender, the investor can calculate in this way how much he should offer for it.
2. Investors who must expect to have to sell the bond before maturity because they may need cash. In order to reach a decision as to whether or not to buy the bond, these investors will in principle proceed in the same way as the first group of investors except that in their calculations the expected net sales proceeds of the bond will take the place of the redemption payments.
3. Investors who if they buy the bond will hold it only until such time as in their opinion a favourable situation for switching their investment has arisen. This third group also uses the net sales proceeds instead of the redemption amount in making the necessary calculations. In contrast to the second

and also the first group, these investors are at all times interested in information about the business situation of the issuer, since this information will help to determine when they should sell the bond. Investors of the third group therefore have to deduct from the interest they will receive not only the cost of custody of the bond but also the cost of continuous information in order to be able to calculate whether or at what price they should accept the issuer's offer.

When an issue is placed, parts of it will normally be taken up by all three groups of investors. The objectives of the groups of investors and their relative strengths determine the price at which the bond can be sold. The investors' decisions will be influenced by the following six factors:

- the type of bond it is (especially the terms of issue and the maturity date);
- the minimum rate of interest which investors require from bonds of this type;
- the financial standing of the issuer;
- the net sales proceeds expected by investors;
- the cost of custody of the bond; and
- the cost of obtaining continuous information.

The objective of the issuer is easier to ascertain than that of the investors: his aim is the lowest possible

cost of capital. The cost of capital to the issuer, or to be more precise, the cost of the capital raised by means of the bond issue, is initially determined by the issue price of the bond and by the amount of the interest and redemption payments. However, the cost of selling the issue (including the costs of publicity) must be deducted from the issue price and the cost of servicing the bond (including periodical publicity costs) must be added to the interest. It can therefore be said that the cost of capital is determined by the six factors influencing the issue price, by the issue costs and by the costs of servicing the bond.

The cost of capital is thus partly determined by the structure of the stock markets. On the one hand, the methods used by and the competition prevailing on the primary markets have a strong influence on the flotation costs which the issuer has to bear. On the other hand, the way the secondary markets are organized affects the investor by influencing net sales proceeds, custody costs and the cost of obtaining continuous information and affects the issuer by influencing the cost of servicing a security.

The influence of stock markets on the cost of capital can be demonstrated even more clearly by an example. Let us assume that a bond is issued at 100 and is also repaid at 100. We must further assume that the market rate of interest for bonds of this quality and with its (remaining) time to maturity is always the same as the coupon rate of interest on the bond. Under these conditions the market price will always be 100. Since net sales proceeds are defined as market price minus transaction costs, they can easily be split up into the components "secondary

market transaction costs" and "sales proceeds" where the market price is constant. In contrast to the net sales proceeds, the transaction costs are determined entirely by the state of organization of the stock market in the wider sense of the term, as are flotation costs, custody costs, continuous information costs and the cost of servicing a security.

If these five market-organization-determined cost categories were all zero, the investor would have to consider only the interest and the redemption moneys - or instead of the latter the net sales proceeds, which would be the same as the redemption moneys - and similarly the issuer would also have to consider only the interest and redemption payments. The cost of capital would then always be the same, as far as this bond was concerned, as the actual amount of interest that the various investors obtained from the bond. To put it another way, the losses caused by friction due to the way the market was organized would have disappeared. This situation would fully meet the objective of the issuer: if investors demanded a certain minimum rate of interest from an issue, the cost of the capital would be only as high as that interest and no higher. The investment programmes of a potential issuer with a given capacity for meeting certain interest and redemption payments would stand the best possible chance of being implemented. This situation would also be very much in the investor's interest: in no other circumstances would it be easier for the investor to obtain satisfaction of his yield demands on the issuer. So the sum of these five cost categories, which are determined by the organization of the market, constitutes a good criterion for assessing stock markets from the point of view of investors and issuers.

This result was reached using, for the sake of simplicity, two assumptions which can now be dropped. We will first abandon the assumption that the coupon rate of interest is always the same as the market rate of interest of the bond in question. Net sales proceeds are then no longer determined by transaction costs alone but, more realistically, by changes in the earning power of the issuer and changes in market rates of interest as well. In a world in which the services of issuing, dealing, keeping custody of securities, providing information and servicing securities were free, the average yield received by all the investors who together had held a certain proportion of the bond issue from the time of placing until the time of redemption would equal the cost of the capital to the issuer. Differences between the yields to individual investors and the cost of capital would reflect changes of the issuer's earning power and fluctuations in the market rate of interest, factors which are not governed by the structure of stock markets but by the general economic situation, by the sector in which the issuer operates and by investors' ability to form an opinion with the help of a given amount of publicity. If we further drop the assumption that only bonds are involved and bring shares, dividend-right certificates, warrants - in short, securities of every kind - into the analysis, the foregoing two sentences still apply, with the sole modification that instead of a clearly stipulated term of life there is usually an unlimited period of existence. In this more real world the sum of the five market-organization-determined cost categories still remains the criterion for judging stock markets. The procedural efficiency of a stock market can be measured by the sum of these five costs.

This criterion is applicable to issuers and investors in their totality, not to individuals. An individual issuer may for example obtain special advantages for himself by using exaggerated reporting to paint his earnings position rosier than it really is. The same can be said of investors who spread rumours. All issuers of similar securities will eventually be penalized by such action because their capital will become more expensive, owing to the fact that the more unreliable the published financial data prove to be, the lower and less certain will be the distributions and net sales proceeds expected by investors.

Although the subject matter of this study is the structure of the secondary markets, our considerations so far have also included new issue transactions. But the method we have chosen can equally well be applied exclusively to secondary markets. In place of the issuer proper we have the seller of securities already in circulation, in place of the issue price we have the market price and in place of the flotation costs we must consider the transaction costs of the seller and buyer. The seller is interested in obtaining the highest possible net proceeds. But the buyer will only pay him a price that gives him - the buyer - a chance of obtaining his minimum yield, taking into account the expected dividends or interest, the transaction costs in connexion with the purchase and in connexion with a possible future sale, the costs of being provided with information on a continuous basis, and the cost of custody of the securities. For the seller this price is reduced by his transaction costs. Given the buyer's minimum yield and the anticipated amount of the interest or dividends payments, the seller will be

more pleased the lower the present and future transaction costs, custody costs and continuous information costs are. His ideal is a secondary market on which the sum of these three costs and the cost of servicing securities are, and will remain, zero.

For the buyer procedural efficiency of this kind would seem at first sight to be irrelevant, since he can adapt his yield requirement not only to the type and quality of the stock on offer but also to the amount and the degree of uncertainty of the procedure-influenced costs. But, as explained above, whether and to what extent an issue is successful depends on these costs. The lower the costs, the greater the choice open to the buyer on the secondary market. Moreover, every buyer is a potential seller. So even from the point of view of the investors who participate in dealings on the secondary market procedural efficiency is a suitable criterion for assessing the quality of the market. In contrast to the general case, the procedural efficiency of the secondary market is measured by the total of four, not five, cost categories, since flotation costs no longer need to be taken into account.

III. CRITERIA OF MARKET QUALITY FROM THE POINT OF VIEW
OF THE PROVIDERS OF RELEVANT FINANCIAL SERVICES

Up to this point it has repeatedly been assumed that the costs that depend on the organization of the market can be reduced to zero, without the services in question being waived. Of course, this is unrealistic. On stock markets, just as anywhere else, it is hardly possible to provide services free of charge. Investors and issuers will therefore regard as efficient those stock markets on which the appropriate financial services are provided in the most rational way and on which competition is strong enough for the benefits of efficient production to be reflected in prices.

It is well known that in many countries security-dealing firms reject price competition. Commission cartels in security dealing are among the oldest and most successful price-fixing arrangements in business history. As the long and intensive debate about the dissolution of the commission cartels of the members of the principal stock exchanges in the United States has shown, there are no valid reasons why such cartels should be allowed to continue in existence. If the principle of competition among providers of financial services on stock markets was accepted, their interests would then lie in the same direction as the interests of investors and issuers. They would, like firms on other markets, try to offer services which in quality and price were attractive to certain investors and issuers and to this end they would use the most efficient production procedure. The criteria of market quality for them would then be freedom to choose

their products and range of products, freedom of pricing, and freedom in the choice of production techniques.

Given these three freedoms a broker, for example, will be able to execute a client's order as inexpensively as possible: he can offer the client the plain transaction service, he is free to conclude the contract in the manner that is cheapest for him and he can in every case charge a fair market commission. But stock exchange members are not always allowed to accomodate investors in this way. In many cases they have to pass an order through the stock exchange even when the price and the other party to the transaction have already been established and must charge a higher commission than competitive conditions warrant; they therefore offer the client, in addition to the desired dealing service, "free" consultancy and custody services although the client would possibly be better off if he were able to buy these services from specialized firms with the portion of the commission he had saved.

It would be a mistake to suppose, however, that the mechanism of competition can immediately and unaided bring about an alignment of the interests of investors and of financial service organizations and thereby automatically introduce a maximum level of procedural efficiency, even though for some financial services that result can certainly be expected. Four categories of stock market financial services must be distinguished in this context.

The first group of financial services is characterized

by the fact that even an individual firm can provide and sell such services with a prospect of being able to withstand the competition. Included in this category are advisory or counselling services, the publication and distribution of information from issuers to investors, the acceptance and transmission of orders, and the maintenance of clients' accounts. In this area there can be competition among individual firms. There are many firms that have been successfully offering such services for many years - and, naturally, examples of failure are also to be found.

Financial services of this first type must be strictly distinguished from those services which, although also sold for a consideration, can be provided so cheaply where there is co-operation between the largest possible number of firms that a lone operator has no chance of being able to survive the competition if his services are provided by others on a joint or centralized basis. Among services of this type may be mentioned the provision of information on current buying and selling prices, the clearance of securities transactions and basically also the finding of the counterparty to a transaction. Although single firms can compete in this field as far as the fees they charge are concerned, individually they have no influence in ensuring that the most economical method is used to provide the service at any given time. Members of a stock exchange find counterparties for their clients with the help of the normal trading procedures and use the clearing facilities of their stock exchanges irrespective of whether these procedures are economically efficient or are still very much susceptible to improvement. As a rule the individual firm cannot overcome the rationalizing

effect of clearing-houses and the time-saving in finding counterparties through centralization of data about potential contracting parties. It must be ascertained whether competition between associations of dealers or investors offering different dealing systems can help the most rational system to become established where competition between individual firms is unable to ensure procedural efficiency, or whether such competition, on account of its fragmenting effect, ought to be regarded as a step backwards and progress in procedural efficiency ought to be sought in a different way.

Financial services of the third type are those provided by individual organizations because they are obliged to do so under the terms of agreements or by official provisions or regulations and for which such organizations do not charge a fee. The principal services of this kind are the production of periodical reports and the provision of other services in connexion with the servicing of securities by issuers. Other examples are the safeguarding of dealer firms against insolvency by means of official requirements as to the amount of capital they must have, to the extent that such requirements go beyond what a prudent businessman would regard as necessary, and the protection of investors through regulations that stipulate that certain clients should only be offered securities with a prescribed maximum risk content. The self-interest of those compelled to provide services of this kind will ensure that the cost will be kept as low as is possible within the scope of the regulations. However, in the first

place, it is the responsibility of the regulators that their regulations aim for a high degree of procedural efficiency.

The fourth and last category of financial services cannot be sold for a consideration and cannot be provided by individual firms. Into this category fall many services protecting the investor which are not part of the services assigned to the second category. Although for example the dealing systems of the various national stock markets give the investor more or less intensive protection against price manipulation, there is usually scope for additional protective measures. The question arises as to how the investor's possible interest in these services can best be met and whether the procedural efficiency of the secondary market is increased if such services are offered. As in the case of financial services of the third type, this question can only be answered on the basis of each case arising.

IV. ELEMENTS OF PROCEDURAL EFFICIENCY

The foregoing section of this study demonstrated that even the providers of financial services on stock markets would be interested in procedural efficiency if they had to operate under conditions of competition; accordingly procedural efficiency can be said to be the principal criterion for judging the quality of stock markets. Since an attempt will be made in the course of this study to evaluate various forms of organization, the elements of this procedural efficiency and the relation of the elements to each

other must be described. The emphasis in this analysis will be placed unequivocally on the sector of execution of orders for the purchase or sale of securities, as demanded by the subject matter of the study, the fragmentation or segmentation of secondary stock markets, which is principally evident in this sphere. In order to be able to give at least a complete overall view of all the main elements of procedural efficiency and the way these elements relate to each other, we shall also touch on questions of the provision of information about securities and delivery and settlement.

The procedural efficiency of secondary markets is measured by the total of four cost categories that are determined by the state of organization of the market: the cost of servicing securities; the cost of providing information on a continuing basis; transaction costs; and custody costs. The most important costs are the transaction costs, particularly since up to this point in the study we have used this term to cover a whole range of different components in order to simplify presentation. We defined the transaction costs arising on a sale of securities as the difference between the market price and the expected net sales proceeds and the transaction costs arising on a purchase of securities as the difference between the expected gross acquisition price and the market price. These differences have four components:

1. The cost to the investor, in connexion with the transaction, of obtaining information and taking a decision.

2. The cost of accepting the order, finding the most advantageous contracting party for the client, making the bargain, and of clearing and settlement. Remuneration for the services related to these cost components is usually obtained by charging a commission.
3. The cost of securing an instant bargain (cost of immediacy). This cost is generally covered in the case of purchases by an addition to the market price and in the case of sales by a deduction from the market price.
4. The cost of protection against transaction risks.

The last two components need explaining in detail. Costs do not arise for securing instant bargains if matching orders are immediately available on the market. Nor are they normally incurred when the client is prepared to wait until a suitable counter-offer turns up. Waiting, however, gives rise to additional costs of the second category in every case and of the first category in some cases. By agreeing to bear a discount (or premium) for an immediate bargain, the seller (or buyer) may avoid these costs. In addition he obtains forward cover in return for the discount (premium), and is freed from the risk that the price will change while he is waiting. In this connexion we also come across "market depth" or premiums and discounts for large orders - the additional cost of immediacy for a large quantity. Since counter-orders are not usually available to meet large orders, the discounts or premiums here are naturally very high. Only a fairly long period of waiting would enable

the large order to be executed, with a greater risk of the price changing. But the costs involved in securing an instant bargain do not arise only in connexion with large transactions. They represent the consideration for a particular transaction service which is in demand even from small investors. Anyone offering this financial service regularly to buyers and sellers of one or more titles is usually called a market maker (see Annex 3).

The "transaction risks" are a reflection of the lack of perfection in investor protection. Before discussing the costs of safeguarding against transaction risks, we must first give a brief outline of the two groups of transaction risks, "information risks" and "realization risks". Investors can place only limited reliance on the correctness of information which appears to shed light, for example, on the earnings position of an issuer, whether this information comes from the issuer himself, from professional advisers or elsewhere and whether it reaches potential buyers and sellers in the form of reports, analyses, recommendations or price changes. There is always a risk that for a whole variety of reasons they will be poorly or falsely informed (in this study we call risks of receiving poor or false information "information risks" for short). Investors must take account of the fact that owing to inadequate or untrue information they will have to be prepared to buy stock at higher prices or to sell stock at lower prices than would have been the case if they had had correct information and in particular will have to be prepared to accept that those on the other side of the transaction will be better informed than they.

The extent of such price differences will determine the amount of loss suffered by the investor.

Secondly, an investor can never be sure that when his decision to buy or sell stock is translated into reality he will obtain the price that he would have obtained on a market on which his transaction was dealt with absolutely correctly and fairly. Instead, he must be prepared for "realization risks". The best-known and probably the most widespread risk of this kind is the risk of "fellow-travelling" or "shadowing". If a client gives an order to buy that is so large that its execution will very probably cause the price to rise, the dealer who has received the order and others who have got to know of it can cash in on the expected price rise by buying in stock for their own account before executing the client's order. The client then loses an amount per share equal to the difference between the higher price he is charged with and the lower price at which he could have obtained the stock if there had been no "fellow-travelling". If the order is an order to sell, dealers with "inside" knowledge can profit at the expense of the client by selling or shorting the stock ahead of the client and repurchasing it while his order is executed or immediately thereafter.

A second kind of "realization risk" is the risk of counter-action ("reaching across the market", "fishing around"). If, for example, the limit buying order or the buying bid of an investor becomes known to a market participant who wishes to sell, the latter will try to trade at this limit even if he would have sold at a lower price if he had not had this knowledge.

In this case, too, there may be a price difference to the disadvantage of the investor; the value expected of this difference is an indication of the cost of guarding against this special realization risk.

There is a number of similar realization risks which also give rise to differences between the price that could have been obtained if the transaction had been properly handled and the price actually obtained. Among such risks should be mentioned those of price frauds of every kind, arbitrary or fortuitous failure to execute an order, closing at rigged or arbitrary prices, closing under circumstances in which dealings ought to have been suspended, negligent execution of an order on the market and, finally, delays in delivering documents if this prevents timely resale.

In the case of other realization risks the possible costs to the investor cannot be computed on the basis of the expected price differences; examples are: delay in crediting him with the net sales proceeds, the share certificates of the seller lack the qualifications to good delivery, insolvency of the stockbroker or other firm that is acting for the client. But, as in all other cases, an investor can estimate his conceivable losses, weight them according to probability of occurrence and thus arrive at expected values and hence at the approximate cost of safeguarding himself.

To a certain extent the investor can and will provide his own protection, for example by subscribing to various information services, by passing larger orders through several carefully chosen security-dealing

firms, by stipulating realistic and staggered limits and by having the deal handled at different stages by a third party, even though this will give rise to additional expense. Thus for instance during the financial crisis of the New York brokers in 1970 many private investors withdrew the securities they had deposited with their brokers and transferred them to their banks even though this meant paying the usual charges for custodial accounts (e.g. 0.1% of market value, with a minimum charge of \$ 50) whereas the brokers charged no fees at all for the custody.

The willingness of investors to bear additional costs of this kind demonstrates that they are aware of the existence of transaction risks and seek to transform the costs of guarding against transaction risks which are uncertain as to amount and occurrence into certain transaction costs wherever possible. If the problem of determining the amount of the loss and knowing when transaction risks did occur could be solved, an insurance policy against transaction risks could take care of this task. However, since no insurance of this comprehensive type is available, one must assume that investors, in areas where they cannot protect themselves otherwise, will apply a kind of notional selfinsurance premium to any transaction in securities which they are planning and will regard it as the imputed cost of safeguarding themselves against transaction risks, to be considered alongside the other components of the cost of the transaction.

So the costs of guarding against transaction risks may be composed partly of costs that are actually

incurred and partly of imputed costs. The imputed costs of guarding against transaction risks should correspond to the expected losses arising from those transaction risks that are relevant to the planned transactions and against which the investor is not protected in any other way. Only an investor who regularly takes into account even these elements of transaction costs will be able to attain his investment targets in the long run. As the majority of investors are averse to risk, it is to be feared, however, that they will apply higher costs in guarding against risks than the expected value of those risks. Higher imputed costs are also likely to be applied, because the investor has to be prepared for above-average losses and wishes to guard against faulty diagnosis, and because he often has only a small number of deals to transact.

The above account gives sufficient detail as to how the various costs are composed, the sum of which should in the interests of the procedural efficiency of secondary stock markets be as low as possible. One might suppose that procedural efficiency could be increased by simply reducing the individual costs. The important point, however, is not the individual costs, but their total. Since in some instances certain individual costs or cost components increase as others decrease, it is always the total that must be considered as the target value where inter-related costs are involved.

The total of all market-organization-dependent costs can be divided up into three sub-totals that are largely independent of each other and are therefore

useful targets when it comes to improving procedural efficiency. These sub-totals relate to the information and decision-taking sphere, the execution sphere and the settlement and custody sphere. The first of these three sub-totals comprises the cost to the investor of keeping himself continually informed and the cost of information and decision-taking connected with specific transactions, the cost of guarding against "information risks" and the cost to the issuer of his periodical publicity, which is part of the cost of servicing the securities. Every step in the direction of clear and up-to-date disclosure will reduce the above-mentioned costs of the investor but the better this disclosure and the more thoroughly it is checked by stock exchange and other authorities the more expensive it will be. Now the smaller the number of investors interested, the sooner will a point be reached at which further improvements in publicity will give rise to additional costs which are greater than the resultant reduction in costs to investors; in other words, the total costs of the information and decision-taking sphere would no longer be reduced by such a measure but would be increased; procedural efficiency would be diminished. It is not a simple matter to determine where this point lies. As it does exist, however, it would appear reasonable to base the publicity requirements placed on an issuer on the type of investor affected, e.g. bond-holder, shareholder, and on how many of such investors there are. A rule like that laid down by the Securities Exchange Act in the United States may be considered appropriate: under this rule the full Federal periodical disclosure requirements apply in general only to those companies with net assets of more than one million dollars

and which have at least 500 ordinary or preference share-holders. This is in any case more appropriate than those solutions which place the same obligations on all issuers in a given industry or which leave it to the discretion of the issuer whether to spend more money in order to reduce the total costs of the information and decision-taking sphere.

Next to the information and decision-taking sphere follows the sphere that extends from the giving of the order to buy or sell to the receipt of the confirmation notice by the client and at the centre of which stands the making of the bargain (the execution sphere). The market-organization-dependent costs, the total of which has to be kept to a minimum in this second sphere if procedural efficiency is to be achieved, are the costs of accepting and passing on the order, of securing the best available price for the customer, (i.e. seeking the most favourable counter-offer), of consummating the trade and of confirmation. To these must be added the costs of guarding against the "realization risks" that can occur in the execution sphere and finally the costs of immediacy, which in individual cases and like some other items may not arise at all. It would seem an obvious idea to try to perfect investor protection in this sphere in order to reduce to zero the costs of guarding against realization risks here and at the same time to try to reduce the other costs. But investor protection measures not only give rise to non-recurring and recurring costs which are ultimately passed on to the investor, they also, more importantly, tend to have repercussions of various kinds on other costs. Restrictions on own-account dealing by stock exchange traders holding orders from clients will

usually have the effect of raising the cost of immediacy. And if investors are protected from counter-action and rigged prices by confining all or a rather large number of dealers to dealing only one stock at the time (call system), the individual dealer will be able to execute less orders in a day than under a procedure which allows the individual dealer to trade in any stock he likes at any time; a measure of this kind will therefore raise the cost of executing an order. Many more examples could be given besides the two just quoted. But the point is already clear: complete investor protection in the execution sphere may conflict with procedural efficiency if the adverse cost effects of investor protection measures outweigh the reduction in the costs of guarding against realization risks. Since it is difficult to measure these positive and negative cost effects in specific cases, it will only be possible within limits to state in economic terms the degree of investor protection called for by procedural efficiency. Within these limits policy considerations may be meaningful. What is needed are trading procedures that right from their design exclude as many realization risks as possible or which can have safeguards built into them in a straightforward way so that the costs of market supervision can be kept down.

The third sphere in which measures to improve procedural efficiency can be applied is the settlement sphere. Here the problem is the correct recording of the details of the bargain and the dependable transfer of the stock or cash to the parties entitled within a given period. A settlement system that fully meets

these needs will at the same time remove the "realization risks" of this sphere, with the exception of the risk of insolvency which, independently of the settlement system, can be reduced by solvency safeguards and also if necessary by means of insurance. Finally, and closely connected with the settlement sphere, comes the custody sphere. Here we must take account not only of the cost of custody to the investor but also of such costs of servicing securities as paying agents' costs, cost of inviting share-holders to annual meetings, costs of notices about the drawing of bonds, and costs of guarding against insolvency, fraud or negligence on the part of the custodian. Since any change in the techniques related to settlement, for example a change from registered to bearer securities or from actual delivery of securities to document-less delivery, will in all likelihood have repercussions on procedures and costs in the custody sphere, the costs of both spheres can appropriately be combined to form the third sub-total of market-organization-dependent costs.

V. THE CRITERION OF PROCEDURAL EFFICIENCY AND OTHER CRITERIA FOR ASSESSING THE QUALITY OF SECONDARY STOCK MARKETS

So far, proceeding from the interests of the market participants, we have established procedural efficiency as the main criterion for assessing the quality of stock markets. Besides this, we have shown what cost

elements in the three functional spheres of the secondary stock market - cost elements influenceable by the way the stock market is organized - prevent the cost of capital to an issuer being equal to the aggregate yields enjoyed by the investors who hold his issue over a period of time. From this discussion it emerged, firstly, that the sub-total of the costs influenceable in the individual market spheres could serve as a sub-criterion for judging procedural efficiency and we saw, secondly, what might be the crucial points for an improvement in the quality of the secondary stock market and what problems arose in that connexion. Before proceeding to examine secondary stock markets in the countries of the European Communities in the light of these findings, it would seem a good idea to show the relationship between the yardsticks we have developed in this study and other criteria for assessing the quality of a stock market which are commonly to be found in the relevant literature.

In the more recent American literature the criterion of internal or operational efficiency is often used. This criterion is basically the same as that of procedural efficiency except that it mainly includes sub-aspects of the efficiency of the execution sphere and does not, for example - unlike "procedural efficiency" - include the set of problems relating to investor protection because of its narrower definition of transaction costs. Internal or operational efficiency is contrasted with external or "allocational" efficiency, although operational efficiency is regarded as a prerequisite for allocational efficiency; in other words, if market-organization-determined costs were zero,

funds would be routed via the stock markets ("allocated") to the optimal uses. It would be a prerequisite for this that the relevant information was available and that a fairly large number, at least, of mutually independent market participants evaluated it correctly and promptly. Stock prices would then at all times be the best possible reflection of the distribution and amounts of future payments by issuers. But the higher the market-organization-determined costs - and in particular the higher and more unpredictable the transaction costs that have to be borne - the wider the deviations from such optimum allocational prices that can arise and persist, since it would not pay market participants who spotted these deviations to induce a change in prices by making appropriate transactions (for example, where the deviations are not greater than the expected transaction costs of the switching transactions that appear - at a first glance - profitable because of these deviations).

From the point of view of optimum allocation, it is particularly unfortunate if comparable stocks have to bear market-organization-determined costs of varying amounts, whether because of differing capital resources among market makers in these stocks, because they cannot be dealt in on the same market and therefore attract different rates of commission, or because minor and major issuers have to bear the same amount of fixed costs for servicing securities. Irrespective of whether the market-organization-determined costs vary with the number of transactions or not or are dependent on the volume of the issue or not, the less and the more uniformly they burden a transaction unit

or an issue unit, the more accurately will the share price be able to indicate the earning power of the issuer. Accordingly, procedural efficiency in the stock market and in connexion with the individual issue is in fact essential if allocational efficiency is to be achieved. Procedural efficiency also prepares the ground for allocational efficiency by demanding rational methods of prompt communication of business and company announcements. Where a large number of alert investment analysts and investors stand ready to receive and interpret such announcements, one can count on share prices that properly perform their function of guiding funds to the optimum uses.

Procedural efficiency, expanded into allocational efficiency, includes nearly all the criteria normally used for assessing the quality of stock markets even if not always to the full extent (see diagram). It is worth briefly examining a few of these criteria and requirements.

The greater the choice of securities, the more attractive is a market to investors. Therefore the breadth of a market, measured by the type and number of issues traded on it, is rightly regarded as an important criterion. On a procedurally efficient market the costs of capital are as low as they can be given the yield requirements of the investors. Such a market is attractive to potential issuers and will have breadth even where there is competition from an efficient banking system. If procedural efficiency is improved, this will, *ceteris paribus*, give scope for reductions in the cost of capital and/or increases in yields to investors. As a result, the market becomes more attractive to both investors and issuers.

Another requirement if there is to be allocational efficiency is that all issues should receive equal tax treatment and that contracts and transfers should not be taxed. Taxes on stock exchange purchases and for sales and on the transfer of securities must be judged in the same way as transaction costs. Ideally, both should be zero; in the case of transaction costs this cannot be achieved, but it can with the taxes named.

What has been said about allocational efficiency and in Section III above has already shown clearly that competition is a significant determining factor in procedural and allocational efficiency; thus, there is no need to treat it as an additional criterion.

Procedural efficiency also includes the protection of investors. As explained in the previous section, the costs of guarding against transaction risks and

custody risks are determining factors, in the form of transaction or custody costs, of procedural efficiency. The investor protection measures that contribute to procedural efficiency are those that reduce these costs or, more precisely, that reduce the total of all market-organization-determined costs (cf. page 3). Investors may have no interest in obtaining perfectionist protection measures that go further than this as such measures are not economically justified. Demands for investor protection that are based on purely ethical or legal considerations may therefore sometimes go further than those covered by the economic criterion of procedural efficiency. The dividing line between economically justified investor protection measures and other investor protection measures is often obscure, particularly since the imputed costs of guarding against transaction risks are difficult to calculate and vary with the passing of time. Some measures clearly fall into the second group, however. In Germany, for example, a security dealer who has accepted an order is allowed to charge his commission even if he is taking or supplying his client's securities for his own account. As he has not taken the order to the market, it seems unjust that he should charge a commission. For that reason members of the Stock Exchange in the United Kingdom, for example, are not allowed to charge a commission in such cases. Moreover, in both cases the price at which the dealer trades may not be less favourable than the price obtainable on the stock exchange. Let us suppose a client wishes to buy shares. Assume that the commission is 2, that the share can be sold on the market at 198 and bought at 200, the latest price quoted was 199 and the dealer acting

is prepared to let the client have shares at 199. In Germany the client must pay a gross 201, but in Britain - under the ethically more acceptable rule - he must pay 202, since his broker is better off if he himself sells on the market for 198, buys for the client at 200 and can charge 2 for commission; on a sale to the client the broker would have obtained only 199 (as opposed to 200 on executing the order on the market and selling his own shares in a separate transaction). Both the dealer and the client come off better under the rules that are alleged to be against the best interests of the investor.

Two further criteria which should be mentioned in this connexion are confidence in the reliability of the security-dealing firms and confidence in the markets. The less reliable the security dealers, the greater - without any doubt - the cost of market supervision and the imputed cost of guarding against transaction risks. This criterion is therefore covered by the criterion of procedural efficiency. Confidence in the markets is also determined by procedural efficiency, but it may in cases of doubt be adduced as an additional criterion, for example when it is a matter of deciding who shall have the deal where there has been simultaneous acceptance of an offer by more than one dealer: from the point of view of investor protection it would be good enough to decide by throwing a coin, but to give priority to investors would create more confidence.

Marketability of securities, market depth or fluidity or liquidity of the market are all terms used to denote a criterion that is very frequently mentioned.

This is another criterion that is subsumed within the criterion of procedural efficiency. What is meant is the possibility of obtaining an instant bargain, whether large or small in volume, at acceptable immediacy costs (see Annex 3). Market depth makes it easier to plan investment, to execute orders and to adjust prices promptly in response to new information. Yet not all investors are interested in market depth, particularly if it means that the cost of immediacy is going to be arbitrarily high, as will become increasingly plain as we go on. Nor must it necessarily be market makers who offer the opportunity for instant trading. As will emerge when the individual markets are analysed, market makers improve procedural efficiency mainly in securities with a medium volume of turnover.

Often the liquidity of securities is mentioned as a criterion. It is measured by the ratio of the lowest expected net sales proceeds to the value which the investor regards as representative for his planning period. The smaller the difference between the two values - i. e. the smaller the possible loss on liquidation of the holding in question - the more liquid is the security regarded as being. In the very short run this loss is determined primarily by the four component elements of transaction costs and by comparable taxes; the liquidity criterion thus covers, inter alia, the costs of immediacy and hence the market-depth criterion. In the longer run, however, liquidity of securities may be influenced by changes in all other market-organization-determined costs and thus embraces the whole of the procedural efficiency criterion. Nevertheless, we shall not make use of

the criterion of liquidity of securities here, since liquidity is in the longer run dependent also on changes in market rates of interest, in the business and financial situation of the issuer and in certain circumstances on changes in taxation; in other words it is also influenced by non-market-organization-determined factors. In principle, such factors are no help in explaining or evaluating integrated or fragmented stock markets. Therefore procedural efficiency, not the liquidity of securities is the more appropriate criterion for this study.

B. INTEGRATED AND FRAGMENTED (SEGMENTED)
SECONDARY STOCK MARKETS

There can be different interpretations of what constitutes an integrated secondary stock market and what - in contrast - constitutes a fragmented one. Generally speaking, an integrated secondary market would be one that was a single uniform entity covering all dealings in certain securities already in circulation. Admittedly, even in this straightforward case one could distinguish between functional sectors - such as the information and decision-taking sphere, the execution sphere and the settlement and custody sphere - but procedures within these sectors would follow a single pattern: the chain of events from the decision to purchase through to payment would in principle have the same kind and number of links in every case. In a less straightforward but more realistic case the links may differ. It then no longer matters whether the investor receives advice

and if so from whom, whether an order is executed by a bank or a specialized security-dealing firm or both together, whether one or several trading techniques are available to execute orders, or whether more than one method of clearing the transaction is used; the important point is whether all the existing elements are brought together to form an orderly whole, to form a security-market system.

In the straightforward case the "fragmented" secondary market can be clearly defined as the opposite of the integrated market. Under this definition, all existing markets would of course be more or less fragmented. Even taking only the execution sphere, different methods for trading the same or different stocks can be observed in every country. If we use the second, more realistic, definition, this difficulty disappears. There are certainly some secondary markets which can be described as integrated under this definition. But then the question arises, firstly, whether, where there is a high degree of division, a certain lack of uniformity, we should not speak of fragmented markets. And secondly, we have to state what criteria shall be used to decide whether the elements observed can in fact be regarded as forming part of a whole or not.

The following questions demonstrate how many aspects may play a part here:

1. Are unofficial dealings by members of a stock exchange before the exchange has opened or after it has closed, even if carried on under somewhat modified rules, a rational complement to dealing on the floor of the exchange and therefore part of a system?

2. Should a security-market system provide opportunities for the purchase and sale of every security, even for those not admitted to a stock exchange quotation, and do markets for these securities together with the stock exchanges constitute an orderly whole?
3. Are stock markets at different places, on which the same securities are traded under more or less the same rules, parts of a whole? How near to each other do they have to be located and how different may their rules be?
4. Is it of any consequence for designating various parts of a secondary market as "integrated" or "fragmented" whether, despite different trading techniques, they serve the same sort of investor, whether the same security-dealing firms, more or less, are active on them, whether there are the same regulations for the admission of securities to a quotation and/or whether the same clearing techniques are used or not?

Some aspects always suggest that a market segment belongs to a certain system of security-dealing, while others suggest the opposite. For this reason it is not possible in general to draw a sharp dividing line between integrated and fragmented stock markets. The same result is obtained if instead of using the significance of the word "integrated" as the starting-point one uses the term "fragmented" as the basis from which to approach the problem. Fragmented or split markets are well-known in foreign exchange business; these are markets for the same currency between which arbitrage is not legally possible. But that is of no use for our present purposes.

The fragmented elements of the secondary stock market did not come into being through action by the authorities but historically grew up in response to the special needs of investors; these markets usually welcome any arbitrage transactions. In stock exchange terminology the term "fragmented" rather than "split" is preferred, and to use more neutral terminology one should speak of "segmented" markets. But even this terminological clarification is no help in finding a dividing line. Segmented markets are nothing but non-integrated or less integrated markets.

Obviously, the title of the study fails to set forth clearly the market structures to be analysed. As the advantages and disadvantages of integrated versus fragmented markets are to be brought out, an alternative way to obtain a clue what the study should focus on is looking at its intention. This study was commissioned to investigate whether in a given Member State there is an integrated secondary stock market - which may be concentrated in a single stock exchange or spread over several - or whether the stock market in that country is split, that is to say whether alongside the official bourse or bourses there is at least one other market (examples: "geregelter Freiverkehr", over-the-counter market, Ariel; see Annex 4). This means, first of all, that the study should focus on the execution sphere. The markets named as examples always reveal different procedures in that sphere; this does not generally hold for the related other functional spheres. In addition, the following questions are asked:

1. What are the advantages and disadvantages of not including certain groups of circulating securities

in stock exchange dealing but trading them outside the exchanges?

2. What are the resultant advantages and disadvantages if securities, trading in which on the stock exchanges is permitted, are dealt in not on the exchanges but by traditional methods or by automated methods outside the exchanges?
3. What advantages or disadvantages accrue if a security is traded simultaneously on several stock exchanges with the same or different dealing techniques?

In order to prepare answers to these questions, we shall first, in the second part of the study, examine the secondary stock markets of the Member States to see what solutions are found there in the execution sphere, in other words what stock-exchange and non-stock-exchange market-segments exist there. A complete description and analysis of the markets in the Member States in this connexion is neither necessary nor intended. It is more important to get an idea of the effects that different methods have on the cost of processing an order, particularly on the cost of securing the best price available, the cost of guarding against realization risks in the execution sphere and the cost of immediacy. Finally, in Part 3, we shall set out the reasons why secondary stock markets are segmented in different degrees and what advantages and disadvantages flow from these different degrees of segmentation.

P a r t 2

SEGMENTS OF THE SECONDARY MARKET IN THE MEMBER STATES
OF THE EUROPEAN COMMUNITIES, IN JAPAN AND IN THE
UNITED STATES

A. SEGMENTS OF THE SECONDARY MARKET IN THE
UNITED KINGDOM AND THE REPUBLIC OF IRELAND

I. PARTICIPANTS AND ISSUES TRADED

On March 25, 1973, the stock exchanges in the United Kingdom and the Republic of Ireland were merged into a single organization called "The Stock Exchange". In August 1975 the Stock Exchange had admitted 4084 members who - according to choice - had joined one of the seven regional subdivisions which are known as "Administrative Units". With the exception of the Provincial Brokers Administrative Unit these subdivisions maintain trading floors and other facilities for trading and settlement. Table A-1 lists the Units, the location of their trading floors, and the number of their members. Members in the same firm may join different Units. At present the Units operate seven trading floors. There were 24 floors in the British Isles before the Scottish exchanges amalgamated in 1964. Data on the turnover of individual Units are not available. Thus, this information is missing from Table A-1. However, specific information on the importance of the Units outside London was published in the Exchange's report of the One-Day Transaction Study of 7 August 1974.

This study was repeated for the first time on 8 October 1975. From these studies it can be seen that stockbroking firms outside London handled only 2.9% (3.8%) of all purchases and sales at market value, but that judged on the number of transactions handled they had a 25% (29%) share of all business. If government and public authority securities are left out of account and only stocks and shares of private-sector firms are considered, the proportions are 9.7% (11.5%) and 26% (30%) respectively. The figures in brackets are those for the date of the second study.

Table A - 1

The Administrative Units of the Stock Exchange in
August 1975

Name	Location of trading floor	Number of members	Number of member firms represented
London AU	London	3 240	134
Northern AU	Manchester Liverpool	299	47
Midlands and Western AU	Birmingham	174	24
Scottish AU	Glasgow	156	23
Provincial Brokers AU	---	143	40
Irish AU	Dublin	49	25
Belfast AU	Belfast	23	4

Although the Administrative Units are governed by the same rules as to the admission of new members and the listing of securities, the structure of the Units and their methods of dealing and settlement continue to show certain differences.

Judged on the basis of the volume at market value, stock exchange transactions are dominated by the institutional investors; by the Stock Exchange's definition, these comprise banks (particularly clearing banks, merchant banks, discount houses and overseas banks), insurance companies, pension funds, investment and unit trusts, co-operative societies and public authorities. According to the information obtained in the "Transaction Studies", these investors account for just under 90% of total volume in fixed-interest securities. They also account for approximately half of the turnover in equities, while nearly 30% of equity turnover is attributable to domestic private investors and the remainder to foreign investors and members of the stock exchange - excluding dealings by jobbers. These proportions of turnover attributable to institutional investors are somewhat higher than comparable estimates by the Bank of England for earlier years would have led one to expect. One will have to wait and see therefore whether future studies by the Stock Exchange and the Bank of England confirm the findings of the two "Transaction Studies".

Judged on the basis of the number of transactions, private investors are the largest participators in stock exchange business. They are responsible for 75% of all transactions. More than half of their

orders are obtained not directly by the broking firms themselves but indirectly through the agency of clearing banks and others. For this service the banks receive 25% of the commission. Branches of banks usually work with two or three local firms of stockbrokers with whom they have had good experience. In addition to dependable handling of orders, banks' branches expect to receive demand deposits from their brokers.

In a financial centre as prominent as London secondary market transactions are naturally not confined to members of the Stock Exchange and their clients, even if one disregards the discount houses, the institutions specializing in money market transactions. Many foreign security-dealing firms, particularly American and Canadian, have branches in London and not only constitute a link with overseas markets but also deal in Euro-securities in London. There is also to a certain extent a market in domestic securities outside the Stock Exchange. Here the place of the Stock Exchange is taken by merchant banks or security-dealing firms licensed by the Board of Trade under the Prevention of Fraud (Investments) Act, 1958. Recently one such firm, Automated Real-Time Investments Exchange Ltd. (Ariel), has attained a certain degree of importance. A description of the dealing methods of this firm will be given below.

Basically, anyone who carries on the business of dealing in securities is subject to the supervision of the Board of Trade. However, the Prevention of Fraud (Investments) Act, 1958, provides for exemptions from the obligation to obtain a license and from the

associated requirements and provisions. The Bank of England, public corporations and certain groups of co-operative societies are statutorily exempt from the obligation to be licensed. Summary exemptions - via recognition as stock exchange association of dealers or as authorised unit trust scheme - are currently granted by the Board of Trade to, for example, the members of the Stock Exchange, the members of an American and a Canadian association of security-dealing firms in London, the members of the London Discount Market Association and recognized unit trusts. In addition, a great many firms, particularly banks and insurance companies, have obtained individual exemptions. It is a prerequisite for obtaining an individual exemption that the security-dealing business in question should either be an activity in the new issue market or that it should be an incidental activity within which dealings with private investors play a subordinate role, apart from the passing on of orders to domestic licensed or exempted firms or to members of foreign stock exchanges. But anyone who carries on secondary market business as his principal activity or who otherwise principally deals on behalf of private clients without regularly using the services of other firms, must hold a license unless he is covered by a statutory or summary exemption. The Board of Trade has appointed four full-time officials to grant and monitor licenses and exemptions and to investigate complaints.

At March 31 1975 9098 securities with a market value of £ 210 000 million had been listed by the Stock Exchange; they may be broken down as follows:

Table A - 2

Number and value of Stock Exchange listed securities on March 31, 1975

Type of security	Number of issues	Market value of securities outstanding in £ millions	% of total market value
<u>Fixed-interest securities</u>			
1. Public sector			
a) United Kingdom	922	24 278	11,5
b) Republic of Ireland	69	553	0,3
c) foreign	500	2 061	1,0
2. Private sector			
a) United Kingdom	2 440	4 010	1,9
b) Republic of Ireland	30	42	0
c) foreign	42	186	0,1
<u>Shares</u>			
a) United Kingdom	4 456	31 539	15,0
b) Republic of Ireland	171	331	0,2
c) foreign	468	147 268	70,0
Total	9 098	210 268	100

The private-sector securities were issued by 3716 companies (3165 British, 154 Irish and 397 foreign). Since these figures give much less weight to foreign securities than the market-value figures do, it appears advisable to consult the turnover statistics to obtain a picture of the importance of dealings in foreign issues. However, the London Stock Exchange's periodical

Table A - 3

Stock Exchange volume¹⁾
(in £ thousand millions)

Volume	1973	1974	1975
Fixed-interest securities ²⁾	38,7	44,2	76,4
Shares	17,1	12,6	17,6
Total	55,8	56,8	94,0
(number of transactions, in millions)	(6,0)	(5,0)	(6,0)

- 1) Purchases and sales by jobbers. In most other countries "stock exchange volume" means the total of all sales; for the purpose of international comparison, the volume figures in the above table must therefore be halved. On the other hand, dealings by members for their own account on other stock exchanges are included in full in the volume figures.
- 2) These figures include a small amount of turnover in preference shares.

turnover statistics do not distinguish turnover in foreign shares from that in domestic issues, and one is therefore compelled to refer to the One-Day Transaction Study of 1974 (1975). According to the study's findings, total turnover breaks down as follows: domestic fixed-interest 84% (88%), foreign fixed-interest 0.4% (0.2%), domestic shares 12.1% (10.4%), foreign shares 3.4% (1.4%). The overwhelming predominance of fixed-interest turnover is due not least to the fact that government stock is placed via the Stock Exchange.

Besides listed securities, other issues may be traded on the Stock Exchange; these comprise principally British money market bills, securities listed on foreign stock exchanges and all stock traded over the counter in Canada and the United States. A member may also deal in any other security provided he obtains the approval of the Stock Exchange authorities for each individual transaction. Whilst the issuers of all listed securities are obliged by the listing agreement to provide information to investors on a continuous basis over and above the statutory requirements, the issuers of unlisted stock are not affected by the Stock Exchange disclosure regulations.

II. STOCK EXCHANGE SEGMENTS OF THE SECONDARY MARKET IN
THE UNITED KINGDOM AND THE REPUBLIC OF IRELAND

This liberal attitude on the part of the Stock Exchange towards dealings in unlisted securities is an important reason why there is only a very modest volume of "over-the-counter" trading in the United Kingdom and the Republic of Ireland. Another contributory factor is the willingness of the Stock Exchange to list even issues with a low market value. Although two or three times the official minimum market value of £ 200.000 laid down in the admission regulations is probably required today, this is still well below the minimum requirements imposed by other major stock exchanges. Other reasons for the small extent of off-exchange business are the long trading sessions and the fact that dealing does not have to take place physically on the floor of the exchanges. Members are allowed to deal by telephone. In London the Exchange is open from 9.30 a.m. to 3.30 p.m. After that time trading takes place exclusively by telephone. These official telephone transactions end at 5.30 p.m.; dealing later than this is basically only prevented by the fact that jobbers cannot be contacted after that time.

In principle, it is mandatory for every deal to be transacted with a jobber. That is why the "jobbing system" is spoken of. With one exception the jobbing system has also become established on the provincial exchanges since the merger of 1973. Members of the Stock Exchange are either jobbers, who have no private clients and are "spread guided", i.e. they profit by realizing spreads or turns, or are brokers, who chiefly are "commission guided", i.e. they earn their

money through the commission they charge to clients. Jobbers and brokers may not combine together in a single firm; jobbers must work only with other jobbers and brokers with other brokers. Brokers normally execute orders from investors on an individual basis by immediately making a deal with a jobber. Since the broker does not need to hold any securities to do this - and ideally does not hold any - and since, further, he has no knowledge of the counterparty to the transaction because of the intermediary function of the jobber, he can be a completely impartial adviser and agent to his client, apart of course from the fact that he has an interest in getting his commission.

1. The jobbing system

a) The normal dealing procedure

In the normal procedure the jobbers act as market makers - they are in fact the archetypal market makers - that is to say they are willing at any time during business hours to buy or sell certain securities immediately for the account of their firm and on the basis of a spread (the jobber's "turn") which they themselves determine. At the end of March 1975 there were 21 jobbing firms with 569 representatives registered with the Exchange. Most jobbers make markets in at least a few dozen securities. Ten years ago there existed, in London alone, 60 firms of jobbers with 750 dealers. Although no statistics are available, information provided by the Stock Exchange indicates that for all the more important stocks there are at least two jobbers on the market and three

jobbers for specially active issues. However, the number of jobbers dealing in a given issue is not necessarily an indication of the degree of competition for transactions, since many jobbers combine their market-making positions and "make a joint book", i.e. they act for joint account.

The jobbers can usually be found on their firm's pitch on the floor of the exchange, where, either in person or by telephone, they quote the prices at which they are prepared to deal and they enter into deals. But they can also, exactly like the market makers on the American over-the-counter market, take care of all enquiries and business by telephone from their offices. When a broker receives an order, he will first ask the appropriate jobber or jobbers on the floor of his local stock exchange for their quotations without revealing whether he wishes to buy or to sell; he will then telephone the jobbers at other exchanges or outside the Stock Exchange to find out their prices. Only then will he consummate the trade with the jobber offering the price most favourable to his client.

It is only necessary in certain cases for the price to be published. Basically, members are free to choose whether or not to report the prices at which they have dealt. So only every third or fourth price is published. The volume of individual deals is never reported. Disclosure of the price and volume of each individual transaction is resisted, especially by the jobbers. They rightly fear that complete information on prices and turnover would enable their competitors or brokers to draw conclusions as to the state of their market-making position and make it harder for them to

liquidate such positions without a loss.

The same applies to the provision of information about current quotes. It is not easy even for a broker to get a complete picture of the situation. A broker can discharge his duty to secure the best price for his client only by having someone ask the jobbers or by asking them himself. Some help is provided by the middle prices chalked up by the jobbers on their pitches but these prices, lying mid-way between bid and ask, are often out of date. More reliable information on middle prices is supplied by the Stock Exchange's electronic Market Price Display System (MPDS). It shows on a display screen the movements in the middle prices of the more active shares, starting with the closing middle price of the previous day and continuing with the London jobbers' middle prices, which are ascertained from the jobbers continuously by price collectors and fed into the system.

MPDS is a valuable aid for advising clients and for members in offices and at the provincial stock exchanges but it does not tell a broker - unlike Nasdaq, for example (see K III 1a and K IV 2b *infra*) - which jobber is offering the highest bid or the lowest ask. This information would speed up the search for the best counterparty and could sharpen competition, particularly between jobbers at different stock exchanges. Quite apart from the fact that with 10 000 to 30 000 bargains per working day the 4 000 brokers are not very heavily burdened, even if not all of them are actively engaged in stock exchange dealing, failure to provide complete information on quotes is less serious with only two

or three jobbers per issue than it would be if market-makers were more numerous. From the point of view of the stock exchanges a certain lack of transparency may even be desirable, because the more reliable the information about current quotes on the exchange, the more likely it is that orders will be executed outside the exchange with consequent loss of business to jobbers and other members.

A special feature of the transaction service offered by members of the British Stock Exchange to their clients is that bargains are in principle concluded immediately, since it is mandatory to deal through jobbers and the jobber constitutes an immediately available counter-party for the deal desired by the investor. As already stated on page 24, this special service has its price, the immediacy premium or discount. Both together go to form the dealer's spread, if one disregards costs other than those of immediacy. It is now said in various quarters in the City that spreads have widened in recent years and differ less from share to share than was once the case. Since a jobber does not usually buy and sell at the same time - indeed it is precisely his task to bridge the time gaps between the receipt of orders to buy and orders to sell - his spread or turn is not a very reliable indicator of how much the instant bargain costs the individual investor or all investors in aggregate. The aggregate actual earnings of all jobbers from dealing - that is to say their earnings after they have bought in stock at a certain time and sold it at another time, whether at a profit or a loss - would be a better indicator, particularly if one compared these earnings with total purchases and sales in order to ascertain the cost

of the jobbers' services to investors per unit transacted. But as will be shown below, jobbing firms are not single-product undertakings and this is one of the reasons why this method produces a figure for the cost of immediacy to investors per unit transacted that is rather too low.

By making calculations of this kind the Stock Exchange tries to counter accusations that jobbers' turns are too wide. It arrives at a figure of realized spreads per unit of sales only for a large jobbing firm with business mainly in bonds ranging between 0.05% for 1973 and 0.11% for 1975. In the case of another large firm, whose main business is in equities, the corresponding figures are 0.09% for 1975 and 0.19% for 1971. Unfortunately these calculations were based not on gross earnings from dealing but on net earnings after full or partial deduction of various expense items such as salaries and rents. It was not possible to ascertain the amount of these expense items. Without doubt reliable statistics on the cost of the jobber service per unit of turnover would be very useful for judging the procedural efficiency of the jobbing system.

Such statistics would also reveal what earnings a jobber needed in order to cover the cost of handling his business from the technical point of view and to cover the cost of his capital which corresponds to the risk of holding market-making positions. In addition, a jobber, when building up a "bull" or "bear" position, must also include an element of forward cover discount or premium (see page 23) in his bid or ask respectively. Viewed as a whole,

however, the unrealized profits initially gained by the forward cover discount or premium will, under ideal conditions of intensive competition between market makers, completely disappear in the liquidating transactions the jobbers effect. This forward cover discount or premium is not therefore borne by investors in their aggregate, but for an individual investor it may, in conjunction with the other costs of the market-making service, be so substantial that he would prefer - if he had the choice - to forgo his instant bargain and instead wait for a suitable counter-order to turn up in due course. We shall have cause to return to that problem time and again.

The cost of immediacy is greatly influenced by the conditions under which the market makers must operate. The Stock Exchange has created favourable conditions for jobbers in three ways:

1. All securities - with the important exception of British, Irish and Commonwealth government stock and the loans of some international organizations - are traded forward (the "account system"), with the result that the costs of procuring funds and securities for market making are kept low in comparison with the cost of cash or regular way transactions. In the case of government and public authority stocks there are special facilities that help to keep these costs down.
2. The jobbers are kept continually up to date on important economic and political developments by a news ticker on the floor of the exchange.

Without this information they would run the risk of misinterpreting the orders of investors. If they did not have access to continuous information they would have to protect themselves against this risk by applying on the average higher forward cover discounts or premiums. In other words, the news ticker reduces the jobbers' information risks.

3. The rule that business must go through jobbers exposes the jobbers to the full flow of orders. A jobber can thus clear his position more quickly than would be possible under any other trading procedure. Hence his risk of having to suffer losses is smaller than it would be in a situation where it was not mandatory to trade with jobbers. The jobbing system will therefore tend to keep forward cover discounts or premiums down.

Unlike the market makers on the New York Stock Exchange (see K II 1a infra), the British jobber, however, has no idea of how his position is protected by the market, because he has no knowledge of the orders awaiting execution. His book is only a book of his actual positions, it is not an order book; orders, as such, are not in principle passed to him. If a jobber who, for instance, had to buy a fairly large block of shares, knew that a substantial volume of orders to buy up to a limit a little below the present price had been received, so that if the price were to fall his position would be protected, this knowledge would not be without influence on the size of his forward cover discount. Lack of knowledge about orders received and awaiting execution has a twofold effect: on the one hand it makes it harder for the jobber to estimate the

price risk he runs, and on the other hand it protects the investor from counter-action and from being wilfully denied priority, and there is no need for special regulations in this connexion. For related reasons a jobber is not allowed to have investor clients of his own.

b) Modifications for block transactions and in other circumstances where spreads are wide

In principle, a jobber buys or sells any amount of stock at his bid or, respectively, at his offer. There are limits to this, however. An order may be so large that the jobbing firm cannot assume the risk of the position arising from an immediate execution of the order; since jobbers themselves have no direct contacts with investors, their opportunities for rapidly running down large positions are limited. Even if the jobber is willing to take up the position, his quotation will necessarily vary according to the size of the transaction and the point will eventually be reached at which the broker holding the order will ask himself whether, in the interests of his client, he should forgo the immediate bargain and try to discover, by asking other potential buyers, whether they are interested in doing a deal and, if so, at what price. A broker, however, who feels that the price offered by a jobber is not good enough, must

1. find out from the jobber the prices he is quoting for the transaction or for parts of the transaction,
2. allow the jobber to take on at least part of the

transaction at the eventual dealing price provided this does not prevent the execution of the order, and,

3. if he (the broker) has obtained matching orders, he must allow the jobber to offset these orders against the original order or the remaining portion of the original order ("put-through").

For this the jobber receives a smaller spread, which has nothing to do with the cost of immediacy but rather should be seen as a "price consultancy commission" or a "fair price commission". A small portion of this spread should - as in every other case - be interpreted as a "commission for guaranteeing settlement", as the jobber would himself be liable to the buyer or seller if the broker and the parties he represented failed to honour their commitments. This spread normally ranges from 0.1 to 0.4% of the value of the transactions.

The put-through procedure has grown greatly in importance with the increasing "institutionalization" of share-dealing, because institutional investors often come to the market with orders so large that they cannot be dealt with by the normal methods of the jobbing system. The procedure is to be used for all stocks listed on a domestic or foreign stock exchange. But a broker is free to deal in Eurobonds unaided by a jobber and may also do so for his own account, or he may, also without the assistance of a jobber, execute an order abroad if it is to his client's advantage. The proportion of put-through transactions to total stock exchange turnover

is now about 10%. Recently, there seems to have been a growing trend towards put-throughs even for transactions of normal size. Some brokers, it seems, are assembling offsettable orders so as to exclude, if not the jobber, then at least his forward cover service. Complaints have been heard, moreover, that jobbers are being completely circumvented by brokers executing orders in leading British shares not in the United Kingdom or Ireland but on stock exchanges or over-the-counter markets abroad.

The broker who effects a put-through deal can generally speaking charge his clients on both sides of the transaction the usual commission. If, however, he himself and at least two jobbers - where there is more than one - come to the conclusion that the deal is too large or leaves no room for a spread, the jobbers may decline to put through the business as described under 3 above. However, the broker then does the offsetting himself and may charge a provision only to one party to the transaction, so he does worse than he would have done if a jobber had been involved.

Besides the put-through, a technique which where large orders are involved resembles over-the-counter block-assembling (see K II 1a infra), there are other methods for dealing with block orders. A broker will not always be able to create matching orders from his clientele to meet the part of a large order which the jobber of his choice cannot execute at an acceptable price. In this case he will first do a deal with the jobber for the amount that he can obtain under acceptable conditions. He will then usually put a price limit on the remainder of the order and leave

it with the jobber. The jobber may then try to provide the right conditions for the execution of the order by making suitable quotes, or he may, with the broker's consent, enquire of other jobbers whether they are interested in doing a deal. Or the jobber might make an offer to another broker which that broker would put to one or more of his clients so that a counterparty may be found in this way. Some large firms of stockbrokers specialize in putting proposals of this kind to dozens of institutional investors within the space of a few minutes. Finally, it is open to the jobber, as it is to the broker, to resort to international arbitrage.

Even with transactions of normal size it may happen that a broker finds the jobber's margin unsatisfactory or that the jobber registered for the issue does not quote two prices at all but only makes a one-way market. In that case the broker may proceed exactly as described above. Alternatively, he may challenge the jobber and make a counter-offer for the client on his own account, in which case the jobber has the right to trade on the terms offered. But if a bargain is transacted for the broker's own account, he may not charge even a single commission as described above in the case where he carries a transaction through between two clients, but may charge none at all. This circumstance has already been explained with the aid of an example, on page 39. There it was stated that it seemed reasonable on the face of it that a broker should not claim a commission as agent for transactions in which he did not act as agent but dealt on his own account. However, our analysis there made it clear that the rule which prevents the broker from

charging commission in this instance is not an economically valid rule designed to protect the investor. At this point we may add that the rule is a means of protecting the jobber from competition. The price at which a broker sells direct to his client must be higher than the jobber's bid by the amount of one commission; the price at which the broker buys for his own account from a client to challenge a jobber must be lower than the jobber's ask by the amount of one commission. So long as a jobber does not pitch his spread wider than the amount of one commission, he is safe from competition from brokers. A broker cannot profit from challenging a jobber then.

c) The jobber as broker .

In the case of securities which are seldom traded, it will often happen that the jobber immediately executes only part of a normal-sized order, taking on the remainder of the order as agent. He then tries to find a party on the other side. For his broking services he receives a reduced spread. He may alternatively accept the entire order in the capacity of agent.

2. Trading without jobbers

As stated above under 1b), any broker is free to execute orders on foreign markets or on the Eurobond market if this is of advantage to his client. Apart from these instances, there is in general no way of bypassing the jobbers. This principle does not apply

to certain Irish stocks, however, particularly Irish government stock, even though there are jobbers who trade in such securities. Also of course, all securities for which no jobbers exist may be dealt in broker to broker.

a) The "callover" system

The Irish Administrative Unit in Dublin has no jobbers but instead publishes a price list covering 277 titles. Just under a third of these securities are regarded as active. These market leaders are "called over" each day in a specific order by a stock exchange official. After the name of a stock is called out, the representatives of the 19 firms trading on Dublin's stock exchange may bid and trade in that stock. Then the next issue is called over. The individual prices produced by this method of dealing are then published in the Irish Administrative Unit's official price list.

Some of the securities dealt in in Dublin have a jobber in London. Before a broker trades in such a security on the floor of the Dublin exchange he must, for the best advantage of his client, find out the current quotation in London in order to ensure that the client's order is executed at the best available price.

If a broker wishes to deal in one of the close to 200 shares that are not regularly called out, he may request that the share should be called over and then try to find the other side to his order.

b) Other methods of trading without jobbers

A decisive factor determining the method of trading to be used is whether

1. the transaction involves listed securities or those unlisted securities that may be dealt in without a Stock Exchange listing, or whether
2. securities other than those mentioned in 1. are involved.

Even for issues in the first category there is not always a jobber, so an interested broker will have to make enquiries on the floor of the house or by telephone around the offices and among his clients to find a buyer or seller.

A broker may trade in securities of the second category only if each individual transaction has been permitted by the Council of the Stock Exchange. Transactions of this kind mostly involve the shares of small domestic companies. It depends on the market-knowledge and resourcefulness of the broker whether he finds a counterparty himself or through third parties. It is also possible that he should act for his own account. Usually two broking firms are involved in transactions of this kind.

III. OFF-EXCHANGE SEGMENTS OF THE SECONDARY MARKET
IN THE UNITED KINGDOM AND THE REPUBLIC OF IRELAND

1. Automated Real-Time Investments
Exchange Limited (Ariel)

From the legal point of view Ariel is just a "licenced dealer in securities" and accordingly Ariel calls itself merely a new City broking firm using a special modern dealing technique. But if by "stock exchange" one means an organization that helps certain security-dealing firms to make their bargains more cheaply by providing them with standardized forms of contract and standardized dealing procedures, supplies them with information about the market price of securities and makes it easier for them to find counter-parties of good standing, then Ariel is not just a broker but, as its name implies, a stock exchange. Compared with stock exchanges in the usual sense of the word, however, Ariel is different in five respects. Firstly, dealing is not concentrated physically in an exchange building. In London this first difference is of little moment: as explained above, stock exchange business in the United Kingdom and the Republic of Ireland is not concentrated solely on meetings between dealers but is carried on to a large extent over the telephone. Secondly, dealing takes place entirely anonymously and without any personal contact, not even voice contact over the telephone. Thirdly, Ariel, unlike the Stock Exchange, does not have any listing requirements of its own with regard to the stock dealt in, not even for shares of domestic issuers.

Fourthly, the members of Ariel are the investors themselves; they are major institutional investors, interested mainly in block transactions. Fifthly, only a few of the members are also shareholders of Ariel. Some of these differences are merely differences of degree, others have precedents in stock exchange history, but together they go to make up a new type of exchange which has developed in the past decade in the United States out of the so-called third and fourth markets. Ariel is based on the American "Instinet" system, with which it continues to cooperate.

Ariel was founded in 1972, trading commenced in February 1974, and by September 1975 Ariel had 66 members, comprising 17 accepting houses, which created the new system and which own it, 8 banks, 7 trusts, 13 pension funds and 21 insurance companies. To become a member, a firm must have securities to the value of at least £ 40 million under management. Even before 1974 these institutional investors were handling an unknown but substantial volume of business between themselves without using members of the Stock Exchange as intermediaries and this business was in both bonds and equities. At the request of the Bank of England, government stock is not dealt in through the Ariel system, with the result that trading is concentrated mainly on equities. Ariel restricts itself to titles that are listed on the Stock Exchange and brings them gradually into its dealings as and when members so desire; the system covers some 1500 stocks and bonds. Ariel's turnover has been around £ 160 million a year, which is 2% of the comparable volume of the Stock Exchange.

Each member has at least one keyboard terminal with visual display unit and printer. With this equipment a dealer can interrogate the system to find out the four latest prices and volumes of transactions in a security as well as price range and turnover data for the two previous months. At the same time he can read the "book", i.e. information on open orders in this issue which were entered into the system. In addition, he will see on the bottom area of the screen a collection of orders of other members in various securities specifying limits and amounts ordered although such amounts do not have to indicate the full extent of the desired transaction; these "broadcast" orders often are good for only a few minutes, as can be seen from the time of entry and the expiration time of the order both stated on the screen. Since every broadcast order qualifies for a credit of £ 2 which goes to reduce the sender's membership fee, there is an incentive to make use of the system by broadcasting orders so that they are visible to all subscribers instead of entering orders "discreetly" in the book, in which event they are accessible only to those interested in the particular issue.

If a member wishes to accept a bid or offer filed with the system, he enters the order number and the relevant data and accepts. His dealer can also call upon the other side to negotiate through the system by drawing the sender's attention to a counter offer or to a counter bid simultaneously entered by means of an acoustic signal. When a bargain is struck, a detailed record of the bargain will appear on the display screens of both parties and at the same time a contract note will be printed out for each of them.

All entries, even erroneous ones, and all answers from the system are printed out in the control room at the head office in chronological order so that every action is recorded and can be checked. If the system should go down, an experienced dealer is on hand at head office who can carry on negotiations or consummate trades by speaking to the parties over the telephone.

Ariel is attractive to its members for two main reasons. Firstly, its commissions are considerably lower than those charged by the Stock Exchange members, and secondly there are no jobbers' costs. Ariel does not offer the immediacy service provided by the jobber. But if a matching order is at hand, there is no need for this financial service. As the orders of Ariel members are large orders, the cost of immediacy could be expected to be high. Reference should be made in this connexion to what was said on page 23. The savings in commissions by members on their transactions through Ariel was sufficient to cover the £ 400 000 development costs and start-up expenses of the system in the first year of operation. Secondly, the Stock Exchange reduced the commission on large orders in 1973 in an attempt to make membership of Ariel or at least the use of Ariel less attractive to institutional investors. This, too, has produced substantial indirect commission savings.

At present there are no market makers participating in Ariel. If market makers for block transactions could be found, they could operate within the existing framework. But they would have to enter their quotes into the system discreetly, because if the quotes were

broadcast a confusing multiplicity of bids would be displayed on the screens. Unlike jobbers on the Stock Exchange, market makers in the Ariel system would have to tolerate other participants feeding into the system orders limited at prices inside their quotations. Although Ariel could be a very useful instrument for all jobbers or brokers assembling the other side to a block order (see II 1b supra), it is not used for this purpose. The Stock Exchange does not allow its members to make use of the "new stock exchange".

2. Other off-exchange segments

Owing to the difficulty of separating stock-exchange trading from off-exchange transactions in the United Kingdom and the Republic of Ireland - witness the existence of stock-exchange telephone trading - we shall use the term "stock-exchange trading" to refer to all transactions that pass through a member of the Stock Exchange and the term "off-exchange transactions" to designate all stock market dealings that do not involve a member of the Exchange. It is generally believed that only a portion of inter-institutional business goes through Ariel. In government stock especially, in which Ariel is not involved at all, there are likely to be substantial dealings off the Exchange. In addition, there are the market makers in Eurobonds who operate in London.

There are well over a thousand companies in Britain which are large enough to be listed on the Stock Exchange but whose shares are not sufficiently

distributed among investors to be eligible for listing. Occasional dealings in such shares are normally effected by Stock Exchange members on the basis of a permission for each transaction by the Stock Exchange Council (see II 2b supra). If dealings develop with any regularity, the Stock Exchange Council will try to persuade the company to apply for listing. If the company fails to do so, further dealings by members will not be permitted. Unlisted domestic companies will therefore usually have to decide sooner or later whether to comply with Stock Exchange requirements, i.e. to ensure that at least 35% of the shares are publicly held, and to pay the substantial listing fees or, on the other hand, to do without the support of the exchange community. To put it another way, without a listing it will basically not be possible for a secondary market in the company's shares to develop.

There are a few exceptions to this rule. Some merchant banks are willing to act as agents from time to time in selling small or large holdings on behalf of shareholders; they will also in some cases, where they are convinced that the company has good prospects, act as market makers. Another solution has been provided for some years by the firm M.J.H. Nightingale & Co, a "licenced dealer in securities". This firm offers promising small and medium-sized companies a whole range of interesting financial services including a complete secondary market service, mainly for shares but in some cases for bonds as well. A closely held company usually contacts the firm because the present shareholders wish to sell - for tax reasons, for instance - a fairly large portion of the shares but

initially less than 35% of the total either immediately or over the course of a few years. The shareholders are therefore interested in a reliable secondary market in order to be able to sell at prices as high as possible.

If, for this reason, a company decides to seek the market-organizing services of Nightingale, the latter will first carry out a comprehensive analysis of the company. If the company meets the standards required by Nightingale, a kind of listing agreement will be framed in which the company undertakes to keep Nightingale continuously informed of its state of affairs. Nightingale will then approach institutional investors with its analysis of the company, with a view to placing the shares. After these initial transactions, Nightingale is willing at any time to facilitate further deals, acting as agent not as market maker. It has a daily insert in "The Times" showing the share prices, price-earnings ratios and current yields of its client companies. In addition, it supplies regular information to the public shareholders, endeavours to keep the risk of take-over bids to a minimum by its choice of buyers for the shares, and advises the companies. In short, Nightingale offers issuers and investors a comprehensive and integrated secondary market service which clearly has quality characteristics different from the corresponding service provided by the Stock Exchange and its members.

B. THE SEGMENTS OF THE SECONDARY MARKET IN DENMARK

I. PARTICIPANTS AND ISSUES TRADED

The only stock exchange in Denmark is the K benhavn's Fondsb rs. It has two sections, the "Main" Exchange (Hovedb rsen) and the "After" Exchange (Efterb rsen). At present there are 33 stock exchange members, spread over 24 member firms. They are appointed as the need arises by the Economics Minister and, like the stock exchange itself, come under a special Ministry supervisory authority which, however, has no officials engaged full-time on this supervisory task. Nevertheless the supervisory authority makes its presence felt. The supervisory regulations have been tightened up in recent years, not least in response to three cases of insolvency of members in the past decade. The regulations lay down minimum capital requirements for members and require protection of clients against insolvency by insurance or similar means. The authority carries out regular audits of members' activities. Moreover, it recently instituted an investigation into the affairs of a member of the board of directors of a corporation on the grounds of alleged insider trading, even though there is no regulation specifically prohibiting such trading. The initial outcome of the authority's action was the resignation of the director in question.

Although stock exchange members and the stock exchange itself are regulated by the government, their accounts are not available to the public. For information about member firms, in particular, one has to rely

on estimates by experts. According to the latter, there are six large member firms, 12 - 14 medium-sized ones and four to six small firms. Only some 10% of the orders they execute are received direct from their own investor clients. They are both commission guided and spread guided, since in principle they are allowed to deal for their own account, although only in securities for which on a given day they receive, or have received, no executable orders. As a result of this provision of the Stock Exchange Act of 7 June 1972, stock exchange members are not allowed to cross clients' orders against bids or offers for their own account, although in general they are permitted to cross orders outside the exchange provided the client has not expressly asked for the order to be executed on the stock exchange.

Some 90% of all investors' orders received by stock exchange members come to them indirectly, principally through the commercial banks but also via the savings banks and to a very small extent also from a dozen so-called "outsiders" who are licenced to act as dealers and brokers in securities and finance but are not authorized to deal on the stock exchange. The finders of business (i.e. the banks, savings banks and outsiders) may cross orders like stock exchange members without being subjected to the same investor-protection regulations. The banks are heavily involved in securities trading, to a fair extent even for their own account, and they frequently bypass the exchange members.

Securities business in Denmark is dominated by the long-term bonds of the mortgage credit associations

which at the end of 1973 accounted for almost 90% (1972 88%, 1974 91%) of the bonds outstanding, calculated on the basis of nominal value. Apart from these, government and local authority bonds have a certain importance, while the bonds of industrial companies play an almost negligible role. At the end of 1973 1395 bonds were listed, which compares with 341 shares issued by a total of about 250 corporations (see Table B - 1).

Table B - 1

Value and number of bonds and shares listed on the stock exchange in Denmark

Year-end	Bonds ¹⁾		Shares		
	Total outstanding in Dkr '000 millions at face value	Number of issues (of which B list)	Total outstanding in Dkr '000 millions, at:		Number of issues (of which Efterbørs)
			par value (of which Efterbørs)	market value (of which Efterbørs)	
1970	83,1	1140 (185)	5,1 (0,9)	•	328 (193)
1971	96,6	1251 (192)	5,5 (0,9)	10,2 (2,9)	309 (168)
1972	112,9	1322 (194)	6,0 (1,0)	20,0 (5,4)	341 (197)
1973	136,1	1345 (230)	8,1 (1,4)	25,9 (9,2)	341 (193)
1974	162,7	1405 (262)	8,6 (1,4)	19,3 (6,0)	319 (177)

1) Excluding some 50 - 60 bonds traded on the Efterbørs

Apart from six foreign issues these are all Danish securities. They include all issues that are regularly traded in Denmark. There is no regular trade in any bonds or shares other than those listed on the exchange, even though many companies' shares are not listed. Almost all such unlisted companies have less than ten shareholders.

The stock exchange rules of 16 November 1972 oblige listed companies to provide information going beyond the minimum statutory requirements and to do so on a continuous basis. But the different sections of the exchange do not have different disclosure requirements. A prospectus must normally be produced when a company desires to be listed, and this applies to shares and to all bonds except those of credit institutions under public supervision. However, it is precisely these institutions that are the largest issuers.

II. EXCHANGE SEGMENTS OF THE SECONDARY MARKET IN DENMARK

1. Hovedbørsen

The securities subject to the trading procedures of the Main Exchange are the major shares and almost all bonds. Today bonds may be admitted to the Hovedbørs as soon as paper amounting to a face value of Dkr 500 000 has been placed, although this admission is based on the assumption that further bonds in the same issue or series will subsequently be floated on the stock exchange; the average issue volume of a listed bond

is Dkr 100 million. For a share to be listed, there must be a par value of at least Dkr 5 million outstanding. In addition, it is stipulated that 15% of the share capital, but with a minimum of Dkr 2.5 million, must be publicly held. Usually a share is first listed on the Efterbørs. If regular trading develops in that market, the share may, on application from the issuer, be admitted after three months to the Hovedbørs.

a) Dealings in "A List" shares and bonds

Dealings in bonds and shares are catered for by the provision of a hall for each, in which sit the stock exchange members or their authorized clerks. Opposite them and next to the chairman sit the stock exchange secretary, a stenographer and the representatives of the national bank and several commercial banks and savings banks. Dealing commences at 10.30 a. m. and takes place at individual prices according to a procedure clearly based on auction principles (see Annex 2). The chairman calls out the names of the securities in the order they appear on the official list, repeats the highest bids and the lowest offers cried out by members and notes bargains if bid and offer happen to coincide. The unit of trading or round lot is normally Dkr 4 000 par value for shares and Dkr 20 000 face value for bonds. If some dealers then indicate by hand signals that they have further bids or offers, the chairman makes additional bargains at the price that has just been established by calling out "igen" (again). However, usually a bargain cannot be made at once. But if the bid and offer are close to one another, the chairman will call out a gradually increasing bid and

a gradually decreasing offer until these modified bids and offers either coincide or are withdrawn. During the course of dealing the banks' representatives - who are not authorized to deal - may continue to signal orders to stock exchange members which they were unable to communicate before dealings commenced. The prices of and turnover in each security are published in the official price list. This also applies to bids and offers provided that the spread is not more than five points in the case of shares and two points in the case of bonds.

b) Dealings in "B List" bonds

As can be seen from Table B - 1, there are over 260 bonds on the B List; they account for some 1% of turnover in bonds. Up till 1972 the B List also included 18 equities, but these were subsequently transferred to the Efterbørs. Bonds may be placed on the B List if the value in circulation is less than Dkr 10 million and if the series has been closed for more than two years, in other words if the placing of the security through the stock exchange can be regarded as at an end and little further turnover can be expected. As is well known, the majority of Danish bonds are introduced on the stock exchange not by the issuers but by their borrowers; the borrowers of the mortgage credit associations, instead of receiving cash, are given bonds to the amount of their loan, which they may then sell, either on or off the exchange, at what they consider to be the most opportune moment. This circumstance shows, incidentally, that a substantial part of the turnover in A List bonds must be regarded as coming under the new issue market rather than the secondary market.

Table B - 2

Sales of the Hovedbørs at par value and as a percentage of the total amount outstanding

Year	Bond sales		Stock sales	
	Face value, in Dkr millions	As % of total outstanding	Par value, in Dkr millions	As % of total outstanding
1965	2 418	6,1	72	2,9
1966	2 607	5,8	86	3,1
1967	2 796	5,4	89	3,0
1968	3 123	5,1	72	2,2
1969	4 625	6,3	97	2,6
1970	4 458	5,4	95	2,3
1971	6 253	6,5	89	2,0
1972	6 909	6,1	215	4,3
1973	7 419	5,4	394	5,8
1974	10 595	6,5	217	3,0

Trading procedures for these securities are basically the same as for bonds on the A List. However, the B List issues are called out regularly for dealing purposes only on Wednesdays after the A List titles have been called. On other business days B List titles are dealt in and quoted only if application for calling has been made to the stock exchange secretary before ten o'clock on the day in question.

2. Efterbørsen

The shares admitted to the Efterbørs are those which have not (or not yet) qualified for admission to the Hovedbørs. A stock may be traded here provided that the related share capital of the issuing company amounts to Dkr 1 million at par value. The majority of stocks (177 at the end of 1974) are quoted on the Efterbørs. In addition, some 50 very small bond issues are traded on the After Exchange, but they are quoted only if application has been made to the stock exchange secretary beforehand.

The securities to be quoted are divided into four groups. A board is provided for each group. The names of the issues are displayed on these boards and trading takes place in front of them. In the presence of a fairly large number of stock exchange members and bank representatives - the latter are not authorized to deal on the Efterbørs either - these groups of shares are called out in sequence every business day after the end of share trading on the Main Exchange. The members first cry out their bids and offers for stocks in the first group in any order they like. The chairman's two assistants write these bids and offers down on the first board and replace them with higher bids or lower asks as and when these are called out. They also note bargain prices and turnovers on the board. When activity begins to tail off, the chairman announces that dealing is coming to an end and switches on a wall-clock which, after 60 seconds - during which time trading again becomes brisk - rings to signal the end of the session. The other groups then go through the same procedure. Each group's dealings normally last between 5 and 10 minutes.

The participants have to spend about 10 seconds of their time on each issue; such a short average trading period per stock cannot be achieved in dealings on the Main Exchange.

Turnover on the After Exchange is very modest, if one disregards newly listed securities and certain stocks which should be allocated to the Main Exchange. However, what is interesting for the purposes of our study is not the absolute amount of this turnover but the difference in turnover between securities that are representative of the two methods of stock exchange trading. A typical stock on the Hovedbørs will have about ten transactions per week, its equivalent on the Efterbørs less than one bargain. Even in the most active shares the relationship of the respective turnovers is about 10 : 1; in the leading shares on the Hovedbørs 10 - 20 round lots are traded per day and average daily sales at market value amount to Dkr 60 000 - 100 000.

III. OFF-EXCHANGE SEGMENTS OF THE SECONDARY MARKET IN DENMARK

The greater part of secondary stock market transactions in Denmark take place off the stock exchange. The chief participants in this market are the major banks in Copenhagen. Since no office collects data on off-exchange dealings systematically, we cannot say with certainty whether banks in other parts of the country play an active role in this market. Nor is it known whether, and if so to what extent, institutional investors act without the agency of banks. Even the turnover of this

segment of the market can only be stated approximately. Off-Exchange (or "over-the-counter") sales in shares is estimated at between one and two times that of the corresponding stock exchange figure, over-the-counter sales in bonds at between one and seven times. In the case of bonds - if one includes new-issue dealings, which form a substantial part of stock exchange business - three times stock exchange sales is more likely to be too low than too high an estimate.

Off-exchange transactions are almost without exception based on the stock exchange prices for the relevant day. The transactions in question consist partly of inter-bank dealings, partly of in-house crossing transactions, but also of business in Danish Eurobonds, for which the large banks act as market makers, and, finally, of business in small orders and block transactions. We must give, briefly, more detail of the last two categories.

1. Execution of small orders

By "small orders" we mean orders for less than the designated unit of trading or such parts of orders in excess of one or more round lots, in other words, orders for odd lots. In theory, even odd-lot orders may be executed on the Hovedbørs; if application is made to this effect half an hour before the commencement of trading, the small orders may be called out following regular dealings in the security in question. This procedure is cumbersome; thus, it is not used. As a rule, banks are prepared to buy or sell odd lots for their own account at prevailing stock exchange prices. If several

prices could be applied to the transaction, the bank chooses the price it considers reasonable for the deal. Since the prices from which the choice may be made have arisen at virtually the same moment there is little difference between them unless the effect of a large order has made itself felt. In addition, a premium or discount for dealing in a small quantity (odd-lot differential) is added to or subtracted from the price. The client is charged the usual commission.

2. Block transactions

In listed bonds, in particular, block transactions are very common. Such dealings usually involve sales to insurance companies and pension funds; less often they take the form of transactions between banks. All transactions are normally based on reported stock exchange prices. Even where deals of several million kroner are involved, the ask is said to be quoted not higher than 25 - 50 base points above the bid, if they differ at all from the reported prices. For such business the banks charge the normal commission. Persons or organizations other than banks are not granted special terms, apart from stock exchange members, who pay half commission.

Besides dealings for cash, a certain amount of business takes place for future settlement, which mostly entails the client buying bonds for delivery at a later date (up to one or two months after trading date) when the necessary funds are available. A premium over the current stock exchange price is often charged in forward trading of this kind. The banks either deliver the bonds from their own holdings or purchase them for cash on the market.

C. THE SEGMENTS OF THE SECONDARY MARKET
IN THE NETHERLANDS

I. PARTICIPANTS AND ISSUES TRADED

Since 1974 there has been one stock exchange only in the Netherlands, the Amsterdamse Effectenbeurs (AEB); the exchanges in Rotterdam and The Hague had to close for lack of business. The members of the AEB form the Vereniging voor de Effectenhandel. The Vereniging is a private association. It owns the exchange building and its board of directors and committees lay down the necessary regulations and fulfill all functions of management and supervision. The members of the Vereniging were granted a monopoly as agents for securities trading in 1947 by a Ministerial Decree. This does not mean that it is mandatory to deal through the stock exchange, however, as the members may at any time trade off the exchange, either as agents or for their own account. If a transaction in securities is to be effected without the participation of a member of the stock exchange, it must be approved by the Minister of Finance.

In principle, all members of the AEB may deal for their own account and they are therefore spread guided to some extent. However, their main earnings come not from realized spreads but from commissions charged to investors or other members. Among the primarily investor-commission guided members are the banks, which have brought securities business into their range of services, and the stock brokers, who devote themselves almost exclusively to securities business. The so-called

"hoeklieden", on the other hand, are chiefly guided by member or floor commissions. They specialize in certain securities and accept orders from the investor-commission minded members in these securities for execution. The hoeklieden themselves have no direct contact with private clients or institutional investors. For his services the hoekman receives a member commission, which is one tenth of the investor commission. At the end of 1975 55 of the 178 member firms of the AEB were firms of hoeklieden, 84 were brokers and 39 were banks.

The Stock Exchange Act of 1914 placed the responsibility for supervising the stock exchanges with the Finance Minister. The Minister is not actively using the powers granted him in this regard but has devolved his functions to the Vereniging. The Minister must take a decision on every application for listing of a security; he has always accepted the recommendation of the AEB. The Finance Ministry has no officials engaged full-time in security-dealing matters. To the extent that the member firms are subject to the supervision of the central bank, they must comply with the latter's solvency regulations.

At the end of 1974 675 stocks and 1459 bonds were admitted to a quotation. The 297 Dutch stocks (excluding investment trusts) had a market value of just under Dfl. 29 000 million, while the nominal value of domestic bonds amounted to Dfl. 41 000 million. The stocks of the 50 largest public corporations represent 90% of the market value of all listed shares.

Table C - 1

Number of securities listed on the Amsterdam
Stock Exchange, by type of security

Year- end	Bonds		Stocks		Investment trust shares	Total
	domestic	foreign	domestic	foreign		
1965	958	258	586	319	77	2 198
1966	1 025	261	566	313	74	2 239
1967	1 030	264	545	314	79	2 232
1968	1 073	261	503	310	85	2 232
1969	1 116	252	455	303	87	2 213
1970	1 167	240	412	304	85	2 208
1971	1 229	253	390	298	84	2 140
1972	1 251	191	328	289	81	2 140
1973	1 272	187	309	292	75	2 135
1974	1 289	170	297	303	75	2 134

In 1974 stock exchange turnover in domestic shares amounted to 30% (1973: 39%) of the total outstanding; the corresponding figure for domestic bonds was 14%.

The significance of domestic and foreign securities for stock exchange trading is shown by Table C - 2.

Table C - 2

Stock exchange volume of sales in 1973 and 1974
by type of security, in Dfl. thousand millions

Type of security	Sales		Percentage of total sales	
	1973	1974	1973	1974
<u>Bonds</u>				
Domestic	6,3	5,7	25%	35%
Foreign	0,3	0,2	1%	1%
<u>Shares</u>				
Domestic	18,0	10,0	70%	61%
Foreign	1,1	0,5	4%	3%
Total	25,7	16,4	100%	100%

II. EXCHANGE SEGMENTS OF THE SECONDARY
MARKET IN THE NETHERLANDS

In most countries investors' orders are brought to the stock exchange by the members' clerks or are passed to the floor by telephone or telex. In the Netherlands this is still common practice. However, one large bank, one of the most important stock exchange firms, now has an automated order-switching system. Orders are received by the bank's branches and passed on by telephone in coded form to two input points in the system. The system then prints out the orders in the bank's stock exchange booth at the AEB. This procedure, which exists in similar form in other countries, has two interesting aspects which will be examined here by way of example.

In the first place, the bank obtains certain cost benefits. The system checks the orders for completeness and consistency so that any errors can be corrected during the telephone contact with the relevant branch. In addition, the computer prints the number of the appropriate stock exchange dealer on the order and this speeds up work in the bank's floor office. Further, the preparation of confirmations and the preparation of accounts are facilitated, since individual prices have to be assigned only to the unique order number allocated by the system, whereas a collective price is simply allotted to all orders in a given stock which had to be executed at that price and which were executable within the limit instructions.

In the second place, the system improves the protection of investors against what we have called "realization risks". The relevant risk in this connexion is the risk of a refined form of intertemporal price fraud. In the normal case of intertemporal price fraud the client receives a confirmation based on a less favourable earlier or later price than that at which his order was actually executed. Here an audit can in certain circumstances establish that the firm did not trade at all at the confirmed price. In the refined form of the fraud, on the other hand, a security transaction corresponding to the clients's order is actually effected first but this is then followed by two further transactions of the same volume. Assume that the client wanted to buy shares and that after the execution of a buying order corresponding to his instructions the price had risen. The position arising from the first deal will then be closed by means of a second transaction; this transaction and the first transaction are taken on by a clerk for his

own account or for a third party. The third transaction is another purchase, this time - and for the last time, it is hoped - for the client. This form of inter-temporal price fraud is difficult to prevent under the traditional procedure. But with the automatic order-switching system the only orders that can be passed to the exchange are those which have been firmly assigned to a specific investor. In this way it becomes impossible for members of the staff in the branches of a bank or a broker to operate in this refined way.

1. Gesloten hoeken

"Hoek" is the Dutch term for the positions on the floor of the exchange at which dealings in certain securities are concentrated. An imaginary grid delineates 82 squares and these are occupied by the markets or "hoeken". It is mandatory to deal through a "hoekman" on the "gesloten hoeken". This is where most securities are traded. The "hoeklieden" - there are two for almost every security - collect all orders and at around 12.15 p.m. for the first time and if necessary around 1.15 p.m. for a second time they jointly establish a collective price (see Annex 2) at which it will be possible to achieve the highest turnover, in other words a price at which the market will be completely cleared or at least cleared to a larger extent than at any other price. All the orders received are executed at this price provided that their limit instructions allow it. The hoekman has the right, but is not obliged, to satisfy or take up surplus orders at this price for his own account. Between the two collective prices it is permissible for individual bargains to be made through a hoekman at the first price.

If bargains cannot be made, bid or offer prices or spreads may be quoted. If, on the other hand, bargains can be made but one side of the market is in excess of the other, for example if demand at the collective price exceeds supply, and if it is not covered by the hoekman, the shares must be distributed to the prospective buyers proportionately; each buyer must receive at least one share. This regulation reduces the risk of chance or arbitrary failure to secure a bargain for a client. Each gesloten hoek may, with the permission of the quotation commissioner, temporarily become an "open hoek", provided that the inflow of orders is sufficiently brisk, in order to cater for direct dealing between members ("opengaan van gesloten hoeken").

2. Open hoeken

The "open hoeken" are the markets in active securities and trading may take place on them at any time during the stock exchange business hours of 11.30 a.m. to 1.15 p.m. At opening time the appropriate hoekman determines a collective price, the opening price, in the same way as on the gesloten hoeken. Trading at individual prices then follows. Each stock exchange member may make and accept offers and bids. It is not mandatory to deal through a hoekman here; the members may deal with each other direct, without the intervention of a hoekman and individual bargains may be done at prices differing from the opening price. The hoekman may also participate in this trade for his own account, but basically only if he has no more orders. All prices are published in the official list.

III. OFF-EXCHANGE SEGMENTS OF THE SECONDARY MARKET IN THE NETHERLANDS

As already stated in the first section, the members of the Vereniging have a monopoly of securities trading. It is, as they put it in the Netherlands, mandatory to deal through a securities agent; it would be more appropriate to say that it is mandatory to deal through a member of the stock exchange, in order to make it clear that exchange and off-exchange business are in the hands of the same people. So the segmentation of the market in the Netherlands is not a matter of competition but of expediency.

1. Off-exchange dealings in listed securities

Unless the client instructs otherwise, orders in listed securities are executed on the stock exchange. In principle, members of the exchange are not allowed to cross such orders; they have to pay the hoekman only half the floor commission for offsettable orders. Although crossing thus plays no part in off-exchange trading, this does not mean that there is no off-floor trading in listed securities. First of all there is after-hours trading in foreign and international issues; this is particularly important and derives from the fact that the AEB closes as early as 1.15 p.m. whereas the London Stock Exchange for example remains open until 3.30 and New York does not open until 3 o'clock Central European Time in summer. There is also naturally some before-hours and after-hours trading in purely domestic issues as well. Secondly, we must mention block transactions, which are usually prepared and executed

outside the exchange. New regulations are currently being drafted to protect orders on the floor from non-execution when block business is being transacted. Thirdly, premium and option deals in quoted titles are effected outside the exchange. (The AEB is at present planning to introduce option dealings on the exchange on the American model.)

2. Off-exchange dealings in non-listed securities

The Vereniging obviously considers it inappropriate that an issue should be the subject of stock exchange dealings by means of collective bargains at collective prices if the market value of the shares in circulation in the Netherlands is lower than Dfl. 500 000. Nevertheless there is some trading in such securities. A great many securities could be admitted to a stock exchange listing but their issuers have hitherto refrained from applying for listing. These securities play a major role in telephone dealings in domestic issues. There are probably some one thousand unlisted stocks and bonds.

The bulk of business in domestic unlisted ("incourant") securities is handled by the offices of two member firms. Normally these two "incourante kantoren" admit stocks to their dealing service only if the issuer applies to them, submits his annual reports and accounts and makes a certain proportion of his share capital available to the market. Although all business with the two firms must be settled through a bank or through a broker, the firms also accept orders direct from investors and negotiate with these investors direct in line with their efforts to establish direct contacts with as many

potential buyers and sellers of unlisted securities as possible and to keep a record of such prospective clients. When an order comes in, there is usually neither a matching order available nor can be expected. Therefore the dealing departments of these firms normally telephone various potential contracting parties until a bargain is made. Dealing takes place not only during stock exchange hours but also during normal office hours.

With regard to unlisted securities the stock exchange members are not bound by the Vereniging's commission rules and charge a higher commission because dealing work in connexion with "incourant" securities is more costly than for "courant" items. The two specialized firms publish their turnover in their own price lists which appear once a week in the financial press.

In closing we must mention the market segment constituted by Euro-securities. There are several market makers for these issues in Amsterdam, particularly for Eurobonds denominated in guilders. The main operators in this field are the large Dutch commercial banks.

D. THE SEGMENTS OF THE SECONDARY MARKET
IN THE FEDERAL REPUBLIC OF GERMANY

I. PARTICIPANTS AND ISSUES TRADED

In Germany there are at present eight stock exchanges. Frankfurt and Düsseldorf are the most important, followed by Munich and Hamburg, while Berlin, Stuttgart, Bremen and Hanover are of minor importance. This can be seen from Table D - 1, which shows the number of member firms at the end of 1973.

Table D - 1

Member firms of German stock exchanges

Type of firm	Berlin	Bremen	Düsseldorf	Frankfurt	Hamburg	Hanover	Munich	Stuttgart
Banks	32	17	69	103	85	19	44	33
Unofficial brokers (Freimakler)	11	-	16	21	6	-	3	-
Official brokers (Kursmakler)	8	1	17	21	17	3	8	4

Table D - 1 does not adequately reflect the overwhelming importance of the banks as stock exchange members. Admittedly, and unlike the other firms, a fairly large

number of banks which are admitted to several exchanges are recorded several times. However, the banks have on average about five members each whereas the "broker" firms have but one in most cases. The member banks are also especially significant because - with some exceptions - they are the only investor-commission minded members whereas the brokers are member-commission minded. All members may also deal for their own account, but official brokers only if orders cannot otherwise be executed.

Since there is no monopoly in security dealing in Germany - apart from the special tasks of the official brokers and a few unofficial brokers in connexion with establishing prices - any person not a stock exchange member may deal in securities at any time. The primary operators among non-members are the banks, over 6000 of them, most of which have some importance if only as bringers of orders. About 300 banks are particularly active in securities business and a few operate as market makers outside the stock exchanges. Apart from the banks a few other undertakings carry on securities business, particularly the sale of foreign issues. These sales agents, unlike the banks, are not subject to federal banking supervision, which applies to everyone who trades securities in his own name and to an extent that requires a businesslike operation.

The stock exchanges are subject to supervision at state (Land) level. The finance or economics ministers of the states in which stock exchanges are located have in six cases appointed commissioners to be responsible for exchange supervision. But in most instances the state commissioner has only an advisory and reporting

role. Only in Munich has he the right to impose disciplinary sanctions upon official brokers - who are in general appointed and supervised by the relevant minister. But no use has yet been made of this provision.

Since 1972 the stock exchanges have had investigatory committees which are intended, for the benefit of those interested in security dealing, to strengthen self-regulation and to investigate infringements of the recommendations on insider trading. We must point out in this connexion that the German concept of insider dealing is wider than that of other countries: a violation of the recommendations on insider trading is deemed to have been committed not only where non-public information about the business situation of an issuer has been exploited but also where the effects of false information on prices are exploited, for example by the publisher of an advisory service letter, or where information about orders is abused by the dealer of a member firm, for example through "fellow-travelling". So far there have been very few proceedings before the investigatory committees in which no infringement has been proved.

About 5 million of the 21 million private households own stocks or bonds. They hold some 20% of the bonds and shares of domestic issuers. In the case of bonds the banks, with a good 40% of the bonds outstanding, occupy a special position, while a similar proportion of shares is probably held as a long-term investment by public and private shareholders and cannot therefore be said to be "circulating" (see Table D - 2, last column). The significance of institutional investors

has grown in recent years, but they have not acquired a dominating position. The most important participants in the secondary market after the banks are the insurance companies in the case of bonds and the mutual funds (Investmentfonds) in the case of shares; the proportion of share turnover attributable to the investment funds is estimated at 15%.

Table D - 2

Percentage shares of various groups of investors in securities outstanding at the end of 1970, 1972 and 1974

Group of investors	Shares in the outstanding amount at face or par value					
	Bonds of domestic issuers			Stocks of domestic issuers		
	1970	1972	1974	1970	1972	1974
Domestic individuals	19,8	20,8	21,5	22,0	18,2	17,2
Banks	47,3	42,1	41,3	.	8,0	7,9
Mutual funds	2,1	2,8	2,8	1,8	2,4	2,8
Insurance companies	10,1	10,1	10,9	2,2	2,2	2,2
Other undertakings	4,3	3,9	3,5	13,6	13,0	14,4
Social insurance	4,6	4,4	3,1	0	0	0
Other public entities	1,9	1,3	1,0	7,4	7,2	6,7
Other domestic legal entities	2,1	2,0	2,1	1,3	1,1	1,2
Foreign investors	2,5	6,2	7,5	5,1	6,1	5,3
Non-specified	5,3	6,4	6,3	.	41,8	42,3

At present a total of about 530 domestic and 130 foreign stocks are traded on the German exchanges. Table D - 3

shows the distribution over the individual stock exchanges at the end of 1973; it should be borne in mind that there are many cases of multiple listing.

Table D - 3

Number of stocks traded on the various market segments of German stock exchanges at the end of 1973

	Ber- lin	Bre- men	Düssel- dorf	Frank- furt	Ham- burg	Han- over	Mu- nich	Stutt- gart
1. German stocks (total)	241	53	210	267	168	84	182	104
admitted to:								
a) official con- tinuous trading	85	39	78	85	140	54	58	32
b) official non-continuous trading	128	-	103	118	-	-	101	48
c) unofficial exchange trading	28	14	29	64	28	30	23	24
2. Foreign stocks (total)	7	-	48	124	23	-	14	-
admitted to:								
a) official con- tinuous trading	6	-	39	82	23	-	14	-
b) official non-continuous trading	1	-	9	14	-	-	-	-
c) unofficial exchange trading	-	-	-	28	-	-	-	-
Total number of stocks	248	53	258	391	191	84	196	104

Of the domestic stocks 23 are traded continuously on all exchanges and their market value is 43% of the market value of all quoted shares (end of 1973: DM 120 000 million). By contrast the 118 securities that are traded in unofficial exchange dealings exclusively formed less than 10% of total shares outstanding at market prices.

The market value of all domestic and foreign shares in the Federal Republic was DM 247 000 million at the end of 1973 and the face value of domestic and foreign bonds in circulation was the same amount. On the Frankfurt exchange 3275 domestic and 286 foreign bonds were listed in 1973; in Düsseldorf the figures were 1965 domestic bonds with a face value of DM 125 000 million and 187 foreign bonds (market value DM 20 000 million). The contribution of stocks and bonds to the volume of sales on the German exchanges is shown by Table D - 4.

Table D - 4

Sales on the German stock exchanges in 1973 at market value in DM thousand millions (and as percent of total turnover)

Exchange	Total	Stocks		Bonds	
		Domestic	Foreign	Domestic	Foreign
All exchanges except Berlin	38,2 (100)	19,0 (100)	1,2 (100)	13,5 (100)	4,5 (100)
Frankfurt	16,7 (44)	6,8 (36)	0,8 (67)	5,5 (41)	3,6 (80)
Düsseldorf	13,2 (35)	6,8 (36)	0,2 (25)	5,5 (41)	0,6 (13)
5 exchanges	7,8 (21)	5,4 (28)	0,1 (8)	2,5 (18)	0,3 (7)

II. EXCHANGE SEGMENTS OF THE SECONDARY MARKET
IN THE FEDERAL REPUBLIC OF GERMANY

On the German exchanges a distinction must be drawn between official and unofficial trading. This distinction is confusing, especially for a foreign observer, because in both cases dealings take place on the floor of the stock exchanges, the participants being almost identical and even - if one takes the German stock exchanges together - the traded issues are the same to a large extent. Although prices naturally arise in unofficial dealings, they are not reported but are merely quotations on which no claim to execution can be based. In the case of official dealings, on the other hand, any transaction prices or bids or offers are reported, and an investor may claim execution of his order on the basis of these prices, even if they are only bids or offers. These official prices, which may be established only for securities that have been listed, have a special legal significance which no other exchange or market price has: they are the basis for the securities agent's right to deal, on his principal's behalf, with himself ("Selbsteintrittsrecht"). The German banks, in their capacity of securities agents, regularly make use of this right under their terms of business, executing orders from customers from their own holdings at official prices and still charging the usual commissions and expenses. The "Selbsteintrittsrecht" leaves them free to decide whether or not to engage in a covering transaction and the manner in which to do so, and limits their duty to provide information to the customer as to the details of the execution. In the case of share dealing this limitation now constitutes the only practical significance of the "Selbsteintrittsrecht",

as the banks undertook in 1968 to pass all orders in respect of listed shares through the stock exchange, unless the customer had expressly instructed otherwise ("freiwilliger Börsenzwang", i.e. voluntary agreement to accept the obligation to deal through a bourse).

1. Official trading

a) Continuous trading

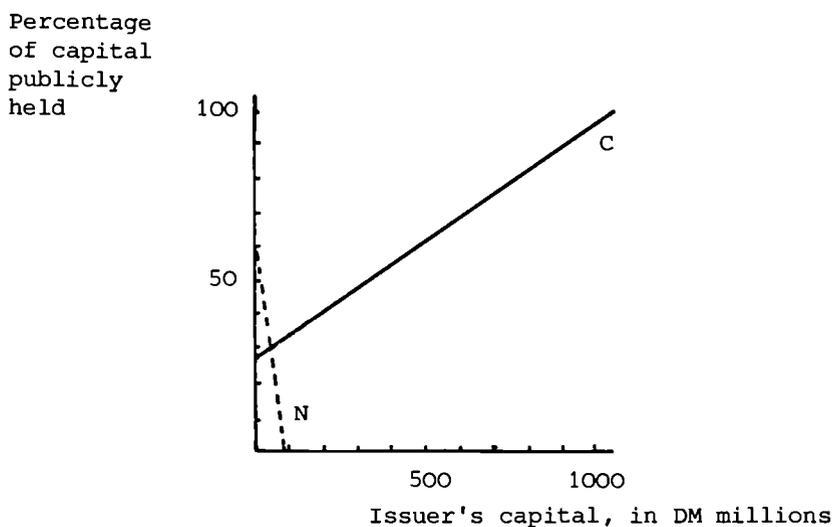
This market segment is also designated as "dealings at variable quotations" or, more briefly, "variable-price dealings" ("variabler Verkehr"). A price is only established if a certain minimum number of shares are bought and sold, usually 50. The securities dealt in in this segment on the north German exchanges of Hamburg, Bremen and Hanover are all listed stocks. However, the executive committees of the five other German bourses in principle only assign shares to variable-price trading - apart from foreign securities - in which it can be proven that there is a need for continuous dealing, in other words in which major orders are regularly forthcoming during stock exchange hours. The distribution and par value of capital of domestic listed stocks traded on several German exchanges are shown in Diagram 2; stocks traded continuously on at least one of the five exchanges indicated above were assigned to the first category ("continuously traded stocks"), the remaining stocks to the second.

In the normal course of events the stock exchange's executive committee will require a member bank to make an application for the admission of such stock to

continuous dealing. The bank will then be expected to facilitate the execution of incoming orders in the security, in other words to act to some extent as market maker. The number of shares admitted to continuous trading is shown in Table D - 3.

Diagram 2

Distribution and par value of capital of domestic listed stocks traded on several German exchanges



C Continuously traded stocks
(regression line)

N Stocks with non-continuous trading only
(regression line)

Continuous trading breaks up into collective negotiation at the beginning of the stock exchange session and a

collective price - known as the first price or the opening price - is established; the subsequent individual bargains are made at individual prices. Each official broker ("Kursmakler") is allocated certain securities in respect of which he takes orders from the member banks. He matches up the buying and selling orders, provided they are for round lots or multiples of round lots, and calculates the price at which supply and demand will balance. He notifies this price to interested dealers who have assembled at his post and accepts more orders from them; the official broker may also decide to cover an excess of demand or supply for his own account (this is known as taking over a "Spitze"). The equilibrium price which then arises is quoted as the opening price. Although the most active shares are dealt in in this segment of the market, it often happens that only a bid price is quoted as the opening price.

There are a number of different variants of continuous dealings. Members may give their orders to the official broker or an unofficial broker ("Freimakler") who will hold the order at the market ready to deal with a party appearing on the other side. Unofficial brokers, in particular, may also put themselves forward as counterparties. Alternatively, the official broker may cross matching orders of a member and quote the crossing price. Finally, the members often trade amongst themselves without the intervention of the official broker. In that case, however, they have no right to have their prices quoted and reported, except that in Hamburg official brokers must quote even these prices if a member so requests and if the price in question is in line with the market. It is this variant of continuous trading

that lends exchange dealing in Germany its characteristic appearance and colour . The aggregate sales in a typical security in this segment of the market on the four leading bourses average about one million marks per working day.

b) Non-continuous trading

Two groups of orders are executed in this segment of the market: firstly, all orders in respect of securities which although listed are not admitted to continuous dealing, and secondly, all small orders in respect of shares admitted to continuous dealing. Thus all listed securities are traded here. Trading takes place once a day. Only issues with a nominal value of at least DM 500 000 outstanding may be traded in this segment of the market. Orders are passed to the appropriate official broker who then, in the same way as in the calculation of the opening price in the continuous-trading segment, determines a collective price. This price is called the uniform price ("Einheitskurs"). It frequently happens that no interested dealers are to be found at the official broker's post. In that case only the orders already received and in certain circumstances the bid for surplus supply or demand by the official broker dictate the price. But often one or more bank representatives participate in the price-making process. However, it is very rare for so many dealers to be actively involved in determining the price that one can speak of competition for surpluses. Moreover, this would hardly be possible since the uniform prices for hundreds of bonds and stocks are arrived at within half an hour. Normally a price is influenced by the

representative of the price-stabilizing bank and this is particularly so in the cases of intervention by the central bank's representative in regard of the prices of federal government and related bonds.

If substantial variations from the previous day's price for a given security are imminent, an attempt is always made to involve a fair number of dealers in making the price. If an official dealer, on the basis of the orders he has already received, expects a price change of the order of 5 to 10%, he must draw the attention of the stock exchange dealers to the special situation by writing up a plus or minus sign (if the expected change is more than 10%, a double plus or double minus). In the case of bonds the corresponding rates are 1 and 2%. In all situations of this kind a supervisory member of the stock exchange's executive committee participates in making the price. It is his responsibility to decide whether and if so at what price bargains should be made or whether to suspend trading in the security in question. This procedure is also used in continuous trading when there are substantial price fluctuations. At some bourses there are special regulations for securities with prices of up to DM 5.

Although the collective prices are still calculated by writing in the brokers' books at the German exchanges, the subsequent operations have been largely automated. Data relating to deals that have been entered into are fed into a data processing system by the brokers or their clerks through terminals right at their posts. The system prints out contract notes and uses the input data inter alia to prepare and implement clearing and settlement. The printing of the official price lists

is automated too, on the basis of the input data provided by the brokers. The possibility of having the order data fed into the system not by the official brokers but at an earlier stage - directly from the members' branches - is currently being worked on. The data processing systems now operated jointly by several exchanges and connected with each other are also used for continuous trading of course. In order to apply the systems to off-floor trading as well and to make contract notes and other information available in offices outside the exchanges, terminals are increasingly being installed at outside locations. In addition, efforts are currently being made to enable transactions involving more than one financial centre to be handled by the automated settlement systems of the individual exchanges.

2. Unofficial exchange trading

a) Trading in unlisted securities

Although regulated unofficial trading ("geregelter Freiverkehr") or more specific, trading of unlisted issues ("unlisted trading") takes place on the floor of the exchanges and is regarded as a segment of the exchange market for the purposes of this study, it is not subject to supervision by the stock exchanges nor are the governing bodies of the stock exchanges responsible for this segment. Control of dealings in this segment is in the hands of a "Committee for transactions in unlisted securities" at every stock exchange (referred to in this study as "unlisted trading committees") which also takes the decision as to which securities should

be "included in" (not "admitted to" or "listed") regulated unofficial dealings. Three groups of securities dealt in for cash are involved here. Firstly, securities that have been listed on one or more other German bourses and for which there is a need for local trading. Secondly, there are those securities which would qualify for a stock exchange listing but whose issuers have not applied on account of the higher fees and other expenses of listing in comparison with "inclusion" in regulated unofficial dealings. Finally, the third group covers securities which do not qualify for a stock exchange listing either because there are doubts about the issuer's standing or because the capital outstanding is too low or because of too short a time to maturity in the case of fixed-interest securities. Of the 331 fixed-interest titles included in unlisted trading on the Frankfurt Stock Exchange at the end of 1973, 165 were medium-term notes ("Kassenobligationen"). Normally the unlisted trading committees "include" a security in response to an application from the issuer; sometimes, however, they will include a security on their own initiative without the issuer's agreement, if turnover is sufficient to warrant it, and in that case inclusion fees are not charged.

Unofficial exchange trading takes place mainly at individual prices, sometimes continuously, as in Hamburg, sometimes on the basis of one or more unofficial brokers - official brokers are restricted to official dealings on the exchange - calling over the relevant securities. Contrary to official trading transaction prices are not reported. Whether or not individual bargains are made, the unofficial broker will try to come up with

quotations which reflect the market situation and will report these quotations. They are published in the official list or in an appendix to it. They may be firm quotes, as is the case when the broker has orders awaiting execution or when he states bid and offer for his own account, or they may merely state the limits within which the individual prices have actually lain or probably lay. Thus, no investor is entitled to execution of his order, not even of market orders to buy or to sell at the offer or bid.

b) Option trading

Since 1 July 1970 puts and calls with three different contract periods have been traded in Germany. The only persons entitled to trade are stock exchange members recognized by the local options clearing association, the "Lombardkasse" or the "Liquidationskasse". Transactions are restricted to 45 German and Dutch stocks with heavy trading; they are largely the same as the shares for which the four largest German exchanges publish a daily list indicating the share volume of sales. The Federal Finance Minister and the executive committees of the stock exchanges decide which securities are to be the subject of option dealings in conjunction with the issuers.

Supervision of option dealings is the responsibility of the executive committee of the stock exchange in question, which also lays down the conditions under which these dealings shall take place. So here the executive committee takes the place of the unlisted trading committee. Thus, in contrast to unlisted trading, not

only the admission of participants but also the admission of securities have to be officially authorized. In addition, supervision is exclusively in the hands of an official body of the stock exchange. However, as in unlisted trading, option prices are not official prices. Consequently, option dealings are usually regarded as constituting a segment lying between official dealings and unlisted trading.

Option securities are normally called over during the second half of the trading session by an unofficial broker. As in the case of unlisted trading, quotations (or even merely bid or offer prices) are then determined - if possible on the basis of individual prices - but they do not give rise to the right to execution. As with the cash segment of the unofficial market, deals may be made not only during calling but throughout the trading session. The round lots are the same as for continuous trading. The small volume of sales on the option market is concentrated on Frankfurt and Düsseldorf; at these centres in 1973 18 738 and 5 664 option deals respectively were concluded, that is 2 - 3 bargains per security per working day.

III. OFF-EXCHANGE SEGMENTS OF THE SECONDARY
MARKET IN THE FEDERAL REPUBLIC OF GERMANY

As already mentioned, there has been a limited, self-imposed obligation to deal through the stock exchange in Germany since 1968; the banks have undertaken, in their conditions of business, in principle to pass their customers' orders in respect of listed stocks through the stock exchange. This has meant that in-house crossing of orders in these shares, which was normal before 1968, has almost entirely disappeared, while crossing still continues to occur occasionally in bonds as before. Other off-floor secondary market transactions were not affected by this obligation to deal through the stock exchange. Off-exchange trading can be divided into off-floor dealings in listed securities or in securities included in regulated unofficial dealings on the one hand and dealings in all other securities on the other.

In the category of off-floor trading in stock exchange securities the most significant business is that in bonds. It is said to amount to ten times the fixed-interest sales on the exchanges. Some 20 banks have established themselves as market makers in domestic and foreign bonds. Other houses confine themselves to broking and occasional business for their own account. Particularly in evidence is business between banks and with institutional investors. Competition on the off-floor bond market is fierce and it is not usually possible to charge immediacy premiums or discounts. Block business in equities, too - not very large in volume - takes place mainly outside the exchanges. Besides crossings and the just mentioned off-floor

transactions in bonds and block transactions in shares, before-hours and after-hours trading in the shares of the exchange segments also have a certain importance. The chief participants are banks, but unofficial brokers, official brokers and occasionally investors themselves also take part. These out-of-hours dealings are carried on over the telephone and in accordance with stock exchange practice. The main business is the covering of positions left open when the exchanges closed. In addition, a part is played by purchases and sales of minor stocks and transactions triggered off by the receipt of unexpected information. Lastly, out-of-hours dealing to some extent accomodates arbitrage with foreign financial centres.

Trade in securities that are neither listed nor included in regulated unofficial dealing, particularly when it involves German and foreign shares and "when issued" trading, is commonly known as unregulated unofficial dealing ("ungeregelter Freiverkehr") or - even less appropriately - telephone dealing. Some of these non-exchange quoted securities, chiefly units in mutual funds and foreign securities, can be bought and sold every day over the telephone. At times deals in "telephone issues" are tolerated even on the floor of an exchange. Some banks have made a name for themselves as brokers and dealers in inactive German shares; they distribute daily lists showing buying and selling interest in their special securities. Sometimes they include securities of dormant corporations or defaulted issuers in these lists. At a few market centres associations of dealers in "telephone stocks" have been formed; they publish daily lists with quotations in these securities. In some centres unregulated unofficial trading displays

elements of co-operative market organization in that the local unlisted trading committee (see p. 109) decides what securities may be dealt in. Finally, mention should be made of the segment of the secondary stock market in which usually no banks operate and in which individual investors and promoters of foreign firms solicit the sale of securities through newspaper advertisements and lists of addresses.

E. THE SEGMENTS OF THE SECONDARY MARKET IN BELGIUM

I. PARTICIPANTS AND ISSUES TRADED

There are four stock exchanges in Belgium - in Brussels, Antwerp, Liège and Ghent. Each exchange keeps a list of "agents de change" and "agents de change correspondants" admitted to it. According to these lists, the Brussels Bourse has some 350 members, that in Antwerp 150, and the Liège and Ghent exchanges 40 each. The "agents de change" may handle securities and foreign exchange business only. They are primarily investor-commission minded, but are also permitted to do business for their own account. But in order to obviate conflicts of interest they may not cross orders for own account. Only the "agents de change" and their representatives may deal on the exchange. Some "agents" have combined together in partnerships, others operate as sole proprietors. There are about 250 stock exchange firms in Brussels. About 10 of them are relatively large, the biggest firm employs 180 persons - and carry on the full range of securities business. There are 50 medium-sized firms with about 10 employees each. The remaining firms are small and one-man firms are not uncommon.

The "agents de change" must be distinguished from the "agents de change correspondants". The latter's place of business must be situated outside a radius of 25 kilometres from the stock exchange location. Their main activity is to obtain orders for the members authorized to deal and they are usually remunerated by being given half of the investor commission. However, it is possible to be admitted to a stock exchange as an "agent de

change" and at the same time to be admitted to one or more other exchanges as an "agent de change correspondant".

Besides their monopoly of trading on a stock exchange, the Belgian "agents de change" also have a monopoly of accepting orders for securities business, although they have to share this monopoly not only with their correspondents but also with the banks. Since stock exchange orders may neither be crossed against other orders by the "agent" nor be crossed for own account, they are all passed through the stock exchange. Since the banks are not allowed to deal on the exchange, they must pass their orders on to an "agent de change" for execution and for this service the "agent" receives two thirds of the commission. In addition, the "agents", their correspondents and the banks have a monopoly in off-floor secondary stock market business, except for take-over bids, occasional transactions between investors, and deals in securities for amounts of Bfrs. 10 million and over.

Each of the four Belgian bourses has a "commission de la bourse". This is in the first place a representative organization for the "agents de change" and "agents de change correspondants". Both types of "agent" are, secondly, admitted and supervised by the "commission". But the "commission de la bourse" is also the stock exchange's governing body; it manages the exchange and the "commission's" members discharge important self-regulatory functions. The four "commissions" are subject to the supervision of a State commissioner appointed by the Finance Minister; the State commissioner may take part in all meetings of the stock exchange committees in an advisory capacity.

In contrast to the other Belgian exchanges, the Brussels Bourse publishes very detailed statistics on monthly sales in the more active securities. In the case of forward trading it even publishes each day's bargains in the official list. Despite this, it is not easy to get an overall view of the number of issues in the various categories and of their importance in terms of sales and amounts outstanding. At the end of 1973 816 titles had been admitted to dealings on the Brussels Bourse, of which 352 were bonds (327 domestic and 25 foreign) and 464 were stocks (324 domestic and 140 foreign). At the end of 1975 there were 782 titles, 346 of them bonds, 287 Belgian stocks and 149 foreign stocks. Quite a number of the securities quoted on the Antwerp exchange were traded in Brussels except for twenty or thirty local securities. The same applies to the two other exchanges, though on a much smaller scale. Only the Brussels exchange publishes its sales and it is therefore impossible to say with any accuracy just how insignificant the three other bourses are.

Table E - 1

Volume of sales and amounts outstanding of securities traded on the Brussels Bourse (in Bfrs. thousand millions)

	1970	1972	1973	1974	1975
Sales at face value of domestic governmental bonds (of all bonds)	25 (.)	19 (.)	30 (32)	43 (44)	50 (51)
Sales of domestic and foreign securities of private issuers (of all stocks)	28 (.)	49 (.)	67 (66)	46 (45)	51 (50)
Total of listed Belgian stocks outstanding at year-end (number of issuers)	302 (.)	415 (332)	424 (321)	306 (.)	364 (.)
Total of listed Belgian bonds outstanding at year-end at nominal value	.	.	708	779	918

II. EXCHANGE SEGMENTS OF THE SECONDARY MARKET
IN BELGIUM

A characteristic feature of the Brussels and Antwerp exchanges is the calling out of calculated collective prices in order to give all stock exchange members an opportunity to correct these preliminary prices by making additional bids. The more dealers there are taking part in this process, the more satisfactory - from the market-organization point of view - are the prices. For that reason the collective prices of the various markets are established consecutively, starting - in the case of Brussels - with the forward market securities at 12.30 p.m., proceeding to the "corbeille" market at 12.50, and the "parquet" market at 1.10. Time is provided from 1.30 for daily dealings in unlisted items; auctions in such securities take place once a fortnight in the afternoon. On the other two exchanges, Ghent and Liège, bargains are in general made at the Brussels quotation which is ascertained by telephone or with the help of a stock exchange information service.

In Brussels there are two categories of security from the dealing point of view: securities dealt in purely for cash and securities dealt in partly on a cash basis and partly on the forward market. Turnover in securities dealt in purely for cash is normally small; all orders are concentrated to provide a sufficiently broad basis for determining prices regularly. In the case of other securities activity is sufficient for small orders to be separated from round-lot orders as is done elsewhere. The exchanges attempt to widen the market on which the round-lot orders are executed by organizing it as a forward market. Even investors not intrinsically

interested in forward trading tend to use the forward market, provided their orders are large enough, because of the lower rates of commission charged for future-settlement orders. In addition to these orders there are the orders of those investors specifically interested in forward trading. Some idea of the importance of such orders may be gained when one knows that some 35% of forward transactions are prolonged.

1. The forward market

Forward transactions in Belgium are for the middle or end of a month, i.e. there are 24 settlement dates in a year. On account of the larger-than-average size of forward transactions, of the possibility of a substantial build-up of liabilities until settlement day and because of the specific risk of price changes affecting forward positions, particularly onerous requirements must be imposed on those participating in forward trading. Thus not all "agents de change" in Belgium are authorized to forward dealings but only "agents" with more than three years' experience as a member of the stock exchange and with sufficient capital resources; only they may become members of the clearing co-operative and hence authorized to deal on the forward market. At present the co-operative has 175 members.

In principle, the "agents" transmit their future-settlement orders to the stock exchange quotation service before the exchange opens for dealing. For every issue involved, the buying and selling orders are fed into a computer; the computer lists them according to their limit prices and indicates the previous day's price

and the price at which the market can be cleared. After 12.15 p.m. the computer prints out this information on a sheet for each security and these sheets serve as the basis for trading. Alternatively the "agents" may hold on to their orders and, if they wish, make bargains among themselves at the opening price, which is not at that stage known. The opening price is fixed in collective negotiation under the direction of a quotation commissioner ("commissaire aux criées"). The governing body of the stock exchange has appointed about 40 "agents de change" as quotation commissioners, some of whom are themselves members of that body. A commissioner receives neither a share of commission nor any other remuneration for his services. Each of the quotation commissioners calls his securities out consecutively. For every security he first accepts further orders from the assembled dealers. Often no more orders are forthcoming and in that case he can use the calculated price printed out by the computer. He then declares whether the opening price will be higher or lower than the previous day's close. From that moment on he accepts only selling orders if he expects a higher price and only buying orders if he expects a lower price. When no more orders are called out to him he determines the price at which supply and demand balance or nearly balance; in the second case the orders to be executed on the larger side are selected according to a random sequence established in advance for each working day by the governing body.

After a collective price for each security has been established as a result of these collective opening negotiations, the "agents" may put forward further orders. In any case there are usually still some buying

and selling orders with limits lower or higher, respectively, than the opening price, which it has therefore not been possible to execute. Orders with limits near to the opening price are written up - with details of the limit and the quantity - underneath the opening price on large boards above the quotation commissioners' posts, so that the next most favourable trading opportunities are clearly visible to everyone. Newly-received orders are added. This special feature facilitates arbitrage and other immediate sales below the opening price and immediate purchases above the opening price. This procedure makes it plain that large amounts of limited orders on both sides can take the place of a market maker. If individual bargains are now made, the executed orders are crossed out and the individual prices written up and quoted in the official list in chronological sequence. Individual bargains in premium trading also occur on the forward market and these are also quoted; the number of such trades on any day, if indeed there are any, is small.

The round lot on the forward market is fixed individually for each security at a round figure of units with a total market value of approximately Bfrs. 50.000. The average daily volume of sales in the 90 forward-traded securities is about three times as high in the forward market as in the cash market. As already mentioned, orders for quantities of these securities smaller than a round lot are assigned to spot trading on the "corbeille" market. Over half the forward-traded titles are foreign stocks; they account for about half of forward sales.

2. The cash market

Dealings on the cash or spot market, too, are under the direction of a number of quotation commissioners, who establish a collective price for each security through collective negotiation. Here again a form prepared by the computer is used by the commissioner, but in this case it does not show buying and selling orders but only the last quoted price and the price at which the orders in hand balance. The following sections focus on the special forms of collective negotiation found on the cash market of the Brussels Bourse.

a) Le marché des corbeilles (the "corbeille" market)

Following the allocation of about 180 new items to the "corbeille" market by the Commission de la Bourse in Brussels in 1976, about 300 titles are now traded on that market, principally foreign stocks but also some 70 Belgian stocks and a number of convertible bonds. Orders here are not passed to the quotation service but to a so-called "spécialiste". A fairly large number of "agents" act as "spécialistes". They are not chosen or appointed to this function but simply take it up on their own initiative. Their activities, like those of the quotation commissioners, bring them in no extra commission but give them insight into the state of the market and an obligation - in the normal course of events - to cover excesses of supply or demand for their own account. One firm is a "spécialiste" in about 120 titles. The "spécialiste" notes on the computer form the

equilibrium price that he has calculated and passes it to the appropriate commissioner who then calls out that price. If further orders are forthcoming at that price, the "spécialiste" may cover the excess in turn or may propose a different price and so on until an opening price has been established. In exceptional cases selling or buying orders may be scaled down.

Subsequently, individual prices may be quoted during the whole time the exchange is open. Certain minimum quantities are prescribed if there is to be a quotation: two units of trading in the case of the opening price and one unit for every individual bargain. If these minimum quantities are not reached, the quotation committee ("comité de cotation") may nevertheless allow a quotation if there is good cause. These minimum lots are half the round lots prescribed for the forward market. Individual bargains generally involve a "spécialiste"; they are much less common than on the forward market. Whereas on the latter market individual prices arise in more than half of the issues, on the "corbeille" market they are to be found in barely one tenth of the securities traded.

The maximum price change of a security compared with the previous day's price is 10% on the "corbeille" market. But this restriction applies only to securities traded on the cash market exclusively. If the equilibrium price lies outside this margin, only a bid or an offer will be quoted. The "spécialiste" must undertake to take or supply, respectively, two units of trading at this price ("cours modifié argent - CMA"; "cours modifié papier - CMP") until noon on the following day. The next day's permitted price change will then be

determined on the basis of the "CMA" or the "CMP". Although such a quotation is equivalent to a suspension of trading, off-floor transactions are permitted.

b) The market in domestic governmental bonds

Almost three hundred issues are traded in this segment of the market. Trading procedures here are laid down not by the stock exchange but by the Finance Minister. Market activity is controlled by the State bond council which is in charge of open market transactions and price stabilization of governmental bonds. This council also determines which "agents de change" shall assemble orders in such bonds. The council can have the prices arising from the order situation quoted or can fix a price by intervention. Only one price per day is quoted for a given issue.

c) Le marché du parquet (the "parquet" market)

All securities which, although they have been admitted to a stock exchange quotation, are not traded in the market sectors so far named, belong to the "parquet" market. At the present time they number about 200 and comprise chiefly Belgian stocks and industrial companies' bonds. Only one price is quoted here per day, which, as on the "corbeille" market, is calculated and established in collective negotiating. The price must be based on sales of about Bfrs. 10 000. Day-to-day price changes in this segment may not exceed 5% for shares, 2% for bonds, 5% for convertible bonds of which the corresponding

share is quoted on the "parquet" market and 10% for convertible bonds of which the corresponding share is quoted on the "corbeille" market. For that reason merely bid or offer ("CMA", "CMP") are often quoted here.

d) The exchange market for unlisted securities

For some securities there is a need for trading even though the issuer has not applied for listing. The stock exchange commission accepts written applications by investors through their "agents" for the sale of such securities. Then, one week before the transactions are scheduled, it publishes a catalogue giving the number or face value, description and latest price of those securities which it considers suited to sale on the stock exchange. These securities are then auctioned every fortnight at a special session on one or more afternoons ("ventes publiques"). Beginning January 1977 the auctions will take place weekly. As before, bonds and stocks will be sold on the first auction of the month while the other sessions will be reserved exclusively for bonds. The monthly turnover achieved at the auctions has been nearly as great as a day's sales in listed securities. Often several hundred domestic and foreign issues are offered for sale. "Ventes publiques" also take place, though on a more modest scale, on the other Belgian bourses.

Transactions of this kind also take place on a daily basis in about a dozen issues, basically according to the practice of the "parquet" market ("ventes publiques supplémentaires"). These securities are called at 1.30 p.m. Their prices are published at the end of the official list.

III. OFF-EXCHANGE SEGMENTS OF THE BELGIAN
SECURITIES MARKET

As already stated under I., the banks and "agents" must in principle funnel all orders in listed securities through the stock exchange. If no order is received, off-floor trading is legally permissible under certain circumstances. In that case a bank or "agent" must as a rule act as counterparty or at least prepare the contract note.

In the case of Belgian bonds, the banks are generally prepared to enter upon transactions, since they hold large stocks of these titles themselves. Nevertheless in this connexion the "agents de change" and "agents de change correspondants" have a monopoly in registering secondary market transactions up to nominal amounts of Bfrs. 10 million. The banks are therefore primarily interested in larger transactions. With other bonds, too, particularly Eurobonds, the banks regularly trade for own account. Here they do not, in principle, need to use an "agent". Although holdings of Eurobonds are restricted due to currency risks, the banks make themselves available as counterparties in these securities even for very large transactions.

With regard to stocks, the banks' position on the off-floor market is weaker, as they are allowed to hold temporarily only positions in stocks. Nevertheless they are frequently brought into stock transactions by investors. In many such instances the customer's order can be executed only on a foreign stock exchange, in other instances the Belgian off-floor market is used. Like most stock exchange firms the banks operate here

only between the customer and one of the larger "agent de change" firms specializing in certain issues. These firms normally act as brokers and also hold positions in the securities in which they specialize whether these be unquoted Belgian stocks or foreign stocks. Some foreign stocks, in particular, enjoy a brisk turnover off the exchange.

An even more important role - from the point of view of turnover - is probably played by block dealings in Belgian stocks. Here, too, some houses, especially banks, well known for their experience and their capacity, are prepared to arrange such business. An enquiry from an interested party will usually lead to two or three contacts. If the other side is found in this way, the bank accepts the securities for its own account and then immediately sells them again. Although there are no statistics, there is reason to suppose that the turnover in off-exchange block business and particularly in bonds may be substantial in comparison with sales on the stock exchange.

F. THE SEGMENTS OF THE SECONDARY MARKET IN
THE GRAND DUCHY OF LUXEMBOURG

I. PARTICIPANTS AND ISSUES TRADED

The only stock exchange in the country is that in the city of Luxembourg, which was set up as a public limited company in 1928 and has grown considerably in importance in the past two decades as a market for international securities. At the end of 1974 the exchange had 26 member firms, called "agents de change agréés en bourse". These members, like those in Belgium, are both commission minded and spread minded, in contrast to the "agents de change" in France and Italy who are in principle forbidden to trade on their own account. The members are domestic banks and the Luxembourg branches of foreign banks and broker firms. The number of members has increased continually in recent years. At the end of 1976 the stock exchange had 32 members, five of which were broking firms and the rest banks. Some of the 80 or so banks in Luxembourg carry on securities business outside the exchange only. Security trading is subject to State banking supervision. An official of the Ministry of Finance is responsible for supervision of the exchange as State commissioner. But, as on other stock exchanges, it is primarily the members of the appropriate stock exchange committees who monitor dealings.

By numbers of issues traded, it is Eurobonds that predominate. The trend in the number of securities traded can be seen from Table F - 1.

Table F - 1

Number of issues listed on the Luxembourg Bourse (at year-end)

Type of security	1969	1971	1973	1974	Proportion of total, in % (1974 figures)
<u>Bonds</u>					
domestic	46	45	47	44	5
foreign	361	509	630	667	77
<u>Stocks</u>					
domestic	23	24	24	24	3
foreign	36	55	51	55	6
<u>Units of investment companies</u>					
of invest- ment companies	90	91	90	80	8
Total	556	724	842	870	100

Apart from the issues enumerated in Table F - 1, at least a dozen warrants on shares of foreign issuers are listed on the exchange. Since the Bourse publishes neither aggregate data on the volume in circulation nor data on turnover, it is very difficult to say just how important the individual categories are for the stock exchange secondary market. The most active securities would seem to be bonds denominated in Luxembourg, Belgian and French francs and in European Community units of account, but sales in stocks of Luxembourg steel companies and Benelux multinationals as well as in units of a few major investment funds is also substantial. The face amount outstanding of listed bonds in 1973 was about \$ 15 000 million in the case of foreign issues and \$ 500 million in the case of domestic issues.

II. EXCHANGE SEGMENTS OF THE SECONDARY MARKET
IN LUXEMBOURG

1. Trading in listed issues on the Luxembourg
Bourse at the present time

In Luxembourg the Bourse has a monopoly in quoting and publishing the prices of securities. There is spot trading only. A price cannot be quoted unless at least ten units are bought and sold or the value of the transaction is at least Lfrs. 5.000. During the time the representatives of the member firms are assembled on the floor of the exchange, from 11 a.m. to 1 p.m., both collective and individual prices of any listed security may be agreed on and they provide the basis for official quotations.

Trading at the opening is most important. The opening price is basically a collective price (see Annex 2). The bonds and stocks are called over consecutively. The member firms' representatives then announce whether they wish to buy or sell. The interested parties publicly negotiate the price at which all orders can be executed, or at least more than at other prices. On account of the low turnover in many securities it often happens that only two members make a bargain at this price or that only one member introduces matching orders. Even in such cases an opening price comes into existence. Each opening price is called out aloud before being quoted. Frequently there are only buyers or only sellers on the market, with the result that a bid or an ask is quoted.

After the opening price of a security has been

established, the item may be called out again one or more times, as requested. As a rule no collective bargains will then be made, but only individual contracts - and these will then also be quoted - or, if no counterparty appears, only bid or ask will be published. A second call is rare; usually only an opening price arises. Here, too, orders may be crossed on the stock exchange involving only one member firm instead of two as in the normal case. The representative calls out his intention to cross. Other dealers may intervene and as a result normal bargains may arise. Partial participation by another dealer is also possible, particularly if the two orders of the crossing firm are for a different number of units. The crossing dealer must always justify the transaction to the quotation commissioner.

2. Ventes publiques

On the Belgian model, the rules of the Luxembourg Bourse make provision for dealings in unlisted securities. Such business is nowhere near as important as it is in Belgium, however. Each year only a few "ventes publiques" are held, and those at irregular intervals. The application by a stock exchange member to auction unlisted, usually domestic, securities most often comes about in the course of the disposal of a deceased person's estate. In such cases the auction is conducted by a sheriff's officer on the floor of the stock exchange during exchange hours.

3. Dealings under the planned Eurex system

As is made clear by Table F - 1, it is mainly foreign - or more accurately, international - issues that are listed on the Luxembourg Bourse. These securities are usually traded in several countries, particularly where there are already links with the markets of other countries through the currency of denomination or through the issuer or the issuer's parent company. This generally makes geographical centralization of trading in these securities impossible. The traditional kind of stock exchange dealings in such securities will therefore be seen at the outset to be an unsatisfactory solution, since each dealer will want to follow the performance of a security on all sub-markets continually and will want to be in contact with such markets. This is less easily done from the floor of a traditional stock exchange than from offices of security-dealing firms. Accordingly, telephone dealings are the dominant method of trading in such securities.

A traditional stock exchange, although it can still contribute to procedural efficiency in the information and decision-making spheres through the listing and disclosure requirements and by regular publication of prices, can no longer fulfil its two primary tasks in the execution sphere, namely assembling all information about the state of the market for a given security and bringing potential contracting parties into contact with each other. The Luxembourg Bourse has clearly recognized this and has sought a solution which will allow it to continue to do justice to its primary functions in the execution sphere in respect to trading in international securities. The Bourse has come to

the conclusion that the traditional concept of the assembly of dealers on the floor of the exchange must be abandoned and that today only an automated stock exchange can offer the maximum degree of procedural efficiency for dealings in international securities. For this reason the Luxembourg Bourse has been working on the creation of a computer-assisted trading system known as "EUREX" since 1973. The project is supported by 69 well known security-dealing firms in 13 European countries and in Japan. Trade via Eurex is scheduled to begin in 1978.

Trading through the Eurex system is to be open not only to Luxembourg stock exchange members but also to market makers and commission-guided security-dealing firms throughout Europe, but not to institutional investors. Initially the market makers in London, Copenhagen, Amsterdam, Brussels, Düsseldorf, Frankfurt, Luxembourg, Paris, Zurich, Geneva, Milan and Rome will be linked with the central computer in Luxembourg. The other security-dealing firms will also be connected with this network. It is expected that 75 - 80% of the security-dealing firms handling international business will use the Eurex system. On account of differences in the financial standing of the participants, it will be possible at any time - on a confidential basis - to exclude certain participants not acceptable as counterparties or to limit the volume of individual transactions with them.

Whilst the market makers are to be provided with visual display and input units and with a printer, the other security-dealing firms will be able to operate adequately with their telex equipment. As with Ariel, dealing

will take place without voice contact. The Eurex system is based on the assumption that there will be several market makers for each security. The system will execute orders through these market makers by two different techniques. The first will be applicable to orders for round lots, the second to orders for odd lots.

Only limit orders will be permitted. When a round-lot order comes up, all the market makers (except, of course, those who are undesired partners on grounds of lack of standing) will immediately be asked to feed in their quotes as the name and identification data (currency of denomination, coupon rate, dates of coupon payment and maturity) of the security ordered will appear on the upper part of the display screen. If the order is an order to buy, for example, the computer will seek out the lowest ask from among the quotes fed in. The market maker who is the first to feed in the lowest ask secures the deal, provided that the limit permits a bargain to be made. On the middle section of his screen there will then appear, by way of confirmation, in addition to the name and identification data of the security, the transaction price - in this example it will be the same as the ask - the name of the contracting party and the nature of the transaction from that party's point of view (in this case a purchase), and the quantity traded. At the same time the system will print out confirmations for both parties.

If the order is for more than a round lot or "standard quantity", the transaction will proceed very similarly to the execution of a normal order. The market maker with the most favourable price, with the lowest ask

for example, first receives the same information as in the case of a confirmation. He then has an opportunity to revise his ask upwards if he so wishes. So long as he remains below the limit and below the average of the asks fed in by all market makers, he will not lose the order and the system will print out the confirmation. Otherwise the deal will be made for standard quantity only except if the order is for all or none. Remaining round lots will be treated as a new order.

Remaining odd lots and all-or-none orders, by contrast, will be subjected to the procedure for odd lots if the larger quantity premium of the market maker with the best ask exceeds the above-mentioned limits. In the case of an order to sell the procedure is the same, if the immediacy discount due to the larger quantity of the order produces a bid price that is below the limit or below the market makers' average bid price.

If several market makers, in response to one large order, e.g. an order to buy, have fed in quotes with identical asks, each of them receives the above-mentioned information about the order. The market maker who thereupon raises his offer the least (or is the first to raise it the least) secures the deal, provided that he has not exceeded the limit or the average ask. Otherwise the order must be divided up and/or the procedure for odd lots is applied.

Odd-lot orders (and/or unexecuted large orders) are executed only after a round-lot order has prompted the market makers to enter quotes. The above-average bids and the below-average asks of all market makers

who did not succeed in participating in the business triggered off by the round-lot order are lowered to the average bid or raised to the average offer and applied to odd-lot orders automatically. All odd-lot selling and buying orders received are then executed and confirmed automatically at this average bid or average ask provided their limits allow it.

In the event that there should be only one market maker for a given security, the procedure can be basically similar to the method just described except that in place of adjustment to the averages there will be an odd-lot differential (premium or discount for less than standard quantities). In addition, a solution to the problem of the maximum spread will have to be found. Further, it is conceivable that there might be no market maker in a given security. In that case the orders would simply be stored until a matching order was received. Some participants could also declare themselves willing to enter matching orders in respect of certain securities if asked to do so. The matching order to sell with the lowest limit or the matching order to buy with the highest limit would then be successful and its limit would determine the price.

The annual cost of the Eurex system is estimated at \$ 2 to 3 million. On the basis of 1.500 transactions per day the system would pay for itself on a levy of \$ 7 to \$ 8 per transaction, which could be apportioned between buyer and seller. Against this levy one would have to set the participants' savings on telephone and telex charges which would have arisen on dealings without Eurex and also possible savings on staff costs.

Eurex will prepare its data on transactions in such a way that the data will be able to serve as the basis for clearing operations via Cedel or Euroclear; Eurex will itself communicate such data to those systems. These two clearing systems have already been handling the bulk of the Luxembourg Bourse's bond transactions for several years, whereas share business has been cleared by the Bourse's own clearing and settlement departments.

III. OFF-EXCHANGE SEGMENTS OF THE SECONDARY MARKET IN LUXEMBOURG

As outlined in the foregoing section, international securities, especially, are traded over the telephone. Although no statistics on the extent of off-exchange transactions are available, there is no doubt that sales outside the exchange greatly exceed sales on the exchange. Above all, certain foreign banks in Luxembourg - including some which are not members of the stock exchange - have made a name for themselves as market makers in Eurobonds. In stocks, too, particularly in foreign stocks, and in investment fund units certain firms have become substantial market makers and publish lists showing their quotes.

Several dozen domestic issues are regularly or occasionally bought and sold off the exchange. Where listed securities are involved, it is usually a case of in-house crossing. Since the majority of orders from investors within Luxembourg pass through three banks with many branches, these institutions are in an excellent position to cross orders placed before the opening

in their trading departments. In the case of unlisted securities it is again these three banks which are in the best position to arrange deals. In this field they concentrate mainly on dealings in shares of companies that are associated with them, since these banks tend to know the few shareholders involved and hence to know potential buyers or sellers to whom they can address themselves when an order comes in. To a limited extent the banks are prepared to take or supply securities for own account. Securities traded in this way are usually shares of companies which are closely held and are therefore seldom bought or sold. However, one of the major banks has so far dispensed with applying for listing of its stock even though it is itself a member of the stock exchange. Its shares are traded on the market for unlisted securities organized by itself, in other words it acts as agent for transactions in its own stock.

G. THE SEGMENTS OF THE SECONDARY MARKET IN FRANCE

I. PARTICIPANTS AND ISSUES TRADED

In France there are seven stock exchanges, in Paris, Lyons, Marseilles, Lille, Nancy, Nantes and Bordeaux. Table G - 1 gives an idea of the relative importance of the individual exchanges.

Table G - 1

Volume of sales of French stocks on the official market at market values 1964 - 1975 ¹⁾ (in FF millions)

Stock exchange	1964	1967	1970	1973	1974	1975
Bordeaux	29 (0,3)	14 (0,2)	24 (0,1)	125 (0,4)	49 (0,2)	59 (0,2)
Lille	26 (0,3)	25 (0,3)	43 (0,2)	82 (0,2)	55 (0,2)	52 (0,2)
Lyons	92 (1,0)	85 (0,9)	96 (0,9)	170 (0,5)	105 (0,4)	84 (0,2)
Marseilles	36 (0,4)	35 (0,4)	42 (0,2)	71 (0,2)	61 (0,2)	110 (0,3)
Nancy	19 (0,2)	35 (0,4)	47 (0,3)	152 (0,4)	44 (0,2)	50 (0,2)
Nantes	8 (0,1)	23 (0,2)	28 (0,2)	47 (0,1)	23 (0,1)	20 (0,1)
Toulouse	3 (0,0)	-	-	-	-	-
Provincial exchanges (6)	213 (2,3)	217 (2,3)	280 (1,5)	647 (1,8)	337 (1,3)	375 (1,2)
Paris	8 873 (97,7)	9 080 (97,7)	18 064 (98,5)	34 948 (98,2)	24 658 (98,7)	30 846 (98,8)
Total sales	9 086	9 297	18 344	35 595	24 995	31 221

1) The figures in brackets represent the percentage of total sales for the year concerned.

The Paris Bourse, with almost 99% of total stock exchange sales at market values, occupies a dominant position. In this it is supported by France's centralized system of government and the concentration of corporate head offices in Paris. Another contributory factor is the attitude of the banks, which channel surplus funds and customers' orders for nationally and internationally important securities from their branches in the provinces to their head offices in Paris. As a result demand for securities was concentrated in Paris even before the restructuring of the stock exchanges in 1961. Table G - 2 shows the distribution of securities and of turnover in securities over the Paris Bourse and the provincial exchanges as a whole.

Table G - 2

Number of¹⁾ and sales in²⁾ securities traded on the "Marché officiel"

Type of security	Paris Bourse			Provincial exchanges		
	Number	Sales	Proportion of total sales ³⁾	Number	Sales	Proportion of total sales ³⁾
French securities	1 954	51 876	89%	453	552	0,9%
Bonds	(1 154)	(26.818)	(46%)	(186)	(177)	(0,3%)
Stocks	(800)	(25 058)	(43%)	(267)	(375)	(0,6%)
Franc Zone securities	64	147	0,3%	6	0	0
Bonds	(42)	(16)	(0)	(1)	(0)	(0)
Stocks	(22)	(131)	(0,3%)	(5)	(0)	(0)
Foreign securities	578	5 678	9,8%	-	-	-
Bonds	(272)	(21)	(0)	-	-	-
Stocks	(306)	(5 657)	(9,8%)	-	-	-
Total ⁴⁾	2 596	57 702	99,1%	459	553	0,9%

1) End of year 1975

2) Turnover at market values in FF millions in 1975

3) As % of total sales on the "Marché officiel" (all exchanges) of FF 58 255 million in 1975

4) Differences are due to rounding

By 1961 the only business still remaining to the provincial exchanges in connexion with most securities was the execution of orders at prices basically corresponding to those of the Paris Bourse.

Table G - 3

Allocation of securities traded on the "Marché Officiel" to individual stock exchanges, by number of issues, number of issuers and amounts outstanding (at end of 1975)

Exchange	Number of securities and amounts outstanding ¹⁾			Number of issuers
	Bonds	Stocks	Total	
Bordeaux	27	30	57	33
Lille	27	49	76	50
Lyons	25	61	86	63
Marseilles	23	50	73	52
Nancy	55	59	114	57
Nantes	30	23	53	27
All provincial exchanges	187 (4,4)	272 (5,3)	459 (9,7)	282
Paris	1 468 (246,9)	1 128 (157,7)	2 596 (404,6)	1 073
All exchanges	1 655 (251,3)	1 400 (163,0)	3 055 (414,3)	1 347

1) In FF thousand millions; the figures for the amounts outstanding are given in brackets.

But the Decree of 30 October 1961 then established the principle of the single market ("principe de l'unicité de cotation"), which meant that a security could be dealt in on one stock exchange in France only. The result of this decree was that the regional exchanges were allowed to provide a market only for those securities which were not quoted in Paris. In this way the importance of the regional bourses was reduced. Table G - 3 shows the present position. As can be seen from Tables G - 2 and G - 3, although about 15% by number of all issues are traded on the provincial exchanges, this business contributes only 1% of all exchange sales in France.

Each of the French stock exchanges in existence in 1961 was maintained by an association of brokers ("compagnie des agents de change"). Under the reform of 28 December 1968 these associations were amalgamated to form the Compagnie nationale des agents de change, the governing body of which is the Chambre syndicale. In addition, the "agents de change" were given the opportunity to merge with each other or to co-operate closely. Many brokers made use of the opportunity to merge. The trend of turnover in recent years and the Government's refusal to allow an increase in commission rates may result in further mergers.

Permission to the brokers to amalgamate initially halted the process of brokers in the provinces closing down and transferring their clients to the banks for lack of a sufficiently broad local business base following termination, under the stock exchange reform of 1961, of local trading in all securities whose principal market was Paris. Cessation of business by local brokers

led to the closure of the Toulouse Bourse in 1964; in other financial centres, too, this development was thought to be a probability. Thus in Marseilles there is now only one firm which confines its activities exclusively to the Marseilles area. Two broking firms have offices in Paris as well as Marseilles and another two have linked up with other brokers in Paris and on the other provincial exchanges.

In summer 1976 there were 107 "agents de change" in France (78 in Paris, 29 on the provincial exchanges), who worked in 77 firms ("charges") and employed a staff of 3 800; the largest firms employ up to 100 persons. "Agents de change" are appointed by the Minister for Economic Affairs and Finance. Intending applicants must be nominated by a retiring "agent de change" and approved by the Chambre syndicale. Before a candidate is admitted to the list of applicants he must prove his professional competence in an examination. To qualify to take the examination candidates must possess an appropriate university degree or must have had five years' experience working for an "agent de change" as an authorized dealer.

"Agents de change" are primarily investor-commission guided. They devote themselves principally to broking business on the stock exchange and also act as advisers and administrators in connexion with their clients' assets. Firms of "agents de change" have often acted as advisers and executors to large family estates for generations and are taken into their clients' confidence to an almost unlimited extent in comparison with other professional advisers. In principle, "agents de change" are forbidden to deal for their own account, apart

from long-term investment of their own resources and certain transactions in after-hours and unofficial trading, which will be discussed below.

Deals in securities suitable for trading on a stock exchange may be validly concluded on the secondary stock market only through the agency of, or at least with the certification of, an "agent de change", unless such transactions arise directly between natural persons without the intervention of a third party. Some bankers hold that the brokers' monopoly makes security dealing more expensive. With large orders, in particular, investors frequently approach a bank in order to find a counterparty. But the actual bargain must be concluded by an "agent de change" and for this service he receives the full commission as fixed by the brokers' association. From the point of view of the bank and the parties involved the remuneration received by the "agent de change" in this instance is clearly out of proportion to the service he renders. Apart from the "agents de change" a certain role in the introduction of business is played by the "remisiers" or intermediate brokers, who usually work closely with a broker, but most of the orders are obtained by the banks, which normally receive 30% of the commission for their services in introducing business. At the present time about 70% of all orders are transmitted to brokers by banks, even though the client has to bear additional bank charges in such cases. These bank charges are the main reason why institutional investors prefer to deal directly with "agents de change".

In the event of the insolvency of a member firm of the Compagnie nationale all "agents de change" accept joint

responsibility. To provide for the payment of claims an indemnification fund, financed by contributions from member firms in proportion to turnover, has been set up. Claims on the fund are so rare as to be officially described as non-existent. It is said that only one "agent de change" has gone bankrupt in recent years.

The "agents de change" are supervised by two institutions, the Chambre syndicale and the Government's Commission des Opérations de Bourse (COB). The Chambre syndicale supervises the business activities and the solvency of its members and exercises disciplinary powers over them. In addition, the Chambre organizes and controls stock exchange trading. The COB was set up in 1968 and has about 70 members. Whilst the Chambre syndicale is responsible for day-to-day supervisory activities, the COB confines itself to more general matters and to investigating complaints. For this purpose the COB may ask listed companies, stock exchange dealers and banks to provide information or it may have its investigators inspect all relevant documents. The COB has repeatedly made use of these wide powers of obtaining information. For instance, in its annual report for 1975 it deplores the conduct of employees of "agents de change" who are said to have repeatedly dealt for their own account in securities in respect of which they held orders from clients. Supervision of trading on the exchange and of the "agents de change" is not, however, the principal function of the COB, which is to ensure that issuers comply with the disclosure regulations. In addition, it admits securities to official dealing (in the case of the "Marché hors-cote" this is the duty of the Chambre syndicale).

In France there are about 1.5 million individual investors. About one million hold portfolios with a market value of less than FF 50 000, about 500 000 of these investors hold portfolios with a higher value, and 15 000 hold portfolios with a market value of more than FF 1 million. Altogether, individual investors held 40% of quoted shares at market values in 1975 and 55% of quoted bonds. Domestic enterprises and banks held 30% of the shares outstanding but hardly any bonds. Domestic institutional investors held 15% of the shares and 45% of the bonds. Foreign investors held 15% of the shares outstanding. Institutional investors in France are regarded as including insurance companies, pension funds, open and closed investment funds, and the Caisse des Dépôts et Consignations, the central institute of the savings banks organization. There are about 1 million holders of units in investment funds and 2 million manual and white-collar workers with holdings in their companies' joint securities placement funds.

A summary of the number of officially traded issues and amounts outstanding is given by Table G - 3. On the "hors-cote" market something over 1 000 titles are quoted, 660 of them in Paris. This market is principally for stocks, but a few dozen bonds are also traded.

II. EXCHANGE SEGMENTS OF THE SECONDARY MARKET
IN FRANCE

All French stock exchanges have a "Marché hors-cote" alongside the "Marché officiel". The main differences between the two markets lie in admission procedures, share of total turnover and dealing methods. Stocks may be admitted to official trading if the issuer has a share capital of at least FF 15 million (on the provincial exchanges FF 5 million), 25% of which must be publicly held. As already mentioned, the COB takes the decision on admission to stock exchange trading on recommendation from the Chambre syndicale after the latter has first made a preliminary examination of the form and content of the admission application.

There are few admission requirements for securities to be traded on the "Marché hors-cote". The decision on admission is taken by the Chambre syndicale. A security is usually traded on the "hors-cote" market of the stock exchange in whose area the issuing company has its head office. A special feature of the procedure for admission to the "hors-cote" market is that not only the issuer but also a substantial shareholder who wishes to "mobilize" his shares may apply for admission to stock exchange dealing.

The contribution of the "Marché officiel" and the "Marché hors-cote" to total sales is shown by Table G - 4. It can be seen that the "hors-cote" market contributes some 15% of sales on the provincial exchanges but in Paris, with barely 1% of that exchange's sales, its contribution is insignificant.

Table G - 4

Distribution of sales on the Marché officiel
and the Marché hors-cote

Market	Sales ¹⁾			Proportion of sales ²⁾		
	1970	1973	1975	1970	1973	1975
<u>Paris</u>						
Marché officiel	34 234	67 541	57 702	98,9	98,8	99,2
Marché hors-cote	385	840	479	1,1	1,2	0,8
Total	34 619	68 381	58 181	100	100	100
<u>Provincial exchanges</u>						
Marché officiel	406	856	553	81,2	83,6	84,6
Marché hors-cote	94	168	101	18,8	16,4	15,4
Total	500	1 024	654	100	100	100
<u>All exchanges</u>						
Marché officiel	34 640	68 397	58 255	98,6	98,5	99
Marché hors-cote	479	1 008	580	1,4	1,5	1
Total	35 119	69 405	58 835	100	100	100

1) Sales in FF millions at market value

2) Percentage of sales on the particular exchange or group of exchanges

The trading procedures on the two markets are outlined in the following sections. Whereas on the provincial exchanges all securities are traded by the time-consuming "criée" procedure, since the dealers can easily cope with the relatively small volume of orders by this method, the Paris Bourse has several different dealing techniques. It is with these that the following sections are primarily concerned.

1. The Marché officiel

The official market consists of the forward market (Marché à terme) and cash market (Marché au comptant). The forward market may be further subdivided into a market for fixed-date forward trading (négociations à terme ferme), with monthly settlement periods with the possibility of extension, and a market for conditional forward transactions of various kinds (négociations à terme conditionnel). All officially-quoted issues may be traded on the cash market, but the most active securities only may be dealt in on the forward market as well. On the provincial exchanges dealings are basically for cash and only a few stocks are also admitted to forward trading.

Some two thirds of sales in domestic and foreign stocks relate to the forward market. The volume of sales is strongly influenced by a few attractive issues, especially the Pinay loan, the price of which is linked to the price of the 20-franc Napoleon gold coin. This loan is traded on the forward market. In 1975 sales in this loan accounted for about 12% of the volume of sales on the official market in Paris and in 1974 for over 25%.

The ten most active stocks contributed about a quarter of exchange sales in 1975. Almost half of the 1975 sales was attributable to 50 of the 2596 titles quoted in Paris. Some 10% of share volume was contributed by foreign stocks.

a) Trading à la criée

The criée procedure is the trading technique used on the forward market in Paris. In October 1976 about 170 French stocks, 58 foreign stocks and 15 bonds were traded on this market in Paris. Criée trading is carried on at the "corbeille" by the "agents de change" themselves and at five posts by their clerks. Under this procedure each security is called consecutively by a "coteur" and the previous day's price is named. The coteur - in the "corbeille" it is an "agent de change", at the posts an official of the Chambre syndicale - then attempts to reconcile demand and supply provisionally at this price, a round lot generally being designated to be 25 units (for prices over FF 1.000, 10 units). If the calls "j'ai" (= I have), for example, predominate at this price, the coteur realizes that the price is too high. He therefore names a lower price, at which provisional contracts are again concluded in the same way. If "j'ai" calls still predominate, the price is lowered until finally only "je prends" (= I take) calls remain. From the two prices at which the opposing calls predominate the price-fixer chooses the one at which he thinks the market will be cleared. Repeated calling of a security for further collective negotiations of this kind is possible but is common only in the trading of a few active titles.

b) Trading par opposition

Trading "par opposition" is the method used on the cash market for smaller orders in respect of securities that are also traded on the forward market (comptant du terme). Compared with the forward market, turnover on this spot market is relatively modest. Investors prefer the forward market because its commissions and taxes are lower than those of the cash market. The name "opposition" procedure is said to have arisen because on this market an official of the Chambre syndicale enters the highest buying bids and the lowest selling offers from the clients of an "agent de change" in a book and every "agent de change" whose name appears in the book has the right to object to ("oppose") every price that has been calculated without taking into account his orders.

Every "agent de change" is given the task of calculating the price of certain securities by the Chambre syndicale. A clerk of this "agent de change" first pairs off all unlimited buying and selling orders, then receives details from the brokers named in the "opposition book" of their limited orders and calculates the equilibrium price. This price may be established only if it diverges from the forward trading price of the stock by not more than 2%. If the divergence is greater, another price which lies within the permitted margin must be quoted. At this admissible price there will then of course be disequilibrium on the cash market, and this disparity of demand and supply the "agent de change" responsible for the security must balance for his own account by - generally profitable - arbitrage with the forward market. The price is entered in the opposition book. An official from the Chambre syndicale checks that it has been

correctly established. The opposition books are kept available and may be inspected by any authorized dealer even after this first quotation. From the book there can be ascertained buying orders with limits below the quoted price and selling orders with limits above it; further orders may be added during stock exchange hours. Deals can be concluded against these bids and offers at any time, provided that the resultant individual prices do not diverge from the latest future-settlement price by more than 2%. So further prices can arise over and above the first quotation. But additional prices of this kind are rare and usually occur only in the most active forward-market securities.

c) Trading par casier

For about 2.300 inactive securities traded on the cash market only there is a price-calculation procedure known as trading "par casier". In this case, too, each "agent de change" is given a certain number of securities the price of which he has to establish. His clerk receives in writing buying and selling orders from his colleagues from 12.00 to 12.30 p.m. in the case of stocks and from 12.30 to 1.00 p.m. in the case of bonds, and from these orders he must once a day calculate the collective price at which supply and demand balance monitored by the Chambre syndicale.

d) Trading par boîte

This technique corresponds to the "par casier" procedure

except that in this case the price is calculated by an official of the Chambre syndicale. The procedure is used when the Chambre considers it necessary to keep a close watch on the market performance of a security. This happens rarely.

2. The Marché hors-cote

As can be seen from Table G - 4, the Paris "hors-cote" market did over four times as much business by volume in 1975 as the hors-cote markets of all the provincial bourses together, although for the latter the hors-cote market is far more important than it is for the Paris Bourse. All securities which are not dealt in on the official market may be traded on the Marché hors-cote. As on the official market, business is handled by "agents de change" and their clerks. In this market segment there is spot trading only. Dealings on the provincial exchanges take place à la criée; in Paris several procedures are used.

a) Procédure ordinaire

Under this, the normal procedure, the equilibrium price is calculated by the par casier method. In principle, trading may also take place à la criée; thus until October 1976 the prices of about 30 stocks of the hors-cote market enjoying active turnover at times were established à la criée. But lack of interest in these collective negotiations resulted in the 660 hors-cote securities being put on to an exclusively par casier basis until further notice.

b) Procédure spéciale

The 1973 amendment of the Règlement général introduced the possibility of using a special trading method aimed at stimulating stock exchange business: the "contrepartie technique". Under this procedure one or more "agents de change" act as market makers in securities in which they have applied to the Chambre syndicale for, and been granted, authorization to act as market makers. This special authorization to deal on own account may be granted by the Chambre syndicale only in respect of securities of the hors-cote market. Each "agent de change" authorized in this way must, during all the time the stock exchange is open for business, quote his security or securities if asked to do so and be prepared to buy and sell at the bid or offer he has quoted; he is naturally free to alter his quote at any time. In this way continuous trading at individual prices may develop. It is mandatory to deal with a market maker in connexion with all securities for which a market maker exists.

Although the "procédure spéciale" was at the outset regarded as merely an experiment, it met with a good response at first. For a time more than a dozen securities were dealt in through market makers. But after a while most market makers exercised their right to surrender their authorization after a minimum of three months' operation. In its annual report for 1975 the Chambre syndicale mentions only two stocks as being still traded by this procedure. During 1976 the procédure spéciale had to be completely abandoned for the time being. The following reasons have been advanced for this:

1. No competition developed. There were only one or at most two market makers for each stock.
2. There was but little interest in dealing in the stocks which had been made the subject of the *procédure spéciale*. Continuing the experiment with active stocks of the official market would seem a more promising course of action, but is not permitted by the *Règlement*.
3. The relevant rules of the brokers' association for this method of dealing proved too strict. Burdensome regulations on book-keeping and on reporting of turnover and prices, together with restrictive requirements on the ratio of the market makers' positions to their capital, limited the market makers' freedom of action.
4. The experiment did not appeal to potential clients; they tended to be sceptical about a broker dealing for his own account.

III. OFF-EXCHANGE SEGMENTS OF THE SECONDARY
MARKET IN FRANCE

Owing to the strict monopoly enjoyed by the "agents de change", off-floor business has been unable to attain any great importance in France. Very little business is done outside the stock exchange; what there is consists of so-called "private business", block transactions, and a very limited amount of after-hours dealing.

Private business means security transactions between natural persons which have come about without the professional intervention of a third party. Transactions of this kind are not covered by the dealing monopoly of the "agents de change".

Large blocks of shares or bonds cannot usually be passed directly through the stock exchange as this would give rise to excessive price fluctuations. For this reason in France as elsewhere banks step in as brokers. The transaction must be certified by an "agent de change". If, in the opinion of the Chambre syndicale, a block of shares represents a majority shareholding, the buyer must either make a public bid or must put a notice in the official list giving the names of buyer and seller, date, price and number of shares involved. The buyer must state in the notice that he undertakes to acquire all shares offered for sale on the stock exchange during 15 business days at the same price as the majority holding.

Since 1973 the "agents de change" and certain other security-dealing firms have been allowed to buy or sell

securities traded on the Marché officiel to or from their clients for their own account outside stock exchange hours. The prices used in such transactions must be the latest stock exchange prices plus or minus a certain differential representing a purchase premium or a sale discount to cover the risk of price changes. The client giving the order must expressly ask for an immediate bargain. The broker is in principle forbidden to deal for his own account with a client on the basis of a power of attorney over the client's estate. All positions taken up for a dealer's own account must be liquidated in the next stock exchange sessions. In the interests of impartial operation the security-dealing firms are not supposed to build up significant positions in securities.

IV. ATTEMPTS AT REFORM

Attempts to restructure the market system have been prompted by the fact that a few broking houses are in dire financial straits. Apparently, one third of the broking firms are finding it difficult to cover their costs from their income from stock exchange business. An additional factor is the interest of institutional investors and banks in more efficient dealing facilities. For these reasons three committees of the Chambre syndicale are currently investigating the possibility of and the scope for a reform of the stock exchange.

One committee has been asked to examine the advantages and disadvantages of introducing a single method of dealing. The main procedures from which a choice is to be made are the word-of-mouth "criée" technique and

a computer-based "casier" method. But the chief topic of discussion is the introduction of simultaneous continuous dealing in all securities; this continuous dealing could take place partly on the floor of a stock exchange, partly in the form of exchange monitored telephone dealing as in the United Kingdom. The second committee is examining the question of whether it would be advantageous to have all securities traded for future settlement or all for cash. Alongside a uniform market for unconditional-delivery deals there could be an option market.

Finally, the third committee is investigating the benefits of a comprehensive automated or at least computer-assisted information, dealing and clearing system which could possibly dispense with the traditional assembly of dealers on the floor of the exchange and which could keep investors and their advisers continually up to date on the current state of the market as is done in America. These ideas for reforms have aroused misgivings because, if implemented, they may take away jobs of brokers and their employees thus adding to the unrest among the employees who have repeatedly gone on strike.

H. THE SEGMENTS OF THE SECONDARY MARKET
IN ITALY

I. PARTICIPANTS AND ISSUES TRADED

Official dealings take place on the country's ten stock exchanges. The stock exchanges of Milan, Rome, Turin, Genoa, Florence, Bologna, Naples, Palermo, Trieste and Venice were set up by statute. Milan is by far the most important stock exchange in Italy; in 1974 approximately 80% of official turnover in stocks and 70% of official turnover in bonds was effected in Milan (Table H - 1).

Table H - 1

Volume of sales at nominal values on the ten Italian stock exchanges in 1974 (in Lit. thousand millions) and proportion of total volume

Exchange	Stocks		Bonds		All issues	
	Lit. thousand millions	Percent	Lit. thousand millions	Percent	Lit. thousand millions	Percent
Milan	1 637	80,6	633	74,8	2 270	78,8
Rome	137	6,7	183	21,6	320	11,1
Turin	124	6,1	19	2,2	143	5,0
Genoa	78	3,9	6	0,7	84	2,9
Florence	10	0,5	0	0	10	0,4
Bologna	8	0,4	0	0	8	0,3
Naples	7	0,4	6	0,7	13	0,5
Palermo	5	0,3	0	0	5	0,2
Trieste	21	1,0	0	0	21	0,7
Venezia	4	0,2	0	0	4	0,1
Total	2 031	100	847	100	2 878	100

By law only the "agenti di cambio" are privileged to deal on the floor of the exchange ("alle grida"), where they may be represented by up to three authorized clerks. The "agenti" hold a public office ("pubblico ufficiale"). Their stockbroking activity is incompatible with the exercise of any other profession or vocation. Agenti are pledged to impartiality and are not allowed to effect any business for their own account or for the account of persons closely associated with them (immediate members of the family, officers of their firms, employees). They may not hold shares in banks or institutions concerned principally with securities business and must maintain appropriate standards of professional secrecy. Their professional activities are further guided by a self-imposed code of conduct ("norme deontologiche"). The purpose of these statutory and quasi-statutory regulations is quite clear: they are intended to make impossible from the start information risks and realization risks such as fellow-travelling and counteraction due to brokers dealing for their own account. In order that losses which are inflicted despite these precautions may be recouped, a broker must deposit the sum of Lit. 1 million when he commences business. In addition, a joint indemnification fund has been set up. This is financed chiefly from a further one-time guarantee deposit, which every broker must pay in on taking office, and from a special contract fee levied for this purpose on every security transaction. The indemnification fund is administered by executive committee, the Comitato Direttivo degli Agenti di Cambio; at the beginning of 1974 its assets amounted to about Lit. 400 million.

Although the number of brokers is supposed to be limited by the volume of sales of each stock exchange, the

actual numbers show how widely this provision is interpreted. At the beginning of 1975 there were 254 agenti di cambio in the whole of Italy, only 114 of them in Milan. These 114 employed 218 clerks with authority to deal, a figure which should be compared with the total of 169 stocks officially traded on the Milan exchange. An agente di cambio has no power to join another broker to form a single firm in order to exploit the advantages of joint operation when offering financial services and to strengthen their competitive position. Recently a few brokers have got into difficulties. In this connexion the large portfolios of securities held for own account by brokers who are supposed to operate purely on a commission basis show that they have tried to boost their earnings, which have been declining in conjunction with the fall in turnover, by stepping up their own-account dealing and by other illegal banking and financial transactions. It is therefore natural to suspect that high imputed costs of guarding against transaction risks constitute yet another factor to be added to the unfavourable basic conditions affecting investment in stocks and bonds in Italy.

Entry to the floor of the exchange is granted, in addition to the agenti, also to the intermediate brokers introducing business, especially with wealthy private clients, and to numerous representatives of banks and finance companies. They pass orders on to the agenti but otherwise have only observer status on the exchange. Outside the exchange, however, they may themselves deal, even in listed issues. Banks and finance companies make lively use of this right. Thus the large supra-regional banks have set up efficient order-crossing

systems within their organizations, some of which are computer-based. For that reason a substantial part of sales even in listed securities does not reach the stock exchange at all. Estimates vary from 25 to 75% of the volume of orders. The stock exchange's prices provide the basis for crossing.

Law No. 216 of 7 June 1974, complemented by three decrees dated 31 March 1975, brought in new provisions restructuring stock exchange supervision in Italy. This law created a supervisory authority for the stock exchange and for listed companies (Commissione Nazionale per le Società e la Borsa - CONSOB). It has its headquarters in Rome and has taken over a great many of the functions formerly discharged by the local stock exchange bodies (chamber of commerce, stock exchange delegation, brokers' association) and by the Ministero del Tesoro. There had often been difficulties over the division of responsibilities in the past.

The tasks of CONSOB include the following:

- Monitoring compliance of listed companies with accounting regulations; monitoring the publication of annual and six-monthly reports;
- Taking decisions on admission of securities to, and temporary or definitive removal from the official list;
- Fostering the efficient working of the stock exchanges;
- Public supervision of securities trading;
- Investigating the advantages and disadvantages of a uniform national securities market.

CONSOB has five members: one chairman and four other members. They are representatives of the Ministero del Tesoro, the Banca d'Italia, the revenue department, and the agenti di cambio. The fifth member is a legal expert. CONSOB has a representative at each stock exchange. The most important measure enacted by CONSOB to date is considered to be the regulation stipulating that where there is conditional forward trading or short selling collateral amounting to 90% over and above the sales proceeds must be deposited in securities or in cash.

Little is known about the number of investors in Italy. In 1970 the Finance Ministry stated, on the basis of tax statistics, that the recipients of dividends numbered 564 000. In 1974 a study of the Milan stock exchange found that there were possibly 1.8 million shareholders in Italy. This figure contains double-counting to a considerable extent. The institutional investors largely confine themselves to transactions in bonds, not least because of government investment regulations.

At the beginning of 1975 216 ordinary and preferred stocks in 200 companies (199 Società per Azioni - S.p.A. - and one Società in Accomandita per Azioni) were quoted on the Italian stock exchanges as registered shares. By number, these 200 companies represent about 0.4% of all Italian corporations (about 47 000); their share capital amounts to only about 35% of the total share capital in issue. On the Milan exchange 171 securities of 154 Italian companies and one foreign stock are quoted. A third of these stocks are inactive. It is said that there is a very much larger number of stocks

for which their issuers could apply for listing with good prospects of success but who have not as yet done so. Some of these stocks are traded outside the exchanges (see Table H - 2).

Table H - 2

Number of Italian stocks traded on the various segments of the market

Financial Center	Listed stocks		Stocks traded on the Mercato Ristretto ²⁾
	total ¹⁾ traded on exchange	traded exclusively on that exchange	
Milan	146	48	109
Turin	91	13	22
Rome	84	6	35
Genoa	78	6	32
Florence	47	4	24
Naples	34	3	18
Trieste	29	4	-
Palermo	25	2	-
Venice	19	1	-
Bologna	16	1	-

1) On all Italian stock exchanges 193 stocks of 180 issuers were listed. These statistics relate to spring 1972. Only eight stocks were quoted on all ten exchanges.

2) Unofficial dealing - which was stopped in 1975 (see section III 2). These statistics relate to the end of 1974. The corresponding figures for spring 1972 were: Milan 106, Turin 18, Rome 28. The three other markets did not then exist. In all, 120 shares were traded on the "mercati ristretti" in 1972, 14 of which were listed and admitted to exchange dealings in another city.

The official list ("listino ufficiale") is dominated by over 600 fixed-interest securities, which can be divided broadly into governmental and corporate bonds. Of the total volume of sales in bonds for the stock exchange year 1974 (12/18/73 to 12/17/74) government bonds ("titoli di stato") accounted for 8%. The remaining 92% of turnover was attributable mainly to other governmental bonds. The contribution of corporate bonds to sales is negligible. In 1974 bonds to face amount outstanding of Lit. 40 800 000 million were quoted on the Milan stock exchange. In the same year stock exchange sales at face value amounted to only Lit. 633 000 million, or some 1.5% of the amount outstanding. Obviously bonds are traded principally outside the stock exchange.

II. EXCHANGE SEGMENTS OF THE SECONDARY
MARKET IN ITALY

1. The forward market

All stocks are traded forward, usually for the end of the month. In addition, almost all convertible bonds are bought and sold on the forward market, but unlike stocks they are also subject to spot trading. Dealings in Milan begin at 10 o'clock at two large circular counters or "rings" to which the securities are allocated. The securities are divided into an "A List" and a "B List"; a former "C List" with its own ring was re-allocated to the two other counters due to insufficient turnover. Starting at 10 o'clock the opening prices ("prezzi di apertura") are established. A member of the executive committee or a broker appointed by that body and an official of the chamber of commerce call the individual securities consecutively in the order of the relevant list (call system; A call, B call, C call). After a security has been called the brokers and their representatives commence collective negotiations. They call out bids and offers ("denaro" and "lettera") to each other and, if the bid or offer is for an amount other than a round lot, the relevant quantities. Starting from the basis of the closing prices of the previous day's trading and the trend before the stock exchange opened, the participants can in this way rapidly ascertain the state of the market. As in the French dealing "à la criée" (see p. 152), a price at which supply and demand balance is established.

When the opening call is finished, at 11.10 a.m.,

continous dealing at individual prices ("prezzi durante") in forward-traded issues begins at two smaller rings. For that reason columns are provided in the official list for the day's highest and lowest prices alongside the opening and closing prices. However, it is rare for a security to be the subject of more than one individual price in a day, apart from the ordinary and preferred shares of FIAT.

From 11.30 a.m. until about 1 p.m. the closing prices ("prezzi di chiusura", "prezzi del listino") are determined, by the same procedure as for the opening prices. If there are no transactions, an estimated price ("prezzo nominale") is quoted. These closing prices are the official prices. Where the investor has not expressly requested execution at the opening price, settlement will be based on this official price. "C call" securities are called only on the occasion of the closing quotation. In addition to regular forward trading there is some conditional forward trading in a few active shares in Italy. One of the small rings is available for such dealings, which take place at individual prices. Turnover in this segment of the market is modest.

2. The cash market

All bonds are traded on a cash basis at one of the large rings. Basically the same trading procedure is used as in the opening of stock trading. However, bonds are called only once a day, so only one collective price is established each day.

III. OFF-EXCHANGE SEGMENTS OF THE SECONDARY
MARKET IN ITALY

1. Off-exchange trading in listed securities

This segment of the market covers the extensive business of the banks and the activities of commission agents and financial corporations, whether these activities be crossing of clients' orders within their own institutional network or transactions for their own account. Most of the larger banks also execute small orders outside the stock exchange. In addition, this segment includes special markets for blocks of securities and for majority and minority interests in corporations; these markets are dominated by banks. Finally, there is also before and after-hours telephone trading.

2. Trading in unlisted securities

An organized market for unlisted securities (the "mercato ristretto" or "M.R.") developed at an early stage. The Milan M.R. had its beginnings in the 1930s, though the first steps at organizing the market from the point of view of personnel and procedures did not occur until after the Second World War, as part of post-war reconstruction. More recently, "mercati ristretti" had grown up in Rome, Genoa, Turin, Florence and Naples. A total of 127 securities of 124 companies were traded at weekly sessions. By far the most important was the Milan M.R. with dealings in the securities of 109 companies and a turnover which was significant even in comparison with official trading on the Milan exchange and which

exceeded the sales on other Italian stock exchanges. All bargains were for cash.

Since the last session of the mercato ristretto in Milan on 12 May 1975 these activities have been prohibited by a judgement of the Court of Appeal. The reason for the judgement was that the mercati ristretti had assumed a semi-official character. Dealings were organized by agenti di cambio, the weekly meetings took place in a special room in the stock exchange building, a collective price was negotiated for each security by the call method, and finally a certain degree of official supervision was provided by the Comitato di Vigilanza del Mercato Ristretto - a committee of five agenti di cambio - and by a representative of the stock exchange delegation and an inspector from the Finance Ministry, who were present from time to time during trading sessions. Initially prices and turnover were announced in the official list, later in the well known financial newspaper "Il Sole - 24 Ore". The judgement was based on the restrictive interpretation of Art. 9 (1), 3, of Law No. 272 of 20 March 1913 in conjunction with the implementing regulations of 4 August 1913. Under that legislation stock exchange facilities had to be denied to anyone who participated in dealings off the floor of the exchange; accordingly agenti di cambio had to be excluded from trading on the stock exchange if they participated in such assemblies or carried out transactions for persons supporting off-floor trading.

An attack of this kind on functioning markets can be justified by reference to existing legislation. But it must be asked whether the legal basis for such action is still reasonable or whether it has been overtaken by

economic developments. The mercati ristretti had a useful function as a trial market for securities prior to their admission to official dealings. Of the eight companies admitted to the Milan stock exchange in 1974 four had previously been traded on the mercato ristretto. Furthermore, certain securities which were officially quoted on some stock exchanges were traded on the M.R. in other financial centers. The attraction of the M.R. for issuers lay in its less demanding listing requirements. Continuing interest in such trading has now led CONSOB to study the possibility of resuming trading in the old or a changed form, perhaps under CONSOB's direct supervision. In Parliament a bill to this effect has been introduced for the second time.

Since the need for trading was not affected by closing down the M.R., new off-floor markets developed spontaneously. Nineteen banks, whose shares were formerly traded on the Milan mercato ristretto, jointly offered facilities for trading in their own shares. Dealings take place every Wednesday over the telephone. The normal commission is charged. Prices and sales are published in "Il Sole - 24 Ore". The Banco Ambrosiano plays a leading role in this segment today.

A similar initiative was taken immediately after the closure of the M.R. by the well known private financial corporation "La Centrale Finanziaria" in Milan, which had already been an active off-floor operator for some time. Every day from 10 a.m. to 4.30 p.m. this firm arranges transactions for banks, institutional investors and agenti di cambio, working by telephone. Basically, "La Centrale" is prepared to make a market in all stocks previously traded on the M.R. but it tries to execute

its clients' orders preferably without dealing for own account. During the course of time it has come to concentrate on securities in its own financial group, particularly on bank stocks. Prices and sales are published daily in the above-mentioned newspaper.

In Genoa and Florence the mercato-ristretto trading is now carried on by telephone though with a greatly reduced volume. In Turin an experiment with computer-assisted handling of off-floor trading has been started; once a week the parties interested in a given issue are made known to each other through the system. Even the agenti di cambio in Milan continue to participate in off-floor dealing. In a side-room in the stock exchange building they can pin slips to a board, showing the names of the securities in which they wish to deal and stating their bid or offer. Interested brokers are informed in this way of potential counterparties without any infringement of the prohibition against participation in unofficial trading sessions. Since in some cases acceptance of a bid or offer is noted directly on the pinned-up slip, one may speak of a procedure of trading in writing. The sales of the successors to the former M.R., the banks with their telephone dealings, "La Centrale", and trade between agenti, is the same as that before the M.R. was closed down.

J. THE SEGMENTS OF THE SECONDARY MARKET
IN JAPAN

I. PARTICIPANTS AND ISSUES TRADED

As a result of American influence after the Second World War, specialized securities-trading firms - usually called "securities companies" - have obtained a central position on the secondary market in Japan, while the banks have been restricted largely to the functions of investing and channelling business to the market. The extent of their business activities is determined by the licence granted them by the Ministry of Finance. All firms are allowed to participate in secondary market transactions, most of them being empowered to do so on own account as well as for others. With few exceptions, securities companies are also allowed to undertake new-issues market transactions, at least as sellers of the new stock, while underwriting is reserved to companies with capital resources of at least one thousand million yen; less than half of the securities companies are allowed to underwrite new issues. Only securities companies may become members of a stock exchange.

Soon after enactment of the fundamental Securities and Exchange Law of 1948 the number of securities companies rose to more than a thousand. By end-1974, however, only 260 such firms existed having 1646 branches and 86 000 employees. The "big four" have a share exceeding 50% of the volume of sales for investors. Well over 90% of turnover is transacted by the 140 companies that are members of at least one of the eight stock exchanges

and which, in their secondary market business, are principally investor-commission minded. Over the past five years, their earnings from realized spreads have been equal to about 10% of their commission earnings.

Table J - 1

Members and shares in volume of sales
of the Japanese stock markets

Exchange	Number of members at end of 1974		percentage share in ²⁾ volume in 1974
	Total	of which Saitori	
Tokyo	95	12	78.4
Osaka	58	5	17.4
Nagoya	34	3	3.1
Kyoto	19	-	0.4
Fukuoka	17	-	0.2
Hiroshima	16	-	0.2
Niigata	15	-	0.3
Sapporo	12	-	0.1
All exchanges	160 ¹⁾	20	100

1) Because of multiple membership, this figure is smaller than the total of the members indicated in this column.

2) Total share volume of sales 65 thousand million shares. On the basis of total sales at market value, the proportions are rather different. On this point, cf. Table J - 4.

As Table J - 1 indicates, there are 20 member-commission

minded broking firms in addition to the 140 primarily investor-commission guided members. In Tokyo and Nagoya they are known as "Saitori" and in Osaka as "Nakadachi". Unlike other exchange members, Saitori are in principle barred from trading for own account. Trading for own account by primarily investor-commission minded members contributed more than 50% to total sales in stocks at the beginning of the 1960s; nearly all customer orders must therefore have been executed against a bid or offer of a member. In 1973 - 1975 this proportion had dropped to 22%. This sharp reduction in own account trading seems chiefly to have been the result of three supervisory measures. From 1965 on, members have been allowed to trade on own account only if customers' orders could not otherwise be executed. Further, since 1965 members' earnings from realized spreads must not be distributed except for 30%, the other 70% being transferred to surplus for five years. As a third measure, a ceiling was placed on shares held for own account; the proportion of shares held to net assets of securities companies was initially not to exceed 50%. In 1973 this ceiling was lowered to 40%.

Finally, there are two special securities companies that concentrate chiefly on linking the various exchanges. They are admitted at Tokyo and/or Osaka and the one or other firm has a special member status at each of the six other exchanges. When orders cannot be executed at one of the small exchanges owing to lack of matching orders but would appear executable in Tokyo or Osaka, they are passed on to one of these firms which then executes them there and receives special member commission for doing so. The large securities companies do not need to use this service as they are themselves

members of the Tokyo and Osaka Exchanges and can consequently transfer orders internally from the small exchanges to the latter.

Before the Second World War, unconditional forward trading, was by far the most important type of transaction. Since then, however, essentially only cash business has been transacted and settled on the third complete business day after the date of the contract. More than a quarter of all transactions, however, involve margin buying or short selling, so that despite the change-over to cash dealing, a strong forward ingredient has been retained. As in the United States, margin transactions are Government-regulated and the Ministry of Finance changes the margin requirements from time to time. In order to augment the supply of loans of money and securities for margin transactions beyond the supply by securities companies and banks, special institutions have been created known as securities finance companies. Their assets amount to a total of less than 300 thousand million yen.

Supervision of the stock market has since 1952 been directly in the hands of the Ministry of Finance which in mid-1964 set up a special department for this, with seven sections. In addition, the regional offices of the Ministry of Finance carry out supervisory duties. These bodies not only supervise the securities companies, the exchanges, the securities finance companies and the investment funds, but also some 5000 certified public accountants, as well as monitoring the disclosure of all issuers whose shares are regularly dealt in on or off the exchanges. The supervisory duties of the Ministry of Finance also, in particular, include fixing the

rates of commission of the securities companies, as proposed by the exchanges. For the periodical audit of professional participants in the market alone, the Ministry employs more than 220 specially trained inspectors. Government inspections are complemented by self regulation of the securities companies through the exchanges and through the Securities Dealers Association of Japan. The Securities Dealers Association was formed in 1973 from a merger of the regional associations; its main function has been to devise and further develop guidelines for stock market business, particularly to protect investors. It also conducts the qualifying examinations for registered sales representatives. At the present time, all securities companies are members of the Securities Dealers Association.

Although there are no reliable statistics, it can be assumed that there are at least six million individual shareholders in Japan. Every seventh household owns securities. Individual shareholders in 1973 held nearly a third of all shares in circulation (see Table J - 2). This means that their share is smaller than in 1945, when they held more than half of all shares. After the war, their holdings increased to 61% by 1950 as a result of the dissolution of the Zaibatsu and the democratization of share ownership, but have since then dropped continuously. Contrary to what was the case, e.g. in the Anglo-Saxon countries, this trend was not the result of the institutionalization of share ownership but rather the consequence of efforts by industrial undertakings, insurance companies and banks to influence, through shareholdings, the policies of other companies wherever their own interests were involved. Preventive defence against foreign influences, too,

Table J - 2

Percentage shares of various groups of investors in Japanese securities outstanding

Investor group	Percentage of	
	stocks ¹⁾ outstanding	bonds ²⁾ outstanding
Individuals	32.7	21.6
Credit institutions	17.3	72.2 ³⁾
Insurance companies	15.7	0.7
Investment funds	1.2	.
Securities companies and securities finance comp.	2.4	.
Non-financial companies	27.5	5.6
Public authorities	0.2	0.0
Foreign investors	2.9	.

- 1) Listed stocks outstanding at end of 1973: 150 thousand million shares. Of the total par value of all Japanese stocks outstanding at end of 1974 of 13.5 billion yen (1973: 12.5 billion yen) the proportion held by private persons was 35.6% (1973: 35.0%) and that held by non-financial companies was 37.2% (1973: 35.2%).
- 2) Total bonds outstanding at end of 1973, face value 36.4 billion yen.
- 3) This figure also includes the share of the Central Bank, the investment funds, the securities companies and the securities finance companies. The Central Bank's share is 2%, that of the commercial banks 26.2%.

has been a motive for this concentration of share ownership, which is called "Hojinka" or corporatization. Since corporatization leads to an increase in long-term holdings, it has not, contrary to institutionalization elsewhere, led to the secondary market being burdened with a substantial increase in large transactions. Instead, it has become evident in a certain narrowness of the market and has slowed growth in turnover.

Table J - 3

Number of listed companies¹⁾

Exchange	Number of listed companies	
	End of 1975	End of 1969 ²⁾
Tokyo	1 414	1 250 (538)
Osaka	988	862 (164)
Nagoya	472	434 (60)
Kyoto	231	228 (3)
Hiroshima	178	170 (5)
Fukuoka	238	222 (8)
Niigata	201	194 (11)
Sapporo	193	183 (11)

- 1) Companies whose shares were listed on one or more exchanges at the relevant date.
- 2) The number in brackets indicates the companies whose securities were listed exclusively at the exchange indicated. These numbers evidence the minor importance of the smaller exchanges even as markets for local securities.

According to a survey covering 70% of sales in the "First Section" of the Tokyo Exchange, the share of individual investors, excluding companies, in exchange volume at market value in 1975 (1973) was 58% (64%), that of foreigners was 4.7% (5.4%) and that of investment companies, banks and insurance companies was 7.9% (5.7%).

The shares of some 2600 companies are traded fairly regularly in Japan. At the end of 1974, the shares of 1709 companies, with a par value of nine billion yen (market value about 40 billion yen), had been listed on one or several exchanges. The number of companies

listed on the various exchanges appears in Table J - 3. The shares of the larger companies are generally quoted on all exchanges. The par value of all shares outstanding amounted to 13.5 billion yen. Of the 6200 or so bonds in circulation, with a face value of 43.6 billion yen at end of 1974, only 360 were traded on the three largest exchanges; the other exchanges do not list bonds. Further, several hundred bonds are regularly exchanged over the counter. Dealing in bonds takes place mainly outside the exchanges. Sales in bonds on the exchanges amounted to only 3% of the total volume in bonds in 1974 of 16.7 billion yen, and was largely the result of dealings in 235 convertible issues.

II. EXCHANGE SEGMENTS OF THE JAPANESE
SECONDARY MARKET

When the segments of the Japanese stock market are discussed, the obvious first point to deal with is the customary division into a First and Second Section. This division is made at the country's major exchanges - Tokyo, Osaka and Nagoya. It was introduced in 1961 when the three exchanges admitted the shares of several hundred companies which until then were being traded to an increasing extent over the counter only. Turnover had reached nearly 20% of all turnover on the exchanges. This was intended to allow investors in these securities to enjoy the fair and orderly trading procedures of the exchanges. The securities that had then already been admitted formed the First Section and the securities newly admitted from outside the exchange the Second Section. After a year in the Second Section, a share can rise to the First Section. At the Tokyo Exchange in 1974, 881 shares had been allocated to the First and 509 to the Second Section. Over 90% of all turnover on the Exchange takes place in the First Section. The round lot in both Sections has since 1972 been 1000 units, and up till then the round lot in the Second Section was 500 units.

In 1961 this distinction between the two types of stock was probably very sensible, since the securities differed greatly in quality. Today, however, these differences are slight. The divide between both Sections is largely the potential turnover of the stock, determined in Tokyo by its actual turnover (at least 200 000 shares a month) and the distribution of the

shares (3000 shareholders holding at least 1000 and not more than 50 000 shares each, with a minimum of 20 million shares publicly held. It should be noted in this connexion that the average price in Japan for listed shares is something less than 300 yen, so that these requirements mean little more than normal quotability. In the Second Section, a company can be accepted with only three million shares publicly held and 2000 shareholders. When an issue is assigned to the First Section, the exchange also certifies that the issuer has demonstrated a certain earning power and has refrained from publishing misleading information in the annual report of the company for the past five years, though in precisely this respect the exchanges have experienced some unpleasant surprises; in addition, these requirements apply also to the listing of securities in the Second Section and thus do not mark differences between both Sections. The exchanges of Osaka and Nagoya have similar if rather less stringent requirements of eligibility for the First Section. Securities in both Sections are essentially traded by the same procedure. A stock assigned to the First Section of an exchange and listed on various exchanges is not traded in the Second Section of any other exchange. The exchanges act without delay to assign a stock to the First Section or to reassign it to the Second or to delist it whenever this is appropriate according to the relevant standards. The point of this consistent but otherwise hardly meaningful allocation is not all that clear. It is not surprising, therefore, that it has been suggested in Japan to merge both Sections. The following comments therefore ignore the distinction between the Sections and concentrate on the different trading

procedures that can be observed on the exchanges.

1. Trading in major securities

The exchanges at Tokyo and Osaka make available for high-volume stocks a special segment covering eight stocks in Tokyo and ten in Osaka. The procedure adopted is the Gekitaku. The opening and closing prices are determined without the assistance of a Saitori on commencement and at the end of trading in the morning (9 to 11 a. m.) and the afternoon (1 to 3 p. m.). The stocks can be traded continuously between the opening and closing prices though all prices in this segment are essentially collective prices. It is felt that the Gekitaku procedure is particularly efficient and speedy for dealing with the large flow of orders in these top securities and leads to largely uniform prices.

In Gekitaku trading, an exchange employee calls out the securities one after the other at a special post around which the senior dealers of the member firms have gathered. As members make their bids, first the highest bids and the lowest offers that members are willing to bid on their own account or on behalf of their customers are determined. The highest bid will be a little below the lowest offer.

Then the actual trading begins. The exchange employee signals the bid and offer by hand signs and members indicate the number of round lots that they wish to take or give at one of the two prices. In order to make a deal a few traders will then reduce

their offer or increase their bid. If and when two or more bids allow a deal, this is made, but at a provisional price, let us say 172. Anyone who has made a transaction at this provisional price can be described as a provisional net buyer or as a provisional net seller, since he still has the opportunity to liquidate his provisional position wholly or partly during the collective dealing that takes place, as it is the final price and not the provisional one that applies to all deals.

Ordinarily, supply and demand will not be completely in equilibrium at the provisional price. If demand predominates, the official will quote the next highest price (173). At this price there will usually be no additional demand but additional supply is likely to emerge either because additional orders become executable or because the price of 173 is too high for some provisional net buyers; they therefore liquidate by re-offering the shares that they had hoped to purchase at 172. If supply and demand are in balance at 173, this price is fixed and applies to all transactions. It may, however, quite easily happen that more than two stages are required for the dealers at the post to feel their way to an equilibrium price or, on the other hand, that the first negotiating round leads to such a price immediately. Balance is easier to achieve than might be expected from the way the Gekitaku procedure is structured, as members are usually ready to eliminate excesses of demand or supply by slightly increasing or reducing the extent of their bids. Only the final net sales enter into the turnover statistics.

As mentioned, trading may take place in Gekitaku securities between the opening and closing prices at any time. Members deal with each other direct. However, here, too, the exchange employee in charge will co-ordinate dealings. He states the price at which in his opinion the market can continue to be cleared. If supply and demand do not balance out, he then feels his way with higher or lower prices towards the new equilibrium point and only when no further excesses are evident are further deals and a new price achieved. Exchange employees prepare the contract notes and have these confirmed by the parties.

2. Trading through Saitori firms

The bulk of listed stocks in the First and Second Sections are traded with the aid of Saitori. All orders must be passed on to the appropriate Saitori firm at the post for the security concerned. For its services the firm receives a member commission fixed by the exchange. The opening prices in the morning and afternoon are calculated by the Saitori by the Itayose method. At all other times during the exchange session, dealing can proceed continuously under the Zaraba procedure with the aid of a Saitori. Under the Itayose method, the Saitori determines a collective price on the basis of the orders in his book according to the maximum turnover principle used at many other of the world's exchanges. All buy orders that are either unlimited or which have a limit higher than the price ultimately fixed and all unlimited or lower limited selling orders must be

fully executed; all orders limited at the collective price must be served with at least one round lot, all those buying or selling orders submitted by a member firm being regarded as a single order. If the pattern of orders is such that balancing is not possible, the Saitori will attempt to persuade one or several members to adjust their volume of orders to the situation.

The Zaraba procedure corresponds to trading at continuous individual prices which is also standard practice elsewhere. As soon as an order is received which enables a sale to be made, the Saitori consummates the transaction, issues a contract note as in all other cases, has it confirmed by the parties and reports the price from his post to the appropriate exchange staff for inserting in the price indicator system. The Saitori establishes the price for individual deals. He does not negotiate with the employee of the securities company who brings him an order. If the limits of the orders held by the Saitori allow him some room for discretion, he must select a price as close as possible to the previous one. His discretion is further limited by the fact that he must note the sequence of orders - which is governed by the limits and the time at which he receives the orders - in his book and observe it strictly. Since recourse to the Saitori is mandatory - all orders, even ones that can be crossed, must pass through him - and since he may not deal on his own account, the basic neutrality of the Saitori is guaranteed. In order to prevent action by other authorized traders that might damage investors, the exchange has in particular drastically limited trading by exchange and member firm employees; they are banned

from margin transactions and may not liquidate a position established for own account on the same working day.

This combination of Itayose and Zaraba does not apply only to shares but also to convertible bonds which became important only towards the end of the 1960s and were not admitted to trading on the exchanges until 1970. Since then, they have dominated bond dealings there. Foreign bonds, too, are dealt with in this way, although with the proviso that trading time for these is concentrated in a certain part of the session, namely two periods of thirty minutes each day. This restriction applies yet more stringently to all other bonds, for which only a collective price is determined by the Itayose procedure sometimes twice and sometimes only once.

3. Trading on the exchanges without Saitori

The five small exchanges have no Saitori. The volume of trading on their exchanges does not require elaborate organization and does not support specialized, floor-commission minded firms. Only a few hundred lots are sold each day, compared with the several hundred thousand on the Tokyo Exchange. Nonetheless, procedure essentially follows Itayose and Zaraba, exchange employees taking on the functions of the Saitori, and no floor commissions being charged. Most transactions concern securities that are also listed on the main exchanges.

The interesting point with these exchanges is not

so much their procedural techniques as why they should still exist at all. Several of the small exchanges are in fact themselves wondering whether their volume is sufficient to sustain the necessary machinery. The only Exchange to be closed after the Second World War was that at Kobe, an average-sized one judged on the basis of membership. Other exchanges seem to wish to follow its example, though legal problems connected with personnel and resistance by employees make them hesitate to take this step. The Exchange of Nagoya considers entering option trading in order to better utilize its facilities. However, it appears that other exchanges will be closed in a not too distant future as the Tokyo Exchange during the last ten years increased its share in the volume of all exchanges by about 12 percentage points while the share of the seven small exchanges decreased from 3.1% to 0.9% (cf. Table J - 4).

The execution of customer placed orders on a local exchange at prices differing from those prevailing at the principal market can hardly be reconciled with the principles of investor protection even when this is done by securities companies desiring to support the local exchange. Thus, the service of the special securities companies collecting orders on the presently existing six small exchanges for execution on the Tokyo or Osaka exchange (cf. Section I) is a significant contribution for the reduction of transaction risks of investors, though this service at the same time reduces the small exchanges to institutions for the crossing of orders at the prices of a principal exchange and for the transmission of bunched order data to Tokyo

Table J - 4

Distribution of volume of stock sales on
Japanese stock exchanges for selected years

Exchange	Percentage of total volume					
	1950	1955	1965	1973	1974	1975
Tokyo	55.0	64.2	69.2	74.0	77.8	82.0
Osaka	27.5	22.2	24.6	22.0	18.3	14.7
Nagoya	6.7	5.5	3.0	2.6	2.8	2.4
Kyoto	2.8	2.2	0.8	0.5	0.4	0.2
Kobe	3.3	1.6	0.6	-	-	-
Hiroshima	1.5	1.5	0.8	0.3	0.2	0.2
Fukuoka	1.3	2.0	0.4	0.2	0.2	0.2
Niigata	1.0	0.3	0.4	0.3	0.3	0.2
Sapporo	0.8	0.4	0.1	0.1	0.1	0.1
Total volume in billions of yen	0.1	0.4	5.8	20.1	15.9	19.0

or Osaka. If it was not mandatory to execute all orders in listed securities on the floor of an exchange it would be more efficient to have the regional offices of the two special securities companies take care of both functions and there would be no need for the regional exchanges. Certainly, it would be detrimental to the securities traded on the regional exchanges exclusively if these exchanges were closed down. These securities would trade almost unnoticed in Tokyo while they receive considerable attention on a regional exchange, most likely even more attention than they could attract

in over-the-counter trading. However, it is hard to believe that the issuing companies would be prepared to pay continuing listing fees sufficient to sustain the regional exchanges.

III. OFF-EXCHANGE SEGMENTS OF THE JAPANESE
SECONDARY MARKET

1. Over-the-counter trading in listed securities

In principle, all members of a Japanese stock exchange are required to conduct transactions in listed securities on the floor of an exchange of which they are members. However, for two reasons not all transactions in listed securities are effected on an exchange. Firstly, not all securities companies are members of an exchange, and secondly, the rule does not apply to transactions of a certain volume. The first point is unimportant since non-members will as a rule nevertheless pass their orders on to an exchange; in fact, a number of these firms have jointly set up a company, which is a member of the exchange, in order in this way to participate in commissions on the fifty-fifty basis still applying amongst older firms. The second point is of some importance, however, not only in the case of bonds but also in the case of shares, even ignoring the new issues market which falls outside the scope of this study.

Share transactions involving fewer items than the designated round lot are excluded from the exchange requirement. There are two securities companies in Tokyo which have specialized in business of this kind. Other securities companies, too, regularly buy odd lots from investors but do not sell odd lots. They normally buy them at a price below the daily quotation, the amount of discount varying from one security to another. When existing shareholders are given the right to subscribe for a new issue, odd lots commonly arise and the

issuing syndicate will then be prepared, for a limited period, to handle small orders at the day's price and for the usual commission. For this, they charge the issuer a special fee. In all other cases, one cannot generalize on the commissions and prices at which small orders are executed. Odd-lot business is of small account because of its low volume. The same applies to other over-the-counter transactions in listed securities, such as special block business, take-over bids, and when trading has been suspended, since transactions of this kind are rare in Japan.

In the case of listed bonds, over-the-counter trading is, on the other hand, the rule except for convertible issues and certain foreign bonds for which the exchanges are the main market. True, mandatory exchange dealing applies to orders for government stock with face values between one million and four million yen and the same also applies to certain other issues and to convertible bonds, but exchange members can, exceptionally, discharge their obligations in this connexion by transacting such business over the counter at the exchange price and charging the prescribed rates of commission; other securities companies, too, must apply these commissions for such business.

The securities companies act for their own account when dealing with the customer in bonds off the exchange. Apart from the exceptions referred to above, they are not, therefore, bound by the exchanges' commission rules. However, they are in no way free to make their own prices. They must take the exchange prices as a basis and may apply to these only certain maximum immediacy premiums or discounts which, while increasing

with the size of the transaction, may not exceed 0.5% of the exchange price for government stock and 0.75% for other bonds.

2. Over-the-counter trading in unlisted securities

Over-the-counter trading in stocks is largely limited to Tokyo. As in the case of bonds, the securities companies act for their own account; here, however, they are free to quote and to negotiate prices. Although the number of issues traded from time to time is large, few securities have a market. The Securities Dealers Association in Tokyo records prices and volume of only some 80 stocks. Volume is at best comparable with that on the small exchanges. None of the over-the-counter securities can meet the listing requirements of the Tokyo Exchange although, in principle, no issuer is required to have his shares quoted on the exchange.

In order to be registered with the Securities Dealers Association and included in their price information service, a stock must have been outstanding for two years and have drawn dividends. The issuer's capital stock must be 100 million yen or more (listing on the Tokyo Exchange is possible as from 500 million yen). Registration must be applied for by at least two legally independent members of the Association who declare themselves willing to act as market makers. However, they do not always live up to this obligation. Additional and more comprehensive organization was therefore being sought for the execution of orders off the floor. In 1976, the securities companies formed a joint institution, the Over-the-counter Securities Company (Tento Shoken),

through which they have their orders for unlisted securities executed at prices that are as uniform as possible. This new institution, whose shareholders include nearly all the securities companies, absorbed the Tokyo Securities Dealers Association's stock information office, which has been collecting and publishing price information since 1969.

As already mentioned, over-the-counter sales of bonds are quite substantial since less than 400 of the total of 6200 bonds in circulation can be traded on an exchange. Volume in this sector has increased rapidly in recent years and by 1975 had reached 12 billion yen. The bulk of sales relates to unlisted issues. It is not surprising, therefore, that efforts have been made in recent years to improve the organization of this market.

Many securities companies are market makers in bonds. The Securities Dealers Association in Tokyo requires weekly price reports from its members on about 270 major bonds, chiefly industrial loans having a value at issue of more than 10 thousand million yen; from the reports, the Association prepares a price list published each Thursday. The Tokyo Centre for Over-the-counter Quotations was set up in 1968. It receives bid and ask information for unlisted bonds from its members three times a week. The compiled information is released to member firms. The Center also issues a weekly price list. Finally, Tokyo Stock Exchange member firms licenced for underwriting in 1973 formed a joint office (Nihon Sogo) which arranges off-the-floor deals for their securities companies like a Saitori. It probably handles some 10% of over-the-counter bond sales. There have also been plans for some time for an independent rating service.

Where transaction prices are published for unlisted bonds, the rules applying to immediacy premiums and discounts referred to in the previous Section also apply to unlisted securities. In order not to give these securities a transaction cost advantage over quoted bonds the commission rules for smaller transactions must also be applied here.

3. The Gensaki market

The Gensaki market deals mainly with bonds, both listed and unlisted. The special feature of this over-the-counter market is the form of contract it employs. Here, securities are not sold outright but transferred exclusively on the condition that the seller undertakes to buy it back at a stipulated price after an agreed period. Sales under repurchase agreements are common in other countries, too, but there they never gained the importance they have in Japan, so that they will be dealt with only here. The chief parties interested in such transactions are the securities companies, institutional investors and commercial and industrial companies.

These transactions under repurchase agreement are one solution to the problem of how bonds and, in certain cases, other securities as well, can be turned into cash when government measures such as maximum interest rate guidance or the fixing of maximum immediacy discounts or other institutional or economic factors make the outright sale of bonds very difficult and when a securities company or other firm requires liquid funds urgently. The origins of the Gensaki market may therefore

be found in the mid-1960s, when the securities companies wanted to liquidate at least part of the holdings they had taken up after intensive price-support operations. Even if no outright purchaser can be found at the prevailing conditions, a seller of good standing can still offer terms attractive to the market under a repurchase agreement and by raising the repurchase price above the spot price. Although this difference in prices can be regarded as a form of interest, repurchased securities are at times carried on the accounts at the repurchase price. This can be taken as an example of how the rules restricting the distribution of trading profits (cf. Section I) can be adapted, by accruing "trading losses" and carrying them on the accounts too, even if not openly.

The Gensaki market has grown very rapidly in recent years, as has the market for outright bond transactions. In 1975, more than half of all sales in bonds, amounting to 26.2 million millions of yen, was in Gensaki business. In that year, the value of bonds traded on the Gensaki market amounted to 14.3 billion yen. The growth of the Gensaki market might have been even more impressive if the government had not imposed ceilings on securities held under repurchase agreements.

K. THE SEGMENTS OF THE SECONDARY MARKET
IN THE UNITED STATES

I. PARTICIPANTS AND ISSUES TRADED

The immense size of the capital market and the federative structure of the country foster a multitude of forms on the securities market in the United States impeding a succinct description of its present-day functioning. In addition, the secondary market is currently in a state of upheaval following several years of increasingly rapid change. The growing importance of institutional investors and the difficulties encountered by brokers in handling the rapidly increasing volume of business towards the end of the 1960s were a harbinger of this upheaval, which brought about a number of important events and developments such as the prohibition in 1975 of the fixed commission rates that had existed on the New York Stock Exchange since 1792 and the Securities Reform Act of 1975, which codified a federal program for a primarily competition guided restructuring of the secondary market. This process is in no way complete. Accordingly, a comprehensive survey of the professional participants in the market and of the various kinds of firms dealing in securities and their function is no longer an easy matter.

Broker-dealers, both commission and spread minded, certainly continue to play a central role in the stock market, even though the number of firms and their offices and employees has dropped in recent years (Table K - 1). Many of these firms are very small and associated only indirectly with the secondary market,

e. g. by selling mutual fund investments or acting as investment agents. Trading in securities is concentrated chiefly amongst the thousand or so member firms of stock exchanges and, of course, the members of the New York Stock Exchange (NYSE).

Table K - 1
U.S. broker-dealer firms¹⁾

End of Year	Number of Firms	Number of Offices	Number of Employees
1969	4681 (622)	13 115 (4084)	366 000 (165 000)
1974	4096 (508)	10 406 (3441)	368 000 (123 000)

- 1) The figures in brackets relate to the New York Stock Exchange. They cannot be exactly compared with the totals since the latter refer to the firms registered with the Securities and Exchange Commission. Such registration was not mandatory before 1975 for exchange firms trading on the floor of the exchange only (e.g. specialists and floor brokers carrying on no business with nonmembers), which are included in the NYSE statistics. Broker-dealer firms not registered with the SEC, because they work only within one state or deal exclusively with short-term paper or government bonds, are not included in the total figures either. The number of firms not covered probably totals a few hundred.

This group includes the round dozen of national full-line firms engaged in practically all types of securities transactions and services on and off the exchange and who at the same time may also carry on commodity futures business, sell life insurance and offer general advisory services. They earn more than one half of all commissions. Full-service business of this kind is carried on by

some fifty other firms, but limited to certain areas of the United States. The large investment banking firms who also have a major stake in commission business, are also members of the NYSE, as are the firms who cater to institutional investors. Members of the NYSE certainly dominate the exchange commission business, corresponding with the position of their exchange. In addition, they obtain more than 70% of the orders for over-the-counter securities and many members are well known market makers for such securities. This applies both to market making in the normal way of business and to market making in blocks ("upstairs" market making - as opposed to "floor" market making by the specialist).

When, in the past, mention was made of members of the American exchanges, it was usual to refer to the investor-commission minded firms as commission brokers and to differentiate among the others: odd-lot dealers, floor traders, specialists and floor brokers, members active almost exclusively on the floor of the Exchange. The simple odd-lot dealer no longer exists in New York. His function has become one aspect of the services offered by others. Once a few full-line houses began in 1976, to execute small orders (orders in odd lots, i. e. less than a round lot, a unit normally representing a hundred shares) inside their own offices, and at more favourable conditions for their customers than were offered by the one remaining odd-lot firm on the exchange, the basis for the latter's operation was removed and it gave up trading in May 1976. Moreover, the exchanges have been prohibited since May 1, 1976 from fixing member commissions and the odd-lot differential, which was paid to the odd-lot dealers, was

primarily a commission of that kind. As on other exchanges, at the NYSE, too, the specialists now transact odd-lot business.

Floor traders or registered traders deal on the floor of the exchange in securities of their choice for their own account. Due to the 1964 Amendments to the Securities Exchange Act, their scope has in fact become greatly restricted so that they are less important than in the past. Now the Securities Reform Act essentially bans trading for own account and provides no statutory exception for registered traders.

Table K - 2

Assets and earnings of major broker-dealer firms¹⁾²⁾
(in thousand million dollars)

Year	Assets	Earnings		
		Total	of which	
			Commissions	Spreads
1969	24.2 (18.5)	5.8 (4.5)	2.9 (2.6)	0.7 (0.4)
1974	25.2 (22.2)	5.3 (4.7)	2.6 (2.3)	0.7 (0.6)

1) A total of 2631 firms (1974: 2005) with gross earnings of at least \$ 20 000 in 1969.

2) The figures in brackets relate to primarily investor-commission-oriented NYSE firms (333 firms in 1969).

Thus, registered traders may also cease to exist

unless the Securities and Exchange Commission (SEC) creates an exception before the new provision becomes effective on May 1, 1978. Such an exception will come about only if investigations of the SEC lead to the conclusion that the registered trader transactions are consistent with investor protection and the maintenance of fair and orderly markets.

The specialists are both member-commission minded agents with powers to consummate transactions and market makers in the securities in which they specialize. Their transactions as market makers are statutorily excluded from the general ban on own account dealing and therefore not in jeopardy, although - as will be pointed out below - working conditions will change sharply for them. Many specialists fear that their activities as agents will be largely automated and they are therefore expanding by entering into competition with their former customers and taking orders from investors direct. This tends to remove the traditional distinction between commission brokers and specialists. Unlike their colleagues at the regional exchanges, the NYSE specialists may not, however, have institutional investors as direct customers. If this restriction were to be removed, the business of the specialist would similarly find a place in the range of the full-line firms as market making in unlisted securities has already done. On the one hand, "specialist" firms could further extend the range of services they offer and, on the other, the full-line and institutional houses would probably be prepared at least to act as market makers in listed securities as well, whether on the floor or off it. At present, the major exchanges do not allow their members to effect transactions in listed

securities for their own account off the floor, however, the SEC intends to determine whether this restriction should be removed.

The floor brokers execute orders for other exchange members and are therefore member-commission minded. Since generally only the members themselves are authorized to trade on American exchanges, floor brokers are used by firms who have no or too few members on the floor in order to execute the orders they receive. Moreover, from time to time, the discretion in having an order executed by a floor broker may be significant. The agency activities of floor brokers, like those of the specialists, is also threatened by automation plans in the long term. On the NYSE, all odd-lot orders and all orders for 100 to 299 shares and also other orders from a few major firms are already passed to the appropriate specialist direct by electronic means. For the time being, however, it is the floor brokers who are really the beneficiaries of the reform since as from 1977, members of all exchanges can execute orders at any other exchange they wish. As a result, the share in total volume of transactions on behalf of members not themselves represented on an exchange may increase and so consequently will the importance of floor brokers. How the problem of access, e. g. to the NYSE for a broker who is a member only of a regional exchange, will be legally solved remains to be seen. Economically it has already been settled as a result of the unfixing of commissions - both for members of other exchanges and for non-members - and special firms already exist for correspondent business of this kind; the fee for access is freely negotiated with a member of the exchange, e. g. the NYSE. However, each exchange offers only a specific number of memberships

(seats), a practice that may be abandoned when the SEC and the exchanges legally solve the membership and access problem.

Economic access of this kind now also makes it worthwhile for the American banks to consider approaching individual investors and this may produce competition for the broker-dealer firms that could in the medium term substantially weaken their present importance. As long as commissions were fixed, and possible channels for allowing rebates over and above the jointly fixed quantity discounts were very carefully partitioned, the banks had to ask for supplements to the ordinary commissions in order to cover their own costs and could not therefore compete with the broker-dealers, except perhaps in exceptional situations, for example during the broker crisis of 1968 to 1970, when investments and deposits with brokers appeared so hazardous to many investors that they were prepared, despite the additional fees, to transact their securities business through the banks. The American banks are still not members of the exchanges nor do they deal on them directly, but they can negotiate with members of the exchanges for commissions that leave them sufficient room for the necessary supplements without thereby ending up with a decisive competitive disadvantage as against other investor-commission oriented firms. However, there have been certain legal objections to their entering the commission business on securities.

The Banking Act of 1933 barred banks and their affiliates from new issue business and from trading for own account in corporate securities. It would, however, be quite wrong to assume from this, as many have done, that the

American banks have no part to play in securities business. The banks were left with the full range of business in governmental bonds. After 1933, they further retained and extended their very important position in various investment management activities of their trust departments, which held assets of \$ 325 thousand million in 1.3 million trust accounts at the end of 1974. About one half of this amount is invested in stocks. The some 4000 banks with active trust departments either direct the resulting orders to exchange members or execute them themselves off the exchange through direct negotiation with market makers. In addition, it is generally the banks - registered shares are customary in the USA - who act as registrars for American companies and transfer title to new holders. Finally, the banks also have a strong position in custodianship and safe deposit business.

The securities business falling within this scope was too narrow for certain major banks and already by the middle 1960s they were attempting to promote services analogous to those carried on by the broking houses for private investors. Their first venture, offering shares in common trust accounts managed by banks, in order to draw full cost benefit from economies of scale, foundered in 1971 on resistance by the Investment Company Institute. This is an umbrella association of the investment companies and by bringing an action it had such offerings classified as unlawful new issue business, even though the banking supervisory authority had considered it permissible. In 1974, several major banks then proposed to their customers that certain amounts should be debited to their checking accounts each month and used to purchase a holding in shares of one or more

of the thirty best-known American industrial corporations (AIS, Automated Investment Service). The NYSE's action against the banking supervisory authority which had approved this form of dealing proved unsuccessful. The court regarded this service as a modern crystallization of the banks' traditional agency activities, which carried with it no kind of risk to the solvency and prestige of the bank concerned. The banks are now prepared to take the next step. Contrary to the AIS-purchasing of pre-selected stock via an exchange firm for a large number of customers simultaneously at predetermined times, they now also want to advertise the buying and selling of shares of any kind at the request of individual customers at any time and without any bunching of orders. The Chemical Bank in New York was the first to start a campaign for business of this kind which in the past has been transacted only reluctantly at customers' special request. The conditions now offered are highly competitive. Initially, the bank will limit its offer to investors who had accounts with it before the campaign started. It would appear to be the intention that this restriction will be dropped later. Whether the banks succeed and can penetrate still deeper into stock trading, will depend in the first instance on Congress, which is now having this matter investigated by the SEC. The SEC Report is expected in mid-1977.

This survey of the professional participants in the secondary stock market offering related financial services is by no means complete as yet. It does not seem necessary here to mention unusual combinations or special variants of certain functions, but besides broker-dealers and banks, there are a few firms which are directly or indirectly concerned with the trading

of securities and which deserve a brief mention. In June 1975, there were about 3420 federally registered investment advisers in the United States, advising investors on securities transactions for a fee. Reference should also be made to the well-known rating services for bonds and stocks. It should further be pointed out that the clearing and settlement of securities transactions in the United States lies in the hands of various organizations who, in some cases, are independent of the exchanges. Because of the procedural weaknesses in this sector, which became apparent in 1968 to 1970, such clearing agencies now require special registration to operate. Since 1975 registration is also required for transfer agents and registrars. This affects not only banks but also simple data-processing firms. Finally, mention should be made of the insurance companies who offer certain policies of special interest to issuers, investors and brokers. One type, for example, guarantees the servicing of one particular issuer's debt, another insures prompt and complete payment of interest and principal for certain investors, and some less well-known brokers insure the securities and the moneys of their customers in their custody against losses in the event of failure of their firm up to amounts substantially higher than those covered by the compulsory federal insurance.

This compulsory insurance offered by the Securities Investor Protection Corporation (SIPC), was created in 1970 by federal act. In principle, it covers all registered broker-dealers, who are subject to its assessments. When a firm has to be wound up, the holdings of each customer are valued when the liquidation commences and deficiencies of up to \$ 50 000 are made

good due to a customer after his share in the assets has been paid to him and the stock that can be identified as his property has been returned. Cash claims are met up to \$ 20 000 within the framework of the overall cover of \$ 50 000.

So many bodies are concerned in supervising securities business in the United States that a detailed listing is not possible here, not to mention an outline of their powers and overlaps in powers. The legislatures of all the states have, with one exception, since 1910 enacted and further developed laws to control dealings in securities (the so-called "blue-sky laws"). To enforce the law, special supervisory authorities have been set up, known mainly as state security administrators or securities commissioners, who license brokers and dealers and monitor the issues that are to be sold within the State. Although these authorities are in no way insignificant, they have been overshadowed since 1934 by the federal supervisory service, the Securities and Exchange Commission. The SEC has nine regional offices and eight branches, in addition to its headquarters in Washington. At mid-1975 it employed about 1950 persons, including 1230 in Washington. Its budget amounted in 1974/75 to \$ 45 million. Its responsibilities have continued to be extended, most recently by the Securities Reform Act of 1975. It has far-reaching powers to improve the protection of investors, to strengthen competition and to perfect the mechanisms of the securities market. Of these powers it makes intensive use. This is evidenced particularly by the flood of regulations and reports and the 400 to 500 proceedings instituted each year for violations of securities law and regulations, partly enforced by administrative

proceedings of the SEC, partly brought before the courts as civil or criminal proceedings. For all that, the SEC frequently is not involved in monitoring compliance directly but restricts itself to guiding, controlling and correcting the enforcement activities of other bodies.

These bodies are known as self-regulatory organizations. The concept of self regulation has been retained, despite criticism from Congress. It differs from the principle of self administration of securities exchanges applied in most countries by its strong commitment to investor protection and, recently, more generally to the procedural efficiency of the U.S. securities market system as a whole. Its advantages are that persons engaged in trading have the best and most intimate knowledge of the market and for that reason, at least, are particularly well suited to monitor compliance. Further, supervision from within is usually less resisted than supervision by a specialized outside bureaucracy. Finally, the "supervised" themselves participate in fixing the standards of investor protection and are therefore more likely to keep to them; the result of this process may be that professional participants in the market more frequently cross the border between strict adherence to the rule-book and fair, ethical conduct in favour of the investor than in the case of investor protection by legislation or by government regulation. It of course happens often enough that rules devised in this way are violated, but direct government enforcement does not guarantee compliance either. The more relevant disadvantages of self-regulation are that no one is eager to discipline a colleague and that any self-regulatory organization

will depend on the support of its members, particularly leading members; this leads to a tendency to unequal application of the regulations. The danger, too, that a cartel policy may be pursued under the cloak of investor protection is a disadvantage of self-regulation that is ever present.

While self regulation in the strict sense was still practised after the Second World War, the regulations have so increased since then both in number and complexity and, consequently, also the number of full-time officials engaged in this work, that one can no longer really speak of self regulation but of self-regulatory organizations or of cooperative regulation, i. e. supervision by associations or their professional institutions. Such organizations include, in particular, the exchanges registered with the SEC and the National Association of Security Dealers (NASD) acting as a supervisor of trading off the exchanges. Like the SEC, they have substantial funds for further developing and implementing the comprehensive and highly detailed provisions of market organization that they promulgate after SEC approval. Since 1975, the self-regulatory organizations have also included the clearing agencies and, to a limited extent, the Municipal Securities Rule-Making Board (MSRB). The origin of the MSRB may be mentioned. Trading in municipal securities, i. e. bonds issued by a state or by municipal authorities or their institutions, was, in the past, like that in all U.S. government securities, exempt from SEC supervision, and some 240 firms specialized solely in trading in municipals. Because of substantial abuse in this field, Congress was compelled here, too, to provide for rules for registration, examination and trading.

Since banks and other firms who were not members of one of the traditional self-regulatory organizations have a major stake in the trading of municipals, a new organization had to be created corresponding to the idea of self-regulation, at least in order to propose and adopt trading and examination rules.

Finally, the three banking supervisory authorities in Washington are becoming increasingly important as federal supervisory authorities for the secondary market - the Comptroller of the Currency, the Board of Governors of the Federal Reserve System and the Federal Deposit Insurance Corporation. A bank falling within the scope of one of these authorities must be registered and monitored by it, e. g. as a transfer agent, clearing agency or municipal securities dealer. It should be mentioned lastly that the future trading in bonds on two commodity exchanges is subject to federal supervision by the Commodity Futures Trading Commission. This separation of powers was tolerated in order to burden the individual security-dealing firms as little as possible with supervisory relations towards too many different authorities. This could, of course, also be achieved by an amalgamation of authorities, but a merger of the SEC with banking supervision, especially, seems inconceivable.

The SEC's official exchange statistics list twelve stock exchanges at end of 1975 which have been registered by it and which have, accordingly, taken on the task of a self-regulatory organization (registered securities exchanges), and one exchange which, because of its minor importance, has been exempted from this obligation (exempted securities exchange), viz. that at Honolulu,

Table K - 3

Volume of sales on registered stock exchanges
in 1975 at market value in millions of dollars
(excluding option sales)¹⁾

Exchange	Total volume	Stock volume	Bond volume ²⁾	Warrant volume ³⁾
American SE	5 968	5 666	203	98
Boston SE	1 871	1 871	0	0
Cincinnati SE	270	270	0	0
Detroit SE	197	197	0	0
Intermountain SE	1	1	0	0
Midwest SE	7 305	7 305	1	0
National SE ⁴⁾	0	0	0	0
New York SE	142 923	133 684	9 070	161
Pacific SE	5 319	5 229	60	29
Philadelphia- Baltimore- Washington SE	2 723	2 722	0	1
Spokane SE	4	4	0	0
All exchanges (as percentages)	166 580 (100)	156 947 (94.2)	9.335 (5.6)	289 (0.2)

- 1) The columns do not add to totals due to rounding. The row differences are due to rounding and to volume in rights, which though a component of total volume of individual exchanges is not specified in the table as only on the NYSE and on the PSE it did amount to more than \$ 1 million (\$ 7 million and 1 million respectively).
- 2) Sales of municipals and U.S. government securities are excluded. Bonds are traded mainly off the floor. The volume indicated reflects primarily sales of bank and industrial bonds and, to a small extent, foreign bond issues.
- 3) Warrants are options of extended or perpetual duration to buy a security from the issuer of that security.
- 4) The National Stock Exchange, New York, deregistered in 1975. In previous years its sales exceeded \$ 100 million.

where, in 1975, share transactions totalled only \$ 1.5 million. Volume on the eleven registered exchanges, excluding option volume, are set out in Table K - 3. At the twelfth registered exchange, the Chicago Board Options Exchange (CBOE), dealings commenced only in 1973 and cover options exclusively. It does not therefore appear in Table K - 3. If the value of its option turnover is compared with the total dollar volume of other exchanges, the CBOE ranks amongst the leading regional exchanges.

As Table K - 3 shows, volume on the exchanges relates almost exclusively to stocks. Table K - 4 focussing on the distribution of dollar volume over the major exchanges thus excludes bond volume as bonds are traded mainly off the exchanges. The share in total volume of individual exchanges has clearly changed in recent years. This will be discussed in the section on the stock exchange segments of the secondary stock market.

This summary is incomplete, however, not so much because of the future trading in certain bonds taken up by two commodity exchanges in Chicago in 1975 and 1976, but more pronouncedly because of the existence of the so-called "over-the-counter" (OTC) market. The OTC market extends to the whole of the new issue market (the primary market) but is considered here only in so far as it constitutes part of the secondary market. In certain segments it has achieved such a high degree of organization that, in its function at least, it is tantamount to a stock exchange, as has already been stated previously in connexion with the British Ariel System.

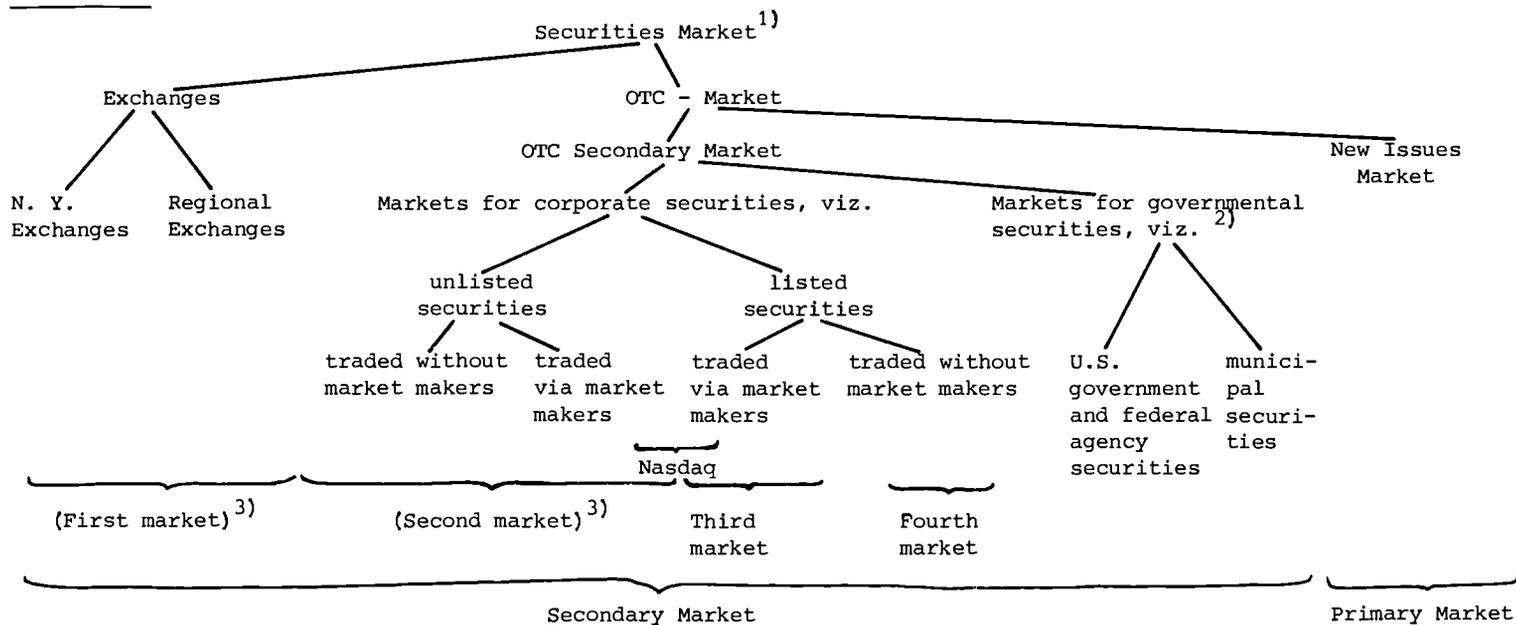
Table K - 4

Volume of sales (excluding sales of bonds and options)
in selected years and distribution over individual
stock exchanges

Year	Dollar volume in thousand million	Percentage share of the							
		NYSE	Amex	MSE	PSE	PBW	BSE	DSE	Other ex-changes
1960	45.3	83.81	9.35	2.73	1.95	1.10	0.60	0.34	0.12
1970	131.7	78.45	11.11	3.76	3.81	2.00	0.68	0.11	0.08
1973	178.9	82.07	6.06	4.55	3.56	2.46	1.00	0.21	0.09
1974	118.6	83.75	4.40	4.75	3.51	2.03	1.24	0.23	0.09
1975	156.9	85.18	3.61	4.65	3.33	1.73	1.19	0.13	0.18

This applies particularly to trading facilitated by the quotation system of the National Association of Securities Dealers (NASD), which is called Nasdaq for short (NASD Automated Quotations). On the basis of its volume of \$ 24.8 thousand million in 1975 (\$ 30.5 thousand million in 1973), Nasdaq ranks second amongst the United States' exchanges, ahead of the Midwest Stock Exchange (MSE) and the American Stock Exchange (Amex). Due to a fair number of specialized professional participants in the market and because of the differing supervisory relations, the OTC market is expediently subdivided into a segment for corporate securities and another for governmental issues, in which, for the same reasons, a sub-segment covers U.S. Treasury and federal agency securities and another covers municipal securities. The customary break-down of the OTC segment for corporate securities is not outlined here as it appears in Diagram 3.

Diagram 3 : Survey of the securities market in the United States



1) Since this study is concerned chiefly with the securities market as a component of the capital market, no reference is made to the secondary markets for money market instruments such as commercial paper or negotiable certificates of deposit, although some writers consider them an aspect of the OTC market.

2) Securities issued by foreign public bodies or international organizations are not considered separately, since as a rule they are traded like corporate securities.

3) These terms are shown in parentheses as they are not in common use and are employed only to explain the more common terms "Third Market" and "Fourth Market".

Table K - 5

Market value of stocks outstanding in the United States at the end of selected years, in thousand million dollars

Market value at end of year in respect of	1970	1973	1974	1975
1. Total listed stocks of which listed on the	680.7	763.9	537.3	718.3
a) NYSE ¹⁾	636.4	721.0	511.1	685.1
b) Amex ¹⁾	39.5	38.7	23.3	29.6
c) other exchanges ²⁾	4.8	4.1	2.9	3.8
2. Total unlisted stocks of which issued by	202.3	201.4	167.1	206.7
a) domestic companies	113.6	107.7	71.5	94.9
b) foreign companies	23.9	28.6	46.7	50.6
c) investment companies	64.8	65.1	48.9	61.1
3. Total traded stocks ³⁾	883.0	965.2	704.3	925.0

- 1) Up to 1976 no stock was listed simultaneously on both Amex and NYSE.
- 2) The market value of stocks listed on other exchanges without being simultaneously listed on the NYSE or Amex.
- 3) Stocks outstanding of companies closely held and consequently not traded have been excluded. The value of such stocks at end of 1975 was estimated at \$ 160 thousand million. On similar considerations and in order to avoid double counting, the market value of the shareholdings of domestic and foreign companies could be deducted from "Total traded stocks", i. e. \$ 140.6 and \$ 75.5 thousand million at end of 1975 respectively, so that \$ 708.9 thousand million is obtained (total stock in "circulation").

Another interesting aggregate figure is the shareholding of individual and institutional investors jointly which is labelled somewhat misleadingly "total stock outstanding" by SEC statisticians. To determine this, the figure for stock in circulation of \$ 708.9 thousand million is taken, \$ 160 thousand million closely held by investors and domestic portfolio holdings of foreign stocks traded abroad (\$ 13.5 thousand million) are added, and, in order to avoid double counting, the value of the shares of investment companies is subtracted (\$ 66.1 thousand million). This produces a figure for total stock outstanding at the end of 1975 of \$ 816.3 thousand million.

Table K - 5 contains a summary of the market value of stocks traded on the various markets. Total stocks traded amounting to \$ 925 thousand million at the end of 1975 compares with bonds outstanding of altogether \$ 846 thousand million, of which \$ 301 thousand million related to U.S. government and federal agencies securities, \$ 224 thousand million to municipals and \$ 321 thousand million to private domestic and foreign bonds. Table K - 6 summarizes the number of stocks and bonds traded on each exchange.

No comparably accurate information is available for OTC securities. Nasdaq in autumn 1976 quoted about 2700 securities, predominantly stocks. Roughly 100 of these stocks were listed on the exchanges. Further, about 5000 stocks of smaller companies are regularly traded OTC, while transactions occur or bid or ask are quoted at least once a year in the stocks of four to five times that number of companies. For bonds the picture is similar: there is obviously little trading in most commercial and municipal bonds, but precise information for this segment is lacking.

There are about 25 million individual investors in the United States. Both their number and their share in total stock outstanding have decreased in recent years. Their share of the total stock outstanding (cf. footnote 3 to Table K - 5) was 70% in 1960, 66% in 1970, 56% in 1973 and 54% in 1975. Institutional investors increased their share from 1960 to 1970 from 27% to 40%, while the share held by foreign investors rose from 3% to 6%. Institutional investors in the U. S. always include pension funds, insurance companies, investment companies, foundations and

Table K - 6

Number of stocks and bonds traded
on U.S. exchanges ¹⁾

Exchange ²⁾	Stocks ⁴⁾		Bonds ^{4) 5)}		Issuers	
	1973	1975	1973	1975	1973	1975
Amex	1423	1338	202	205	1336	1280
Boston	813	900	16	16	780	863
Midwest	697	716	13	13	610	629
NYSE	2069	2123	2101	2383	1833	1892
Pacific	1035	1051	70	85	861	881
PBW	1177	1152	59	61	1001	970
All exchanges ³⁾	4006	3907	2347	2652	3475	3404

- 1) As of June 30 of the year indicated.
- 2) Exchanges where less than 500 securities were traded have not been included.
- 3) Unduplicated count, as the regional exchanges predominantly trade securities listed on the New York exchanges, the columns add to larger numbers than totals, although certain exchanges have been excluded. Less than 450 issues are traded only on the regional exchanges, viz. 65 stocks (1 bond) on the BSE, 36 (1) on the MSE, 70 (22) on the PSE and 128 (5) on the PBW at end of 1974. Cf. Table K - 7.
- 4) Securities of domestic issuers, except for about 120 foreign stocks and some 150 foreign bonds.
- 5) Bonds issued by domestic public bodies not included.

savings banks. Quite decisive, however, are the various accounts at trust departments: in computing the above shares, all trust accounts were included amongst

institutional investors where the bank or trust company had title to the securities held (personal trusts and common trusts). Alternatively, management agency accounts may also be included (the investment decision lies not with the investor but with the bank).

The share of individual investors in securities markets is even smaller if measured by their share in NYSE volume. This is explained primarily by the higher turnover ratio of institutional portfolios, and to a lesser extent simply by data collection problems. Contrary to data on holdings, data on orders are available for all institutional investors, even for a number of smaller institutions with unknown holdings. In addition, many orders received from banks are attributed to institutional investors for the sake of simplicity. On the NYSE in 1974, 51% of volume was related to institutional investors, 23% to individual investors and 26% to transactions by NYSE members for own account. The reverse still applied in 1963, when individual investors were the dominating group of participants with a 46% share of dollar volume on the NYSE, compared with 29% for institutional investors. The share in volume of individual investors is generally higher on other markets than the share of institutional investors, which shows that institutional investors prefer to invest in securities listed on the NYSE.

II. EXCHANGE SEGMENTS OF THE SECONDARY MARKET
IN THE UNITED STATES

Traditionally, securities trading in the United States is spot trading. Stock exchange transactions in stocks are regularly settled on the fifth full business day following the date of the transaction, normally, therefore, one week later. There have been objections to fixed-date forward trading mainly for fears of large transactions rigging the prices. Certainly, each spot or cash market contains forward trading elements creeping in via credit purchases and short selling, but the extent of an investor's position in stocks and convertible bonds is clearly limited by the comprehensive federal margin requirements and by the investor's own resources confining his purchasing or selling power within narrower bounds than in other countries. In addition, the purchases on margin are permitted only in listed securities and some 800 others traded off the floor. Because of the relatively high margins, the safety of claims for cash or securities against credit purchasers or short sellers is put into doubt only if prices fall or rise very sharply and the risk of cumulative forced liquidations of bull or bear positions is consequently slight. The preference for cash transactions means that there is one market for each stock on each exchange only, even for the stocks of the largest companies, parallel forward and cash markets as found on European stock exchanges being unknown.

Since 1973, however, forward trading has become increasingly popular with investors and it may revitalize the business of broker-dealers. It is therefore

conceivable that marketing considerations will lead to further initiatives of the securities market community not only in the field of options but also in the area of fixed-date forward trading. However, the main problem in the immediate future is the integration of spot trading into a national market system. This complex subject will be dealt with below after the existing segments of the market have been described.

1. Exchange segments of the cash market

a) The segments of the New York Stock Exchange

The NYSE will list the common stock of a company only if at least one million common shares with a market value of at least \$ 16 million are publicly held. There must be at least 2000 round-lot shareholders. Further, before-tax profit must have amounted to as much as \$ 2.5 million or more in the most recent year and to at least \$ 2 million in each of the preceding two years. These initial listing requirements assure substantial activity in the stock. Even so, this activity does not always suffice for the NYSE's typical trading method. Some stocks have therefore been assigned to a special market segment. Thus, in addition to the typical round-lot trading there are special procedures for low-volume stocks. There are also special procedures, for other reasons, for blocks of shares and for odd lots, and a segment for bond trading.

The NYSE's typical trading procedure is continuous trading in the "crowd", the members assembled at

a post. At each post there are a number of "specialists", who handle specific securities, and dealers interested in a particular issue will gather round the specialist concerned. Daily sales averaging \$ 250 000 should suffice for a security to be traded by this procedure, although daily volume in the most active stocks on the NYSE runs up to four to eight times this amount. It must be noted that the trading session is long by European standards. The NYSE is open for trading from 10 a.m. to 4 p.m. The designated unit of trading is the "round lot", usually 100 shares. Continuous trading in the crowd is therefore commonly called round-lot trading. The procedure begins with a collective negotiation ("opening") in which the specialist determines a collective price for each of his stocks at which the market can be cleared and which deviates from the most recent closing price as little as possible. The specialist is expected to balance any disparity of supply and demand by transactions for his own account.

After the opening trading at individual prices commences. In principle, brokers may deal with each other in the crowd directly; the greater the activity in a security, the more frequently will this occur. Since several bids and offers are usually in the market at any time, the sequence is important in which they have to be brought together for individual deals. As on other exchanges, the highest bid and the lowest offer rank first. When bids or offers are made at the same price, the one called out first is entitled to priority. In addition, where bids or offers are made simultaneously, the largest may have precedence. In certain situations, however, the sequence rules

depart from these principles in order to put brokers' clients in a better position than exchange members, e. g. in order to give priority to an investor's bid that was called out later over an equally high bid of a registered trader.

Round-lot trading is also moulded by other rules, most importantly by a whole range of investor protection provisions frequently aiming at fellow travelling and counter-action by members. They greatly restrict own-account dealing by members by banning it in certain situations or subjecting it to onerous reporting requirements. Further, an exchange member, with the exception of the specialist or registered trader, may on his own account only accept bids or offers initiated by others; he must not initiate such trades himself. However, members may buy or sell securities for own account if they conduct themselves like normal investors and place orders on the Exchange through the usual channels without prior special contact with their floor personnel. Less than 10% of volume is attributable to own-account dealing on the Exchange by members (excluding specialists). Trading between brokers in the crowd therefore as a rule relates to customers' orders executed without the intervention of a member-commission oriented or a spread minded member.

However, in a particular stock there may frequently be not enough orders to allow round-lot trading directly between brokers. Exactly then the specialist is supposed to ensure as speedy an execution as possible, either by quoting the stock for own account, i. e. by acting as market maker, or by taking into his "book" for execution orders with limits away from the market

and other orders that are not immediately executable, i. e. by acting as member-commission oriented agent. The specialists' transactions for own account on the Exchange amount to about 13% of all purchases and sales; this would mean that a specialist was involved in about one transaction in every four in his function as market maker either as buyer or as seller. The specialists' share in members' own account trading has been on the increase in the past few decades. Thirty years ago, a specialist was to be found on one side of the transaction on his own account only in one exchange trade in seven.

As in any combination of agency and own account trading, the specialist's business involves certain conflicts of interests. The NYSE has dealt with this matter in greater detail and more clearly in favour of the investor than any other exchange that permits this combination. Further, its continuing efforts to implement these rules fully are appreciable. Reference may be made especially to the decisions of the Board of Governors, the highest level of NYSE management, in May 1976 to lend more weight to past performance of a specialist when considering what securities should be allotted him. However, such conflicts are not solved easily.

When a specialist decides whether or not to act as market maker, there is always one investor who is disadvantaged and another who is favoured. This problem may best be appreciated if a situation in the book is imagined in which the lowest offer of a customer lies at least three minimum price variations, e. g. at least three eighths, above the highest limit of a purchase

order. If the specialist receives a market order to buy and sells for own account, he certainly satisfies the buyer but prevents the customer who is down on his book with the lowest offer from being served as the specialist's offer must be even lower. The opposite applies should the specialist, as market maker, bid for a market order to sell. If he does not act as market maker, the limited orders on the book would be executed in sequence, but the market orders received would be dealt with at less favourable prices than in the former case, where the specialist deals on own account. In the latter case, he always lays himself open to the reproach that he is in breach of his duties as market maker, in the former, investors with limited orders complain that the specialist is earning a spread without risk under the protection of their orders and is preventing these from being executed in a promising market.

The various exchanges have solved this problem in different ways. In some markets, there are no market makers and on others no limited orders. The CBOE uses both, but separates the two functions of the specialist. In theory, this approach is a neat one. Market makers and investors placing limit orders both attempt to gain price advantages by making themselves available as the other side to those persons who want to have their orders executed immediately. Both are therefore competitors for immediacy premiums or discounts and it is not, after all, customary to leave the management of one's own business to one's competitors. The CBOE approach has its disadvantages, however; a particular point is that a market maker who does not know the book is taking on a greater risk than a specialist and

will consequently quote a wider spread, i. e. a bid and offer further from the putative equilibrium price.

The specialist approach may therefore be correct as far as procedural efficiency is concerned where the reduction achieved, as compared with other approaches, in the cost of immediacy altogether more than offsets the increase in the imputed cost of guarding against the risk of non-execution. Accordingly, criticism of the specialist is superficial where it refers only to the conflict of interests but it must be taken seriously where it aims at the specialist's monopoly position. If the specialist is able to realize arbitrarily high spreads despite especially favourable conditions of working because of his knowledge of the limited orders for his securities, this specialist solution is not justified. The NYSE accepted this criticism after long hesitation and since May 1976 has been prepared, for the first time in a decade, to permit competition between two specialist firms while in the past it allowed only one specialist for each security. Competition between NYSE specialists was common in the past and generally arose wherever one specialist firm's service was unsatisfactory.

In addition to trading between brokers and trading between brokers and specialists, individual prices also arise in round-lot trading through the offsetting of orders by a broker or by the specialist ("crossing"). It is worth noting that this activity may not occur quietly and the two tenders that are to be offset must be called, with the offer at least one minimum price variation above the bid. The member himself then

accepts bid or offer. The dealing price must lie within the quote then prevailing on the market, since otherwise the rules on the sequence of orders would be violated. Each member may break the cross by accepting either offer or bid.

The NYSE provides for a special procedure for inactive stocks ("cabinet dealing"). They are not traded at one of the horseshoe-shaped dealing posts but on a corner of the floor. Here, only ten shares make up a round lot. Instead of a book, cabinets are largely used with index cards on which the open orders are noted. Unlike the book, these cards are accessible to all members. Anyone who finds a suitable order goes to the appropriate specialist for execution. Special rules apply here, too, to trading in odd lots, for example the specialist's customary delivery period is extended to a maximum of two weeks.

Owing to the institutionalization of share ownership, block transactions have become common. At the NYSE, a "block" means 10 000 shares. Even in the early 1960s, it was generally possible to execute orders from institutional investors by round-lot dealing. Then, the quantities involved were probably lower. However, the rules of the NYSE were already making provision for special forms of transaction for the purchase or sale of a block by a single party - exchange acquisition and special bid, and exchange distribution, special offering and secondary distribution. However, the disadvantage of these procedures to the initiating party was that it had to pay at least twice as much commission as for a transaction of the same size in round-lot dealing, while investors appearing on the other side could generally

trade commission-free. Further the process for such transactions is precisely laid down. Because of their cost and inflexibility, such procedures are consequently used but seldom. Nor shall we consider them in detail. Their share of NYSE volume is less than 1%, while total institutional block transactions amount to 15 to 20% of NYSE volume.

Nonetheless, these procedures, with the exception of secondary distribution, employed two features which are essentials of present-day block trading, first, the special effort by broker firms to assemble sufficient orders on the other side and second, execution of the overall transaction as a cross on the NYSE. On both points, the modern block transaction differs substantially from the special forms of earlier times. First of all, the special effort is no longer focussed on the mass of individual investors but on a few institutions and other broking firms, and secondly, the cross no longer takes place within the current bid.- ask spread of the round-lot market but at a price outside it. Further, the initiating side today generally leaves execution of the block transaction to a specialized firm at the NYSE which is registered with the Exchange as a block positioner.

The NYSE provided for the block positioner in its rules in 1972 and gave him special rights and obligations. However, the business of the block positioner had by then fully developed as a reaction by institutionally-oriented member firms to the increasing volume of orders from their customers, in exactly the same way as a hundred years earlier the specialist was not created by the Exchange but appeared spontaneously

in response to the need for dealers to be represented at various markets after the NYSE had ceased calling securities individually one after the other in favour of simultaneous, continuous trading of all securities. The block positioner is also known as the "upstairs market maker", as opposed to the floor market maker, the specialist. If these descriptions are not in fact quite appropriate they do point in the right way. The block positioner is agent and dealer in a similar way as the specialist at opening, even though he does not limit himself to dealing in only a few securities.

His function is best explained by looking at a hypothetical sale of a block of stock worth at least a million dollars. The block trader with a member firm carrying on institutional business and registered as block positioner will normally receive orders of this size only if he guarantees execution to the institutional investor at a minimum price, at which his firm is prepared to take up the block as "market maker" or, better, "positioner" on own account. He usually suggests to look for buyers at higher prices. If the client agrees the trader confidentially contacts other institutions and the block traders with other firms that he knows or suspects are interested in the stock, until he has obtained sufficient orders to buy. This process is called block assembling, so that he may also be called a block assembler. Frequently, the orders obtained prove inadequate and the firm will decide to take up the excess shares, on average about one quarter of the shares involved.

Since crossing the block off the floor would violate

NYSE rules, the firm's floor member is notified thereafter. Hypothetically the floor member may do the following. He goes to the post where the stock is traded, asks the specialist for the bid, accepts it straightaway, immediately calls another, substantially lower bid for the whole of the block and a corresponding ask a minimum variation above and accepts the latter. This is done in five seconds or less, so as to allow no one to break the cross.

This rough and ready course of action formally constitutes a correct cross, but has never been the rule and since 1972 has even been in conflict with the NYSE regulations. The Exchange would at least like to see all those orders to buy executed which are unlimited or limited at the price of the crossing or at the pre-existing bid or at any price in between and which are held by the specialist or by members in the crowd, in order to protect such orders against non-execution which would offend the investors who placed them.

However, there is a different and even more convincing point of view. The conditions offered by a block assembler may not appeal to those contacted. They all may have declined and then they sent their orders to the Exchange direct, so as to acquire the shares yet more favourably if the block is to be crossed at something less than the price offered them. There is certainly no reason to protect such orders against non-execution. The NYSE rules in fact provide for the block positioner intending a sale first asking the specialist how much he wishes to buy at the various possible crossing prices for himself and for the book. He will

then try to meet these requirements; orders coming in later will not be protected. The cross thereupon becomes the finale to a special collective negotiation, in which the block assembler's orders and all the orders to buy existing in the specialist's book at a certain time are executed if limited at the crossing price or above. This price is consequently also called the clean-up price.

If the block positioner does not put this question to the specialist, he must meet all orders to buy before he can increase his position and must then in any event make 5% of the block or 1000 shares, whichever is greater, available to the specialist. The purchase of a block is subject to corresponding considerations and rules.

In the case of blocks worth about half a million dollars, the special function of the block positioner is not always perceptible. It may happen in such cases that the specialist comes up with the other side by using the orders on his book, by bidding for his own account and by asking other members known to him for assistance. This may be sufficient to cross the block at an acceptable price or, at least, prevent the block positioner from looking for an interested institution "upstairs". However, here, too, a collective price, that normally lies outside the quote existing up till then, interrupts the sequence of individual round-lot trading prices and renders the special nature of block trading visible.

Block positioning is profitable primarily because of the commissions involved. The NYSE specialist is not allowed to have his own corporate and institutional

customers in order to ensure that he attends to his duties impartially and uninfluenced by material inside information which he might obtain from such clients. He is supposed to be on equal footing with his clients at least as far as corporate information is concerned. No one can therefore expect a specialist to be prepared to carry block positions as he cannot have institutional customers and thus receives a small fraction of the total commission only, in the case of a cross much less than even the full member commission which he could collect if he himself crossed the block. Thus, not surprisingly, the specialists participate for own account less in block trading than they do in round-lot trading. The larger the block, the lower their participation.

The specialist must therefore be complemented as a market maker by the block positioner. This also applies to the specialist as agent, since agency costs on blocks tend to be lower than those of positioning the block and since the specialist has no means at his disposal either on the floor or off it for active, economic block agency because of the range limitations on institutional clients. The evolution of a market segment for block trading with special participants and procedures as a response to institutionalization therefore seems sensible but primarily to have been occasioned by the range regulations that protect specialists and block positioners against mutual competition, although the necessary cooperation might jeopardize the intended effect of limiting the range. A few full-line houses would most likely combine both functions under one roof if the restricting regulations were rescinded. Recent developments in odd-lot trading point in this direction.

For small orders and for dealing in odd lots a special and highly refined procedure has existed at the NYSE for the best part of a century, since the individual negotiation of individual prices for such orders would give rise to transaction costs quite disproportionate to the value of the securities transferred. Instead of executing all such orders in a special collective negotiation at a collective price, as is customary on some European stock exchanges, the NYSE prefers individual execution but the prices for these are not negotiated but simply derived according to the type of order from the bid, offer or price prevailing in the round-lot market. The rules of the NYSE provide about a dozen different standard orders for odd lots. For example, anyone who places an order to buy "on offer" will obtain execution at a price lying at a so called odd lot differential of one eighth of a dollar above the offer or ask of the stock prevailing on receipt of his order at the Exchange, irrespective of whether a round lot was traded on the offer or not. The shares are supplied by the odd lot dealer. He adjusts his position by round-lot transactions if buy and sell orders in a security do not balance.

This derived pricing of odd-lot orders has greatly facilitated the automation of odd-lot dealing from receipt of orders by member firms to dispatch of the confirmation. This automated system for odd-lot dealing was operated by Carlisle DeCoppet & Co., the only pure odd-lot dealer still existing in the 1970s. Then in October 1975, the largest member firm at the NYSE, Merrill Lynch, Pierce, Fenner & Smith Inc, began to bypass this odd-lot dealer by bunching all odd-lot orders received before Exchange hours and executing

them at opening without demanding the odd-lot differential from the customer in addition to the investor commission. Merrill Lynch's further plans to execute odd-lots off the floor on rationalization grounds and to act off floor as odd-lot dealers for the firm's customers without asking for a differential was rejected by the NYSE but was supported by the SEC. Merrill Lynch put their plans into effect in January 1976. Consequently, Carlisle DeCoppet lost one quarter of their turnover and after much hesitation decided to give up odd-lot business and to sell their trading system to the NYSE for \$ 3.5 million. Since May 1976, the function of odd-lot dealers has been taken up by the specialists in the securities allotted them, as had long been customary for cabinet stocks at the NYSE and on the other American exchanges. They do charge an odd-lot differential of one eighth of a dollar on all transactions other than at the opening. In July 1976, one other large member firm followed Merrill Lynch's initiative.

Trading in bonds on the NYSE amounts to only 6.3% of total volume at the Exchange, as Table K - 3 indicates, although the market value of the bonds listed amounts to nearly half of the value of all NYSE listed stocks. This disproportion is explained in part by the lower rate of turnover of bonds as compared with stocks. In addition, bonds are traded primarily over the counter. Contrary to the situation in stocks where it is mandatory for members to trade on the floor, bonds have long been subject to only a very mild form of this requirement which applies only to industrial and foreign bonds. Trading in what are called free bonds or active bonds is conducted almost exclusively

by the few floor brokers who deal in bonds only and are consequently called bond brokers. These brokers deal with each other without specialists and are aptly called the "free crowd". Round-lot trading rules apply with certain modifications, e. g. as to the sequence of orders. Over 2000 of the 2600 bonds listed on the NYSE are rarely or never sold and are called inactive bonds or cabinet bonds since the bond brokers write orders received for such securities immediately on index cards and file them in a cabinet. Where two orders match, an Exchange employee passes them to the bond brokers concerned for execution. Cabinet bonds also include all U.S. government bonds, all municipals and all foreign loans. Transactions in U.S. government securities are settled regularly on the first business day following the trading date, contrary to transactions in other securities. All cabinets for bonds are to be dispensed with in spring 1977 and orders will then be transferred to the NYSE over the Exchange computer system. Dealers can read orders off display screens at the Exchange. In October 1976, 235 cabinet bonds had already been transferred to this filing system, which is known as the Automated Bonds System.

b) The market segments of the American
Stock Exchange

The American Stock Exchange (Amex) is often regarded as a department of the NYSE, as the segment of the market complementing the NYSE from below, as the half-way house for shares of expanding companies on their rise from the OTC market to the NYSE. This interpretation is supported by the Amex listing standards. Requirements as to number of shares publicly held, round-lot shareholders and profits amount to 40% of NYSE requirements and other criteria are relatively less stringent. Conversely, the NYSE criteria for delisting a stock are so framed that a stock to which they apply can usually pass over to the Amex. Since 1911 - when Amex was still called the New York Curb - it has not been possible to deal in stocks on the Amex which are listed at the NYSE, and vice versa.

In 1962, the Amex itself was complemented from below by a third New York exchange, the National Stock Exchange (NSE), which listed successfully securities that did not meet Amex requirements. The members of the Amex and the NSE are predominantly NYSE members. If a share qualified for the "senior" Exchange and was listed there, it could no longer be listed and traded on its previous market.

This listing policy proved to be a disadvantage both to Amex and to NSE. On the one hand, the stocks of the smaller companies seemed little suited to institutional investors while the contribution of such investors to exchange volume has increased

sharply in recent years. On the other hand, the NASD improved the organization of the over-the-counter market considerably in 1971 and has made great efforts to persuade companies not to seek a stock exchange listing backed up by the lower initial and continuing listing fees of Nasdaq as compared with the NYSE and Amex. Both developments have harmed the two smaller New York exchanges. The NSE stopped trading in 1975. Contrary to the development at other exchanges, the number of stocks and issuers on the Amex fell (Table K - 6), the share of Amex listed securities to total securities in circulation declined (Table K - 5), and in terms of its share in the dollar volume of all exchanges the Amex in 1974 lost its traditional second place to the Midwest Stock Exchange.

The Amex did not take these reverses lying down but pursued various plans to improve its position. While its efforts to admit foreign companies not fully meeting SEC disclosure requirements came to nothing, the SEC approved the Amex option trading programme which began in 1975 and has since contributed substantially to turnover. Similarly in 1975, the Amex produced an independent, attractive programme for dealing in government bonds. Finally, the Securities Reform Act proved advantageous to the Amex by causing the SEC, in May 1976, to classify the New York listing policy as restrictive to competition and requiring it to be changed. In August, the first issuer, Varo Inc., decided to continue its listing on the Amex after its stock had been listed on the NYSE. In the meantime, other companies have followed Varo's lead.

The trading procedures at the American Stock Exchange are substantially the same as those at the NYSE. This applies particularly to stock trading. Round lots are, as on the NYSE, traded continuously in the crowd and through specialists. Since the average turnover per security on the Amex is lower than on the NYSE, specialists here are even more the focus of trading and participate on own account at least in every third transaction. Odd-lot trading has here long been in the hands of the specialists, but, as on the NYSE, has been handled increasingly by the major member firms since early 1976 - i. e. off the floor. Block transactions are by no means as important as they are on the NYSE, since the stocks listed on the Amex, with an average market value of \$ 22 million per security at the end of 1975 as against \$ 323 million on the NYSE, frequently cannot offer the market depth that institutional investors require. The Amex has therefore remained a market primarily serving individual investors.

Although there are certain differences in trading methods and rules compared with the NYSE, they are not particularly significant within the context of this study. There are, however, several appreciable differences in bond trading. First of all, all bonds are assigned to specialists, although the Amex also has provisions for cabinet trading. Secondly, the Amex - as indicated above - has since 1975 had a special procedure for some 250 Federal government and Federal agency bonds, namely trading through a so-called U.S. Government securities dealer on the floor of the Amex. Although, unlike his namesakes outside the Amex, he is a specialist obliged

to buy or sell as a market maker such securities with face values of \$ 1000 to 99 000. Further, unlike an ordinary specialist and more like an odd-lot dealer, he bases his prices on those of the main market. For this reason he is linked direct with the leading OTC market makers. This unusual arrangement is allowed by a special Amex rule. For this segment of the market there is also a special clearing system that dispenses with the necessity for physical handling of the securities because it is based on entries in the books of the Federal Reserve Banks. In this way, it was possible to substantially reduce the transaction costs for government bonds, which in the past had proved prohibitive for small and medium-sized investors. Many investors have begun to use this new Amex service.

c) The regional exchanges

The regional exchanges, as Table K - 7 shows, have virtually no significance as principal markets. The table sets out the securities, and their market values, that are traded exclusively on exchanges outside New York, i. e. on those of Boston, Cincinnati, Detroit, Spokane and Honolulu and on the Midwest Stock Exchange in Chicago, the Pacific Stock Exchange in Los Angeles and San Francisco, the PBW Stock Exchange in Philadelphia and the Intermountain Stock Exchange in Salt Lake City. Unfortunately, there is no corresponding information on volume. Some impression may be gained from a comparison. An adequate idea of the significance of the regional exchanges as principal markets for securities will be obtained if one imagines the stock trading on the Copenhagen Stock Exchange distributed over nine different exchanges.

The decline of the regional exchanges set in during the Depression, when numerous securities disappeared from the quotation lists. It was speeded up by regulatory changes. While the issuers of exchange quoted securities were exempted from State supervision under a number of "blue-sky laws", the more demanding provisions of the new Federal legislation affected precisely these companies. The listing of a security on an exchange made the issuing company subject to the provisions of the Securities Exchange Act of 1934 on periodic disclosure, on proxies and on insider trading, which went beyond what had been hitherto required under the admission conditions of regional exchanges. Further, the Securities Act of 1933 stopped new issues from being introduced on the exchanges, i. e. it prevented

Table K - 7

Securities traded exclusively on regional exchanges

Securities ¹⁾	End of year	
	1973	1974
<u>Common stocks</u>		
Number	246	271
Market value in \$ million	2809	1947
<u>Preferred stocks</u>		
Number	126	131
Market value in \$ million	974	814
<u>Bonds</u>		
Number	32	41
Market value in \$ million	501	488
<u>All securities</u>		
Number	404	443
Market value in \$ million	4284	3249
(as a percentage of the market value of all quoted securities ²⁾)	(0.48)	(0.41)

1) Excluding U.S. government and municipal securities. Bonds issued by foreign entities are not traded on the regional exchanges, but five stocks from such sources are traded on the PSE and two in Honolulu, having a market value of \$ 97 million at the end of 1974.

2) Corresponding percentages relating to stocks only were 4.1% for preferred stocks and 0.38% for common stocks at the end of 1974. The corresponding figure for bonds only was 0.19%.

the exchanges being used as primary markets. These laws may have established a trend amongst issuers either to seek a listing on the New York exchanges or to have the securities traded over the counter. However, this trend continued after the Exchange Act was amended in 1964 and the said provisions were extended to OTC companies who have assets exceeding \$ 1 million and issued at least one class of equity securities (e. g. stocks, convertible bonds) held by 500 or more investors. Although companies likely to be listed on a regional exchange generally meet these criteria, the trend in number of stocks quoted exclusively on the regional exchanges has continued downwards though slowing down since 1964. There were more than 1000 such stocks before World War I compared to 400 in recent years.

It is therefore obvious that other factors have to be sought to explain why the smaller companies find the regional exchanges so unattractive. We might refer first to the improvement in organization of the OTC market. Developments, particularly in telephone and telex facilities, have improved communication substantially between stockbrokers and reduced the need to hold meetings to deal in securities of local interest. This need probably largely explains why more than thirty regional exchanges still existed in 1935. Regulation of the OTC market by the NASD may also have played a part. A second fundamental factor is the sphere of interests of the broker-dealers who transact new issues business for smaller companies locally or regionally. After the issue, they can receive the mass of orders for the securities placed by them. If they decide to become market makers in

such securities, they need not share the potential spreads or commissions from such orders with a specialist or with anyone else. Furthermore, they can attempt to affect investor behaviour and the profitability of their trading positions through reports and analyses on such securities in ways beyond question. True, the risk of unfair guidance of investors is imminent, but even a broker-dealer who acts impeccably, is hardly likely to advise an issuer to seek a stock exchange listing before the security has attracted widespread investor interest and keenly competitive market makers.

The regional exchanges are therefore, today, primarily competitive markets, sub-markets for securities listed on the New York exchanges. Well over 90% of the volume on regional exchanges relates to securities whose principal market is at New York. The role of a sub-market has chiefly come to them spontaneously. The major regional securities were listed in New York but were still traded regionally (dually listed securities, dual trading). There has been local interest in other widely held New York listed securities for decades and, consequently, a local market for them, though their issuers never applied for a local listing (multiple unlisted trading). It was natural for the larger regional brokers to become members of the New York exchanges. The technique of continuous trading was copied from New York and the local prices were checked against if not derived from those reported from New York by ticker tape. In other words, odd lots and smaller round-lot orders were traded locally, on a regional exchange, for the sake of efficiency, at New York prices. The customer suffered in principle

no disadvantages compared to a New York execution and the broker saved on costs.

The Exchange Act left to the SEC the decision as to whether an exchange could get involved in the multiple unlisted trading of additional securities. The SEC permitted multiple trading in order to maintain at least a few regional exchanges. However, towards the end of the 1930s it temporarily required that the regional exchanges establish prices based on orders received instead of simply using New York prices. Since then, several regional exchanges have included a provision for their market makers that either their bid or their ask must or should be better than in New York and they are attempting to contain within very narrow limits price differentials as against New York that are unfavourable to investors. In 1941, the SEC blocked an attempt by the NYSE to compel its members to give up trading on the regional exchanges. It was not least these measures by the SEC that enabled the regional exchanges to maintain a 6 to 7% share in the volume of all exchanges through two decades, increasing it to 8% in the 1960s and to over 11% quite recently.

One important reason for this growth of the regional exchanges is the increasing importance of institutional investors, whose interests they met in a variety of ways. Firstly, they allowed certain commission rebates that New York exchange members were not permitted to give. Later, they admitted institutional investors themselves as members of the exchange so that, in this way, the ban on rebates could be circumvented; these opportunities for institutional investors to

deal on the exchange on their own account either themselves or through affiliates, were, however, restricted in 1973 and will be completely forbidden as from 1978. Such arrangements have become less important as a result of the gradual unfixing of commissions, beginning in 1971 with the investor commission on that part of orders that exceeded \$ 500 000 and, in 1972, with that part exceeding \$ 300 000; in 1975, exchange fixing of investor commissions was banned as was, in 1976, that of member commissions.

In addition, the regional exchanges also offered favourable terms, apart from commission, for introducing block business. On the one hand, the transactions did not appear on a New York ticker and therefore caused less reaction, while on the other, the exchange member need take no account of the specialist when crossing a block on a regional exchange, so that the profitability of block assembling is not affected by the level of orders held by the specialist, as is the case at the NYSE. The former benefit was superseded in 1975 by the consolidated ticker tape, while the second is threatened by the central limit order book (CLOB). Both these elements of the National Market System are dealt with in Section IV.

A second factor for the growth of the regional exchanges was their open-minded attitude towards foreign firms dealing in securities whom they admitted as members even when the latter were subsidiaries of foreign banks. However, owing to an SEC decision of 1976, the New York exchanges may no longer exclude the subsidiaries of foreign firms from membership.

The regional exchanges will therefore lose their attraction for such members and also for institutional investors. It is open to doubt whether they can maintain their share in volume at 11%. The regional exchanges will in future have to rely less and less on competitive advantages of a regulatory nature, apart from the New York transfer tax on shares. Certainly, the regional exchanges have largely created these advantages themselves, however, further successful action of this kind seems unlikely.

Accordingly, the regional exchanges will in the future have to depend mainly on the third factor on which their growth has been based - their ability to make headway against the New York exchanges through further innovations in their services for members and through competition between members. The Midwest Stock Exchange especially has distinguished itself in this direction. Continuously and sooner than other exchanges, it took steps to modernize its arrangements for settlement and established an order switching system.

The spreads quoted by regional specialists in the 650 or so New York securities traded on the MSE are often narrower than on the principal markets and changes in these quotes become evident on the display terminals at the offices of broker-dealers more rapidly than those of other exchanges as the MSE has bids and asks collected at shorter intervals since the end of 1975. The MSE finds some additional support in its location in the second largest financial centre of the United States. The Pacific Stock Exchange is also favourably located and further benefits from the time-zoning. It is primarily their competition as organizers of

advanced markets that adds importance to the regional exchanges despite their relatively modest volumes. Furthermore, the initiatives of the regional exchanges as self-regulatory organizations have enlivened and advanced the debate on stock exchange policies.

2. Exchange segments of the forward market

a) Option exchange markets

Up to 1973, options in the U. S. were traded off the exchanges only. Standard contracts for over-the-counter trading of options are provided by the Put and Call Brokers and Dealers Association in New York, which has some 20 members who specialize in option trading and who receive, mainly via other brokers, orders from buyers and writers of options. A NYSE member firm, usually the writer's broker, guarantees the option. As in all other countries, the striking prices of new contracts fluctuate with the price of the underlying security on the cash market, and the period of time within the option may be exercised (usually 35, 65 or 95 days or 6 months and 10 days) begins on the date of the contract.

The Chicago Board of Trade, the world's largest commodity exchange, where in former years securities were traded as well, has been working on plans for exchange trading of options since the end of the 1960s. In 1972, it established the Chicago Board Options Exchange (CBOE). Trading commenced there late in April of 1973. The Board of Trade has invested

§ 2.5 million during the CBOE's five years of development. The CBOE's success has been astonishing. The number of its members rose during the first three years of trading from 400 to 1300, while the price of a seat, initially \$ 10 000, increased tenfold. By the end of 1974 the original trading floor had to be given up, as it had become too small. The market value of the options sold is already equal to the dollar volume of sales on the major regional exchanges and many times the sales ever achieved by the Put and Call Brokers and Dealers Association, although so far dealings have been restricted to calls on barely 90 stocks. However, opportunity for further expansion is limited. The number of American stocks suitable for option trading on the Exchange is estimated at a few hundred at the most. Option sales in additional securities is likely to be relatively small and puts do not attract investors as much as do calls. In 1977, puts are due to be traded on the floor but the SEC has not yet given its approval and a decision has been postponed repeatedly. The success of exchange trading of options is also reflected in the fact that the Amex and other exchanges hope to stabilize their volume by adopting option trading. In 1975, the Amex and the PBW started dealings in calls, the PSE doing so in 1976. The Amex was eager to follow the CBOE as early as 1973 but was blocked by the SEC. Option trading at the Amex covers 60 stocks and it is hoped to extend it to 100 stocks and several government bonds; at the PBW, calls are at present traded on 27 stocks and at the PSE on 20 stocks. Trading of options on a particular stock on more than one exchange has been permitted recently. The NASD, too, is planning option trading in major OTC securities through Nasdaq.

Finally, even old established markets such as the exchanges in Amsterdam and London and the NYSE wish to follow the example of the newly-fledged CBOE.

The CBOE's success is based primarily on its option contract and on its well grounded and efficient trading procedures. Although the CBOE option contract is concluded between the writer and the buyer, and the former receives the option price from the purchaser, the writer does not remain contractually linked to this specific buyer throughout the duration of the option. Instead, the Options Clearing Corporation (OCC) is the issuer and obligor on every option outstanding and its obligations are backed up by the obligations of writers to the OCC, and the buyer obtains option rights only as towards the OCC and not towards a specific writer. This removes the need for an additional guarantee and the writer becomes independent of the buyer. Thus, similar to futures trading, the writer is free at any time to relieve himself of his obligation by an offsetting closing transaction, by buying back an option of the same class. Like the buyer, he can therefore give up his holding at any time. He need no longer await a decision by the buyer.

In order to provide an opportunity to buy an option of the same class at any time, CBOE option contracts are not for standard periods but for standard expiration dates, there being four such dates a year (the last Monday in January, April, July and October). Striking prices, too, are standardized (e. g. 25, 30, 35), contrary to traditional option contracts. Dealing in a "maturity" always starts something over nine months

beforehand, so that at least three maturities with at least one striking price each can be traded in for each security; if the price of a security moves so far from the striking price prevailing hitherto that it comes closer to a possible higher or lower striking price, trading in additional classes is usually opened having the new striking price and any of the existing expiration dates. All open classes can be dealt in up to the last trading day before the expiration date; claims arise against the OCC, circulate or expire through set-off. Consequently the CBOE approach channels all call trading in a particular security into at least three and mostly not more than twenty combinations of striking prices and expiration dates instead of spreading it over a practically unlimited number of co-existing combinations as with calls on the OTC market.

This highly flexible instrument, the substantial risks within which can be easily discerned and contained, seems on the one hand to offer private and institutional investors, as writers, an opportunity for additional profits on holdings of securities underlying options and could therefore have a positive effect on the cost of capital to such companies. On the other hand, it offers even those investors whose assets are small extremely interesting opportunities for combinations with other investments. This is not the place to discuss such combinations, but there is no doubt that their possible applications have appealed intellectually to a great number of American investors and have thereby contributed towards the success of the CBOE. It is worth noting that the basis for this success was two improvements in market organization, quite

simple in themselves, namely additional moves towards standardizing option contracts, and the unlinking of buyer and writer after the payment of the option price.

In its trading procedures, too, the CBOE went a few steps further than other American exchanges. Like the latter, the CBOE has brokers, particularly floor brokers, who can deal with each other in the crowd. As mentioned in Section 1 a), the specialist has been replaced partly by the purely member-commission oriented board broker and partly by the (purely spread-oriented) market makers. The board broker executes only limited orders on behalf of non-members. The offers and bids in his public limit order book have precedence over all other tenders at the same price. To keep the spreads as narrow as possible, the CBOE is promoting competition amongst market makers. Of 1300 members, 500 are market makers, of whom over 300 devote themselves entirely to this function. Fifteen market makers, including ten full-time market makers, work at each of the 33 posts, where they deal in all securities. The CBOE is sharpening competition between the market makers further by allowing them to conclude a specific portion of their transactions in securities of other posts, in which they do not specialize. Further, the CBOE lays down low maximum spreads in certain cases. The market makers' share in volume is 35 to 40%. While the PBW uses a procedure similar to that of the CBOE - an exchange employee, the OBO (order book official), takes the place of the independent board broker - options are traded on the Amex and the PSE exactly like stocks in the normal round-lot procedure and option-dealing powers have been granted to their specialists.

Transactions are settled through the OCC on the day after trading date. Unlike over-the-counter business, contracts are held in the form of book entries eliminating the handling of certificates. The SEC has required the exchanges following the CBOE example to make use of the OCC, so that the latter has become the national clearing agency for option business. Option prices and number of contracts sold are disseminated by a joint facility, the option ticker of the Options Price Reporting Authority. Consequently, the aims of the National Market System have already been achieved on both points.

b) Markets with fixed-date forward trading in securities

At the beginning of Section II it was implied that trading of securities on forward and cash markets on one exchange at the same time is unknown in the history of American stock markets. Traditional forms of dealing in options do not contradict this statement, if only for the reason that such business would appear reasonable as a preliminary or complement to cash business. A different view might be taken with regard to CBOE options; these calls may appear to be a very close substitute for fixed-date forward deals or for the purchasing of securities on credit. Even this interpretation, however, does not mean that there are parallel markets in the above sense as these options are in principle to be traded on other exchanges than the underlying stocks.

This may change in the near future. The NASD scheme for options dealing already points this way as does,

to a certain extent, the existing trading of warrants and of the corresponding stocks on the same exchange as adopted even by the NYSE in 1970. Until a short while ago, the SEC and the exchanges seemed to fear that options dealing in any form could lead to a fragmentation of the market for a given stock, without there being any clear price relationship between the sub-markets. This kind of fragmentation would be undesirable particularly because options are a substitute for - according to interpretation - either stock or warrant, i. e. for a financial instrument of a specific company and, unlike an additional issue of such instruments, they do not necessarily bring funds either to that company or to any other. Fragmentation could lead to issuers being disadvantaged in the issue of "proper" instruments.

Empirical research has, however, so far indicated no special effects of CBOE trading on the volume of sales of the underlying stocks (corresponding effects on the warrant market have not been investigated as yet). Accordingly, the fragmentation argument is weakened as regards CBOE options as a close substitute for fixed-date forward business and, consequently, also as regards such business itself. Nevertheless, there does not at present appear to be any advance towards a fixed-date forward market for stocks.

However, there has recently been fixed-date forward trading in the instruments of two public issuers. In the autumn of 1975, the Board of Trade took up future trading in Government National Mortgage Association mortgages and at the beginning of 1976, the International Monetary Market at the Chicago Mercantile Exchange

commenced future dealing in U.S. Treasury bills. The units of trading on these markets are too high for private investors (\$ 1 million in the case of Treasury bills) and just this indicates that markets have been created here that serve primarily to hedge positions and facilitate planning of major firms. The market is used mainly by larger banks and other financial companies. As in the case of other new services it may take years before this service is desired by and offered to a wide circle of investors. However, the initial success of this trading has led to expectations that other debt instruments will also be included insofar, as in the above cases, as this is possible without SEC approval. Because of the prime importance of stocks to pensions schemes in the U. S., future trading in stocks could be especially interesting to certain institutional investors. However, without any clear indication of the benefits of such trading, which may become evident as experience in futures dealing of government bonds is gained, the SEC is unlikely to approve it.

III. OFF-EXCHANGE SEGMENTS OF THE SECONDARY MARKET
IN THE UNITED STATES

While investors in securities traded on the exchanges can ask commission-oriented brokers to execute their orders, which the brokers can do in most cases without approaching a spread-oriented dealer, on the over-the-counter market we usually find spread-oriented dealers acting for investors. There are several reasons for this. Firstly, over-the-counter trading is not localized, unlike exchange dealing. Since there is no meeting-place, there is no opportunity to offer securities for sale at successively lower prices to a number of experienced traders or to make successively higher bids until another trader accepts it. Such auction proceedings, which most of the world's stock exchanges have raised in one form or another to the principle of market appraisal of the value of securities - the principle of establishing a price - cannot be applied to dealings off the floor. Dealers operating on the over-the-counter markets in the United States must therefore rely on a different but equally valid method of establishing the price when they wish to effect a sale or purchase. Their answer is the principle of market making. This principle has been found so attractive by many exchanges that they have included it in their dealing procedures either as an exclusive method for establishing prices or, at least, as a complement to the auction principle. In fact, no one can show better that he considers a price to be correct than through his willingness to buy or sell the security concerned in any quantity at precisely that price; wide spreads and limits on quantities are signs of hesitant judgement. In such

cases it would therefore appear preferable to negotiate with the market maker. In the past, such negotiations were often necessary and gave rise to the term "negotiated market" (in contrast to the auction market), an expression which no longer fits the modern image of the OTC market.

A second reason for the spread orientation of many dealers on the OTC market is the multiplicity of securities traded here. In many cases a single phone call to a market maker will suffice in order to buy an internationally-known stock for a client while in other cases, where there is no market maker, long and extensive enquiry may be necessary in order to bring about a transaction. Not just this multiplicity, however, but also the variations in procedure lead to differences in transaction costs. A broker-dealer may be prepared to accept a limited order to sell although there are no specialized brokers in the OTC market, nor could there have been in the past, to whom he can pass on such an order. Commission will consequently be very low in some cases and very high in others. This is why there have never been commission rules in the OTC market as there were on the exchanges. As in other countries, it is even common to avoid disclosing the commission by using net prices. In fact, not the market maker, but the broker-dealer approached trades with the investor as a principal for his own account. The NASD checks whether a "mark-up" "mark down or commission charged is reasonable. If they exceed 5% of the market value of the securities involved, the NASD will in principle question their appropriateness.

The above comments may have given the impression that there are always three parties involved in an OTC transaction - the client, a retail dealer and a market maker (or wholesale dealer). This impression was intentional. It reflects the basic pattern of a deal on the OTC secondary market. Variations in this basic pattern are, however, common. Firstly, in the case of normal transactions, e. g. through Nasdaq, the "retail dealer" will usually act as broker and charge commission. Secondly, more, or other, parties may become involved. Thirdly, however, fewer parties may be involved. Hardly any market makers pure and simple still exist; only a few houses still make markets with a few dozen traders in hundreds and, in one or two cases, in more than a thousand securities, and do not transact any other or other appreciable business in addition. On the other hand, the full-line firms have strongly expanded their trading departments. Since these firms attract not only a substantial part of exchange orders but also the mass of OTC orders, a great many clients trade direct with the market maker. Further variations in the basic pattern will become clear in the sections on the third market and the fourth market, following the comments on Nasdaq.

1. Off-exchange markets for corporate securities

a) Nasdaq

The importance of the National Association of Securities Dealers Automated Quotations, Nasdaq for short, is apparent to anyone who stops to think

how a customer's purchase order has to be executed where a security is traded by five or even ten over-the-counter market makers. They are all phoned and the market maker having the lowest ask is re-called. In the meantime, another market maker may have lowered his ask and so, on the one hand, one can never be sure whether the best price has been secured even if it proves possible to deal at the lowest offer elicited and, on the other, one can possibly after further telephone calls be faced with the same situation. It is obvious that this procedure is neither effective nor efficient. As early as 1963 the Report of Special Study contained the then revolutionary suggestion that market makers' quotes be entered in a computer system from which all or at least the best bids and offers could be ascertained at any time.

The NASD took up this suggestion in 1964 and by 1967 had with the aid of the consultancy firm Arthur D. Little developed a proposal and found in Bunker Ramo the only manufacturer willing to venture such an information system for the whole of the United States. Bunker Ramo invested \$ 25 million in the system. It started work on February 8, 1971 and at that date was able to supply more than 700 NASD member firms with quotes for 2400 stocks not listed on the exchanges. At this early stage, there were as many as 350 000 enquiries a day, the present average being more than double that number. In April 1971, after lengthy and intensive discussion, which even involved the courts, 36 listed securities were included in Nasdaq. Since May 1972 it has no longer been relevant for admission to Nasdaq trading whether a security is listed on an exchange or not.

In February 1976, NASD purchased Nasdaq from Bunker Ramo for about \$ 10 million. Today, Nasdaq data can be interrogated at some 30 000 terminals. At the end of 1975, Nasdaq covered 2598 securities for which a total of 372 firms were making markets. There was an average of six market makers per security.

Nasdaq works at three levels. At Level 3, market makers enter their quotes into the system. They can follow the quotations of all other market makers and the latter's reaction to their own quotation changes on the visual display unit of their terminal. Predictably, this improved flow of information stepped up competition and this was one of the Nasdaq effects welcomed by few market makers only; it is therefore likely to have delayed implementation of the system.

At Level 2 terminals, bids and offers can be interrogated but not, as on Level 3, entered and changed. This, therefore, is the broker or retail dealer level. If a retail trader has, for example, to buy a security for a customer, he first keys in the code for the security, then presses the "ask" key and the five lowest offers with the corresponding market maker identifiers appear before him on the display screen, the lowest appearing first. (If there are more than five market makers, the trader can also see their asks by pressing the "more" key). The trader will then generally telephone the market maker with the lowest offer and accept it. The larger market makers make the call easier and cheaper for him by providing local phone numbers in a fair number of financial centers or toll-free phone numbers. - The same applies mutatis mutandis to an order to sell.

Level 1 service of Nasdaq is intended for advisers and major investors. They do not need special terminals for this but only the customary information units. They do not have access to the quotes of specific market makers, as in Level 2, instead, they obtain the representative quotation, i. e. the median of bids and the median of asks. Since customers frequently place orders only when they have up-to-the-minute price information, Level 1 saves time for the adviser as Level 2 does for the retail trader.

The time relief resulting from Nasdaq for market makers, retail traders and consultants can more or less be assessed from the opinion of market makers that Nasdaq has reduced the number of calls to be answered to anything between a fifth or even a tenth of their number before 1971, as based on a specified number of deals. In addition, there are other benefits such as

1. the higher probability that the customer obtains execution at the most favourable price currently available, which also means an end to arbitrage between market makers;
2. the usually lower cost of immediacy;
3. substantially improved flow of information to the NASD resulting in more effective supervision;
4. direct protection of institutional investors in particular against realization risks as they can obtain market information without the help of third parties who frequently divined the investor's intentions as a result of his enquiries and thus at times bought or sold ahead of the client, and

5. a greater willingness on the part of newspapers to publish quotations and volume in OTC securities in the Nasdaq system and so reduce investors' information costs.

It is true that the newspapers do not cover all Nasdaq securities, but at least specialized publications can improve on the past by offering reliable information on volume and quotations in all Nasdaq securities.

Although the Nasdaq system itself does not permit automated trading, as does, e. g., Ariel (Section A III 1) supra), Nasdaq is more than merely a quotation system. Even before Nasdaq, securities were traded on the OTC market under certain rules as on the exchanges, namely the Uniform Practice Code and NASD's Rules of Fair Practice. In addition, Nasdaq offers comprehensive and up-to-the-minute market information and evidence of buyers and sellers of acceptable standing ready to trade - market makers in the system are subject to special capital requirements. Thus, the market organized by the NASD provides members with a service in their own offices which in the past they could secure only by going to the exchange. When a number of authors refer to the introduction of Nasdaq using the term "over-the-counter revolution", this is not only to recognize the great leap forward in the procedural efficiency of this market but especially to acknowledge that a new form of organization has resulted here which operationally gives the same service as an exchange but which for the first time in history functions entirely without a local concentration of trading and without dealers meeting together.

However, Nasdaq has further features of an exchange beyond those referred to above. They include, firstly, "authorization" or listing standards for securities. The NASD requires a security to meet at least the following requirements: two market makers dealing in it, 300 investors holding it, 100 000 shares publicly held, and the issuer having assets of \$ 1 million and a minimum capital and surplus of \$ 500 000. Special provisions apply to foreign securities. Where they are not statutorily obliged to do so, issuers must register the securities voluntarily with the SEC (cf. Section II 1 c above). Since mid-1974, the NASD has been charging both initial and annual Nasdaq quotation fees. Market makers, too, must be admitted and meet special requirements, e. g. as to capital. They must report their volume and may not quote spreads exceeding a certain multiple (a minimum of 1 1/4 and a maximum of 2) of the prevailing representative spread of a security. Even if the number of firms with Level 2 and 3 terminals is taken as an indication of the number of member firms, Nasdaq has the characteristics of a major exchange. There are some 650 such firms who together utilize more than 1100 terminals for Level 2 and 3 service. These firms include, as might be expected, the major full-line houses; other noteworthy members are foreign security dealing firms, especially the major Japanese houses, the largest American life assurance company and other institutional investors, and the three largest banks in the United States.

b) Third market

The third market is the market for over-the-counter dealing in exchange-listed stocks through market makers. About a thousand securities are regularly dealt in here. One third of volume results from the trading of 50 stocks. As mentioned in the previous section, a number of listed stocks have also been "authorized" for Nasdaq trading since 1971, these now amounting to just under a hundred securities. Thus, one trading method used on the third market was just discussed above, and the other trading procedure will be dealt with in paragraph d) below covering trading in securities not authorized for Nasdaq. We shall therefore now discuss chiefly the reasons for the existence of the third market and its impacts on developments in other markets.

The focal point of the third market are a few firms having market making in listed securities in common who are also active in various other lines of the securities business. These market makers together achieve higher volumes of sales than any of the American exchanges other than the NYSE. They were not originally exchange members nor had they anything to do with exchange members. Their aim was in fact to compete with the exchanges. In the 1960s they were increasingly successful in this. Dollar volume on the third market, measured by the sales of NYSE-listed securities, amounted in the mid-1960s to 3% of NYSE dollar volume, 4% in 1968 and about 8% in 1970, 7% in 1973 and 1974 and 6% in 1975. It is noteworthy that the third market stagnated and then started to decline in precisely the years when exchange firms were forced into greater

competition in commissions.

The two chief reasons for this success were the two freedoms of the market maker who is not an exchange member. The first was his freedom to determine his commissions or spreads on all securities, not only on listed securities, and, secondly, he was free to produce transaction services by the procedure of his choice. An exchange member, on the other hand, would in principle have had to use the exchange for any transaction in listed securities and charge the exchange minimum commissions to each non-member even if the latter was himself a broker and had obtained the orders. Although many non-members could reduce the commission load through arrangements with members or the regional exchanges, for others, dealing with a market maker on the third market remained worth-while for commission reasons. Only in 1972 did the SEC introduce a general rule by which 40% of the commission paid by the investor went to the non-member. Since over-the-counter market makers tend to offer net prices that correspond to those on the NYSE or which are better on one side of the market, a non-member who transacts with a market maker achieves the same results as an exchange member in the crowd. A few hundred broker-dealer firms probably use the third market chiefly because of this low-cost access.

Predictably, demand of these firms was directed towards the better known stocks listed on the NYSE, on which market making positions on the third market consequently concentrated. That the smaller broker-dealers frequently have to execute odd-lot orders is of little consequence in trading through market makers; after all, no attempt

is ever made to match orders. Small orders can therefore be executed exactly like any other at the bid or ask prevailing. Many market makers have long proceeded in this way and some of them waive the odd-lot differential on listed securities. The new odd-lot procedure used by Merrill Lynch was directly foreshadowed by the procedure used in the third market.

The smaller broker-dealer firms, however, are not the only ones to have for some time been interested in direct access to the market which they are denied by the exchanges, owing to the restriction on the number of members. Banks, too, can execute orders here and charge their customers competitive commissions. The third market has, in particular, opened ways for institutional investors towards low-cost transactions. Its growth therefore reflects partly the trend towards institutionalization and partly the ability of this market to adapt to institutional investors. The leading market makers on the third market early recognized the special needs of these investors. They have set up a strong capital base so as not to be daunted by the risks of carrying major positions and then used this to trade blocks with institutional investors rapidly and at prices that they could not obtain on an exchange. In this way the market makers attracted business away from the exchange. Following the example of primary dealers in U.S. government securities (see 2 a) infra), block positioning and, where necessary, block assembling was already the customary practice on the third market at the beginning of the 1960s, even though these terms were not used. At the same time, specialists on the New York exchanges were forbidden to have institutional

customers and the basis for the further splitting-up of the market-maker functions on the exchanges had therefore been laid, while the market makers on the third market today still trade blocks as well as odd lots and round lots. In 1965, more blocks of 10 000 shares and above were traded on the third market than on the NYSE, which only later was able to catch up with the third market's lead and soar well beyond it. Since 1969, electronic information and trading systems, which will be dealt with in the next section have facilitated the liquidation of market-maker positions resulting from block trading on the third market.

Due to the prestige of certain market makers several regional exchanges were eager to accept them as members. By the provisions of the Securities Reform Act, the New York exchanges, too, are compelled to cease preventing their members from trading with third-market market makers. In this way, these market makers are being integrated into the "first markets" whom they led as regards the product offered and in such substantial matters as free access to the market and unfixed commissions. Their way of conducting securities business with a distinctly competitive emphasis has had a lasting effect on the stock market policies of the United States.

c) Fourth market

Trading between institutional investors is commonly called the fourth market. This trade almost exclusively concerns listed securities. The other side is not found through a stock exchange nor does a market maker temporarily substitute the other side; the other side is sought outside the exchange and in as direct a manner as possible. The fourth market is consequently distinguished from the exchanges, Nasdaq and the third market as over-the-counter trading by institutional investors in listed securities without market makers. Other definitions are possible and could produce a systematic division of the OTC market. However, they tend to focus less on the most prominent special features of the OTC sector than on a theoretical pattern of dividing lines which intersect these prominent marks like the grid on a map cuts through towns and mountains.

When an institutional investor buys or sells securities, another institutional investor is often to be found directly or indirectly on the other side. There is nothing therefore more obvious than to try to do business with each other without the intervention of third parties, firstly to save fees and secondly to avoid the risk of fellow travelling and counter-action by all those who come to hear of a projected block transaction, by keeping this transaction to a market to which only institutional investors have access. Direct contact is a possible but seldom successful way of achieving a trade on the fourth market. Obviously, institutional sales and purchases of a stock intended for a particular period will match only by chance so

that the fourth market can consequently only fulfil a complementary role. In addition, simple direct contact, e. g. by telephone, is unsatisfactory or too expensive even for such a limited role. Better forms of communication were conceivable and have been adopted.

In 1969, two automated systems first offered their services to institutional investors - AutEx and Instinet. They still exist today. AutEx allots institutional investors a passive role since exchange members and firms on the third market broadcast to these investors the nature and extent of the transactions desired and also consummate the transactions either on an exchange or over the counter if an investor takes up all or part of the offer which has been transmitted electronically and observed on visual display units.

While AutEx, like the Block Automation System (BAS) set up by the NYSE and its most recent competitor Comstock, which offers the same service as AutEx at lower prices, amounts more to a mechanized form of block assembling than to an inter-institutional market, Instinet (Institutional Network) is precisely that and is consequently generally assigned to the fourth market. Instinet allows institutional investors in all parts of the United States to feed tenders anonymously into the system through their terminal. Tenders are either broadcast and, consequently, visible on all screens linked to the system, or are entered into the system discreetly, i. e. only recorded in the system order book for the security concerned, and are thereby shown only to those who are interested in that particular security and consequently display the order book,

a classified list of bids and offers, on their visual display units. Instead of a tender, mere interest in a particular security may be transmitted. Transactions can be negotiated directly via the Instinet terminals, which is not possible on AutEx. Transactions are settled through the Institutional Networks Corporation in New York, which runs Instinet. We need not deal with other particulars of this system here, since its British equivalent, Ariel, has been described fully above.

Instinet had 64 members in spring 1976, including the major American banks, insurance companies and pension funds. However, the institutional investors not only deal amongst themselves as the largest market maker firms on the third market also have access to the system and are active participants. Where transactions are made with these firms, they serve primarily to adjust their market-making positions. Instinet, like Ariel, charges periodic fees for its services, but also grants credits for order inputs and for deals amounting to 30% of the commission charged on the total transactions effected by a participant during a day.

The small group of so-called fourth market houses also works on similar fee systems. They help institutional investors find a suitable other side in the following way. They record an institutional customer's interest in certain securities but, unlike the block assembler or the Instinet user, do not seek an other side but simply wait until a corresponding interest is indicated. In this way, only the specialized fourth market house has knowledge of an investor's willingness to trade. A negotiator from the fourth

market firm consummates the trade by calling the two parties, who remain unknown to each other, and by negotiating price and quantity. Settlement, too, is arranged by the firm. This method of dealing has considerable advantages: there are no quantity premiums and discounts, realization risks are practically eliminated and the commission of fourth market houses lies below that of exchange firms, even after the unfixing of commissions.

d) Other markets

Over-the-counter trading in corporate securities that are not listed on an exchange nor traded with the aid of Nasdaq will be dealt with briefly below. The number of securities on this market can only be estimated on broad lines. In statistical terms, we could say that some 30 000 stocks and 10 000 bonds are quoted or traded at least once a year. For several thousand of these securities there is at least one market maker, so that he is involved in transactions along traditional OTC dealing lines. The market maker's name is also discovered by the traditional method. The National Quotation Bureau in New York each day publishes stock quotation sheets, usually called pink sheets because of the colour of the paper, and yellow bond quotation sheets. They normally list the security, the name of the market maker(s), with telephone numbers and quotes for the previous day. These sheets are the bible of OTC dealers. On several hundred pages a day, they list some 15 000 securities (including Nasdaq securities). A quarter of these are bonds. Yet more comprehensive are the corresponding cumulative

publications published each month in book form. Practically all OTC retail firms subscribe to the sheets and can thereby assist investors interested in a security traded in this segment.

If there is no market maker for a security, it may nevertheless be found on the sheets, since they report bids or offers and mere indications of interest as well. If nothing is to be found there, a broker-dealer could himself insert listings in the sheets through the National Quotations Bureau. However, he must then pay the relatively high annual fees for insertion privileges provided that he and the security in question are accepted by the Bureau; there is a kind of admission to the sheets. In addition, there are SEC-requirements to be met by anyone who publishes tenders or quotes or who wishes to use a quotation service for corporate securities. In order to prevent dealings in worthless securities there is a requirement that sufficient information is available on the stock and its issuer, whether from the SEC or from the broker-dealer himself who has the security carried by a quotation service. Besides the sheets, there are one or two similar periodic lists, e. g. the Securities Quotation Service weekly lists and the Fitch daily Nasdaq sheets.

Further, there are transactions on the OTC market supported not even by sheets. These transactions tend, however, to be of very small extent and to concentrate on a broker or market maker dealing in the securities of local companies for local investors. Finally, it happens that businessmen connected with a particular issuer are prepared to arrange transactions for others in this issuer's securities.

2. Markets for governmental securities

a) The market for U.S. government and federal agencies securities

As is evident from the Buttonwood Tree Agreement of 1792, the NYSE was originally primarily a market for bonds of the new federal government. The proportion of off-the-floor dealing in such securities has fluctuated in the course of time, but the banks have long played a predominating role if only because of the importance of federal bonds as cover for the banknotes of the (private) national banks. In 1925, over-the-counter sales were so much greater than sales on the exchanges that the public authorities ceased supporting the exchanges. The Federal Reserve Bank of New York, now the implementor of American open-market policy and even then responsible for transactions in government securities, withdrew from the NYSE in that year. Today, exchange volume in these securities is well below 1% of OTC sales.

At the end of 1974, the face value of U.S. government securities outstanding which were suitable for trading on the secondary market (marketable issues) was \$ 283 thousand million; of this, \$ 120 thousand million was in the form of treasury bills. Of the total amount outstanding, 36% was held by the Federal Reserve System and government bodies, 16% by banks, 13% by foreigners, 3% by the individual states and municipalities, and 3% by insurance companies and other corporations. Agency securities outstanding amounted at the end of 1974 to about \$ 90 thousand million. Sales on the secondary market of U.S. government and federal agencies

securities in 1974 amounted to about \$ 600 thousand million, on the basis of sales by primary dealers, which may be formally compared with total exchange volume of \$ 125 thousand million.

The focus of trading today is the Federal Reserve Bank of New York (FRBNY) as agent for domestic and foreign government bodies and central banks. The FRBNY deals exclusively with the so-called primary dealers. It becomes interesting for the FRBNY to consider a dealer for its transactions when he has achieved a very appreciable volume of sales. It then includes him in its list of primary or reporting dealers and installs a direct telephone connexion with him. All information about prevailing quotations is collected via this private line and thus is available in the FRBNY trading room. The number of these dealers has increased greatly in recent years. Traditionally, there were barely twenty dealers; although still only 24 by mid-1974, by mid-1976 there were already 31 firms. The bond-trading departments of major banks and the more or less full-line broker firms today dominate the list with thirteen and ten entered respectively, while the specialized bond houses that led the market in the past are now clearly in the minority.

These primary dealers are market makers in the grand manner, each one handling securities at a rate of about \$ 100 million a day. The unit of trading amongst dealers is half a million dollars. Typical of this market are the virtually uninterrupted contacts to the FRBNY and to major customers. Towards noon, it is usual for the FRBNY to ask all dealers for bids or offers within a few minutes (go-around). While these

large bids or offers are collected and compared, trading is often in abeyance until the dealers know whether their bids or offers have been accepted or not. The procedure for large transactions with investors is different. Here, a decision is made immediately. Dealers are normally prepared to make bids in millions. In other words, "block positioning" is the rule; "block assembling" occurs, if at all, only with extremely large orders.

In addition to the primary dealers, there is a range of less important market makers. A large number of banks, too, deal with their customers on own account. Other banks and broker firms are prepared to execute orders for investors. Their commissions, long determined by competition, were in fact mainly so high for small transactions that they rendered uneconomically orders for only a few thousand or tens of thousands of dollars. The Amex procedure described above in II 1 b) has eliminated this problem. The Federal Reserve maintains a custody and clearing system for this market that dispenses with the need for physical handling of certificates.

b) The market for municipal securities

The bonds of the 50 states and of tens of thousands of cities, towns, villages, counties, districts and statutory authorities (municipal securities) differ markedly from all other securities in that interest on them is not subject to federal individual or corporate income taxes. These securities are therefore held almost exclusively by private investors, banks

and insurance companies who pay such taxes in full. The face amount outstanding has increased appreciably, from \$ 92 thousand million at end of 1964 to \$ 145 thousand million 1970, to \$ 224 thousand million 1975 at end of year. Since these securities are largely of local importance only, the secondary market for them is structured in much the same way as for securities of the smaller private issuers. However, not only the mass of broker-dealers of all sizes are to be found in this market, but also nearly all banks and 240 specialized firms. Trading is aided by the blue list, which here corresponds to the pink sheets. There are market makers only in the larger issues. Smaller issues often have very narrow markets, the face value issued frequently amounting only to a few million or even to several hundred thousand dollars, owing in particular to their partition into several series, so that such issue has hardly any secondary market and can be bought or sold only at very high transaction costs. Consequently, experiments have been made recently with joint issues of a number of municipalities, an approach that has long been customary practice in other countries.

Interest on municipal securities is paid either out of general taxes (general obligation bonds), or out of special levies (special assessment bonds), or out of receipts from the project financed (revenue bonds) such as bridges, roads, ports or dormitories. Thus, there are wide differences between the various municipals which investors can evaluate only with great difficulty on account of the enormous number of securities and issuing entities frequently overlapping and embracing the same taxpayers and which are therefore liable to

give rise to fraudulent offers by persons attempting to cash in on the trust inspiring public status of the issuer. To this must be added the financial difficulties even of the municipalities, who now and then provide misleading information. Given the unsatisfactory organization of all spheres of the secondary market for municipals, it is not surprising that their tax exemption no longer gives them a significant yield advantage over fully taxable loans. As already stated in Section I, an attempt is only now being made to develop suitable regulations for this large market.

IV. THE NATIONAL MARKET SYSTEM

1. Origins and developments

For more than three decades, 90% or over of all dollar volume in listed stock was concentrated on the New York exchanges. These exchanges had established complementary segments clearly delineated by differing prestige and listing requirements. This implied substantially overlapping membership. Competition between the New York exchanges was practically non-existent. Although the SEC had supported the regional exchanges in order to maintain actual or at least potential competitors, the leading members of the regionals were normally members of the New York exchanges. Thus, the concept of a central exchange system with departments for the regional execution of matching orders, particularly smaller orders, was essentially implemented providing a protection for investors that was exemplary in many respects thanks to intensive supervision.

As from the mid-1960s this system increasingly came under pressure. The volume of transactions by institutional investors grew rapidly and these investors became less and less willing to accept the price and quality of the financial services offered without demur. As regards prices particularly, the commission cartel allowed no direct concessions; on the other hand, competition in ancillary services, payments to third parties designated by the investor (give-ups) and the increasing flood of rules against such practices developed in a way that attracted criticism. Since the regional exchanges and, particularly, the third market seemed more alive to

the requirements of institutional investors, they were able to increase their share in volume impressively. From early 1967 to 1971 the third market, with but three exceptions, every quarter showed a further increase in relation to volume on the NYSE. The share of the New York exchanges in total volume dropped to little over 80%.

Further, the NYSE had in the mid-1960s given its members, in order to facilitate their capacity planning, forecasts of the growth in volume in the coming years which very soon proved to be far too low. Business on the Exchange could, after 1967, frequently no longer be settled by the due date, the more so as it was extremely difficult to obtain sufficient qualified back-office staff for the traditional, labour-intensive settlement procedure. These difficulties increased further as more and more customers, out of caution, required delivery of the certificates instead of leaving them in their broker's custody. Many broking firms lost control and had to close down or merge. Weaknesses in supervision by the NYSE and the SEC with regard to solvency became very evident. The SEC finally approved increases in commissions in order to help firms to bear their higher staffing costs, partly the result of increased competition in ancillary services, and their losses, which ran into millions, on account of box differences, and in 1970 Congress reluctantly set up an insurance scheme for brokers' clientele in the Securities Investors Protection Corporation. By this time the question frequently being asked was whether a market system less geared to the New York exchanges and controlled more by competition than through supervision might not have extended its capacities and modernized itself earlier.

In February 1971, Nasdaq offered an answer to this question. In the over-the-counter sector, where cost increases could not be neutralized simply by officially approved increases in commission as they could on the exchanges, advances of technology had been transformed into rationalization and capacity effects, initially with AutEx and Instinet in a small way and, now, with Nasdaq, on a wider front. It is certainly not mere coincidence that the SEC was able in April 1971 to introduce the stage-by-stage decontrol of commissions, which was completed in 1976. Nasdaq further offered a solution to the problem of how, despite fragmented markets, an investor and the broker representing him could rapidly and cheaply be put on the road to the best market for executing his order. This problem had long been apparent in the OTC market and because of the increasing importance of the regional exchanges and the third market, it was now also affecting listed securities.

Already in March 1971 the SEC had taken stock of the situation and explained what the consequences would be of modern technology to stock exchange policy. Its comments on market structure in the letter of transmittal of the Institutional Investors Study Report, clearly evince the following goals:

1. A "central" market system without local concentration of trading should be created for securities of national importance; the previous form of competition between sub-markets for these securities no longer corresponds to the state of technology.
2. Forces of competition should more than in the past

complement appropriate regulation. Regulation should primarily be aimed at eliminating activities detrimental to the functioning of the market, while competition should promote functionally appropriate behavior such as willingness to assume risks and innovation. Existing unnecessary restraints on competition should not distort the evolution of the central market system and must therefore be abolished. The following sub-goals spell out in detail this new emphasis on competition:

- a) commissions should be freely negotiated between broker and investor;
 - b) all qualified brokers should have access to the central market system, and all qualified spread-oriented firms must be able to participate in the system, whether as market makers or as block positioners;
 - c) all investors should have access to this system; private investors with market orders to buy (or to sell) should be able to benefit from the immediacy discounts (or premiums) resulting from block sales (or purchases) by institutional investors;
 - d) investors' agents must be able to deal directly with each other and it must therefore be possible to bypass spread-oriented dealers;
 - e) there should be prompt reporting of all securities trades to the public on a comparable basis.
3. Government bodies should only state goals and principles, act as observers and prevent unwelcome developments, if necessary. Market participants should themselves implement the central market system.

These goals have outlasted the years of debate on the future structure of the stock markets. Lively discussion arose after William McChesney Martin, the former President of the NYSE and Chairman of the Federal Reserve Board for many years, submitted a report to the NYSE in August 1971. His proposals were largely in accord with the goals of the SEC, e. g. his recommendation of a consolidated exchange ticker tape. However, Martin stuck by the concept of the specialist and wanted to see third market transactions integrated into the NYSE. He further urged standardization of the trading rules of the exchanges and sounded a warning against the unfavourable effects of competition which could result from a concentration of stock business into the hands of a few firms following the decontrol of commissions.

In February 1972, the SEC issued a long statement on a central market system. This would be limited to listed securities and be achieved by centralizing market information, on the one hand, through an information system similar to Nasdaq providing details of all quotes (composite quotations system) to guide investors to the most favourable market in each case, and on the other, through a common reporting system on the price and volume of each transaction (consolidated tape). The SEC set up three advisory committees with members representing the securities industry in order to study particular issues concerning the market information disclosure systems, the requisite regulatory changes and the integration of block trading. The two relevant sub-committees of the Senate and House of Representatives simultaneously undertook extensive hearings and comprehensive studies which resulted in a number of bills and eventually

in the Securities Reform Act.

When these five studies were completed, the SEC again came forward with a policy statement. One principle spelled out in detail concerned the trading of investors directly with each other through their (commission-oriented) agents. It is based on the idea that immediate execution by spread-oriented dealers should occur only if the investor requests it (i. e. if he places an order without limit or effectively without limit) and if this service cannot be offered by another investor who has placed a corresponding unlimited or limited order. In line with the practice on individual exchanges, such orders should have nation-wide precedence over all orders for the account of broker-dealer firms at the same price.

To assure that limited orders by customers are always granted such precedence in the overall system, the SEC suggested a central electronic order book for limited orders of investors (consolidated or central limit order book, CLOB). It is possible in this way, amongst other things, to determine reliably what orders are to be executed on the other side in a block transaction. It protects the investor's order against non-execution when transactions take place at prices equal to his limit or at even more favourable prices, e. g. on price swings resulting from block dealings. The congressional sub-committees placed special emphasis on the requirement that precedence should be given to investors' orders, that investors should be protected against non-execution and that the best price available on any sub-market should be secured for private investors, contrary to the traditional practice on parallel exchange and OTC markets.

A subsequent development was the publication of the report of a further industry committee set up in May 1974, intended to advise the SEC on implementing the central market system. The report appeared in summer 1975 and advocated, amongst other things, in addition to precedence for investors' orders, precedence for bids and offers by specialists and market makers over those by other dealers, and also a continuation of the ban on specialists (but not on market makers) having direct institutional customers, and, finally, order protection against non-execution only for orders placed with a specialist. Its more controversial recommendations required the merger of all exchanges and a single central self-regulatory organization for the market system with minority representation of the securities industry on the supreme decision-making body.

Discussions on the Central Market System then entered their fifth year and many broker-dealer firms had through their representatives at hearings or in committees obtained the opportunity of familiarizing themselves with the new concept, of discussing it, and of making proposals that not infrequently put earlier recommendations into doubt. Even before the SEC's new exchange policy produced its first clear successes, the market system was given a new name by the Securities Reform Act and a new advisory body was statutorily created.

The 1975 Securities Reform Act contains a programmatic section on a "National Market System" which once again lays down the goals of the SEC proclaimed in 1971, with the exception of access to the market system for all qualified broker-dealers. However, the SEC was

empowered to require exchanges to increase the number of their seats. Congress has authorized the SEC to issue regulations on practically all matters that could affect the market system. The Act created the National Market Advisory Board (NMAB), which is composed of representatives of broker-dealers and of the public. It was due to report to Congress by end of 1976 on how the National Market System could be implemented, whether a new central self-regulatory organization, the National Market Regulatory Board, was required, how such a board might be organized, and, what further legislative steps should be taken. Further, the NMAB was to advise the SEC. The NMAB has initially asked others, especially the self-regulatory organizations, for proposals and has held public meetings in various towns.

Despite ever more consultations, some of the SEC's goals have already been achieved, or substantial progress has been made toward them:

- commissions are no longer fixed;
- the NYSE, as described above, had by 1972 introduced some public order protection against non-execution even in case of block transactions;
- there are competing specialists on the NYSE;
- there is competition between specialists of the NYSE and those of the Amex;
- uniform net-capital rules were adopted and also
- a uniform rule on short sales which is, however, temporarily suspended;

- the consolidated tape, a joint price and volume reporting system for all markets of listed securities, has been in operation since June 1975. The tape constituted the first successful step towards consolidation;
- it has been decided to allow differences in trading procedures and rules to continue as long as they do not jeopardize the goals of the National Market System; competition will decide what forms persist.

2. Consolidation hitherto

As early as March 1972, the SEC had published for discussion two proposed rules which would serve as a basis for a common ticker ("consolidated tape") and a common quotation system of all markets for listed securities ("composite quotation system"). While the rule for the consolidated tape became effective that same year, that for the system for the composite display of quotation information for multiply traded securities has so far not got beyond the proposal stage, despite repeated changes. Nonetheless, there has been progress in both fields.

a) The consolidated tape

On the basis of the rule concerning the consolidated tape, the five leading exchanges and the NASD, as representative of the third market, made proposals to the SEC on how information on prices and quantities of individual transactions could be continuously collected and disseminated. The SEC accepted this

proposal in May 1974. It was phased in after some delay in 1975.

The ten markets involved, eight exchanges (NYSE, Amex, MSE, PSE, PBW, BSE, DSE and CSE), the market makers on the third market, and Instinet, report prices and quantities of all transactions continuously to the Securities Industry Automation Corporation (SIAC), a subsidiary of NYSE and Amex. It operates the consolidated tape for the Consolidated Tape Association, whose members are the NASD and the five major exchanges. This information is then distributed over the former NYSE and Amex ticker tapes. Tape A shows all transactions in NYSE listed stocks irrespective of where they are traded and Tape B indicates the transactions in those securities admitted for trading only at other exchanges.

This information is also stored and the most recent prices and turnover of any security can be interrogated by dealers or investors on display units if they are prepared to pay the \$ 1000 a month for this service, so as to have the most up-to-date information available at all times for their decisions. In this way they receive reliable access to the latest information at any given time, since instantaneous dissemination of data in this case is never impeded by the limited maximum speed of the tapes. Each transaction is identified as to where it took place. This innovation was opposed particularly by market makers on the third market since they rightly feared that changes of their positions could thereby be traced by sophisticated tape readers.

The consolidated tape seems to have reduced price

differentials between the markets. It enables the investor to have an appreciably better insight into the stocks subject to and the extent of block trading. This also applies to private investors whose access to market information is clearly improved by the new system and who now are on a more equal footing with the professional market participants. Further, the consolidated tape at the beginning of 1976 led to changes in the contents of the stock price lists in the daily newspapers as most newspapers then ceased to publish for each listed security the opening price, highest price, lowest price and closing price of the day on the main exchange only. Instead they began to take these data from the entire market system. The opening price may now originate from the NYSE, the highest price from the third market, the lowest price from the MSE and the closing price from the PSE, which, owing to time zoning remains open longer and, like the third market and Instinet, continues to report its prices up to 5.30 p. m. New York time. Consequently, the lack of order protection against non-execution is made increasingly more apparent to investors since a broker can pass a limited order only to a specialist on a single exchange. On the one hand, this leads to a host of complaints by the investing public and, on the other, it increases the interest in a central order book for limit orders.

b) The composite quotation system

A broker quite often cannot reliably say what orders are immediately executable and where the investor's best opportunity lies even if he is informed on latest

prices on all markets. What he needs in fact is a survey of bids and offers on all markets for the multiply traded securities with which his orders are concerned. Nasdaq has shown how this overall view can be given him. For the exchanges and their specialists, however, the matter of a quotation system is of secondary importance: Exchange members tend anyway to route their orders to their exchange through well-organized channels, and the reliable and prompt ticker information combined with the provisions to stabilize prices and with the obligation on specialists to trade when necessary mean that for any individual exchange a quotation system is an investment yielding hardly any additional benefit, contrary to the OTC market, where established relations to market makers, if they exist at all, are far less extensive and where up to last year there was no ticker information of any kind. It is true that several exchanges have for a number of years had a quotation service for their members, but in contrast to Nasdaq the bids and offers are not firm and often outdated. Their quality fluctuates from exchange to exchange and from specialist to specialist. This situation on the one hand reflects the objectives of the exchanges - only a smaller and aspiring competitive exchange such as the MSE can be interested in a first-class quotation service - and, on the other, specialists concentrate primarily on trading with their crowd and not on the anonymous dissemination of quotes, nor do they have their own terminals specially equipped for the convenient reporting of quotes as do the market makers on the Nasdaq system.

Consolidation of the quotation systems of the exchanges

would have had little impact for that reason alone. In addition, quite a few firms would undoubtedly have preferred to know nothing about better bids or offers on other markets as they are not geared to efficiently handle executions on certain markets and thus prefer the normal routing channels. Furthermore, a number of exchanges have long had rules that virtually forbid the execution of orders on the third market. Only late in 1975 did the SEC come through with the gradual suspension of these rules and all exchange members will be free as from 1977 to choose where to execute their customers' orders.

The SEC, which at first sought an arrangement for the composite quotation system similar to that of the consolidated tape, could not overcome the opposition of the exchanges against providing information on their specialists' quotes free of charge to private information services or, under a later proposal, to the SEC itself. The SEC, troubled by technical and regulatory problems in implementing the consolidated tape caused to some extent by the lack of enthusiasm on some exchanges, no longer wanted to be directly involved in the development of a quotation system. It therefore finally limited itself to removing the barriers to such a scheme and to relying on competitive forces to develop a quotation display system. As a first step, the SEC, in March 1975, required the exchanges to eliminate all provisions that prevented the information services being given access - in return for a fee - to current quotations and obstructed the dissemination of such information not just to members but also to other broker-dealers and investors. For the reasons outlined, no rapid progress was anticipated, however.

Only one undertaking was, at the end of 1975, offering a consolidated quotation service for all securities quoted on the NYSE, the MSE and the PSE. In 1976, Instinet began to offer a similar service distinguished by the fact that the display unit also indicates in each case the time when the quote on a particular market was last changed or confirmed. If, at the beginning of 1977, exchange members are able freely to choose on what market they will expedite their customers' orders, they will at least have a further quotation service available. NASD has decided to offer at that date a new Consolidated Quotation Service (CQS) at Levels 2 and 3 of Nasdaq. It is intended to cover all shares and warrants listed on the NYSE and to be available daily from 9 a.m. to 6.30 p.m. New York time. CQS will correspond to the existing Nasdaq service described in Section III 1 a. In addition, it will indicate the number of round lots behind each bid and ask, information which is of particular importance to institutional investors. The NASD believes that investment of \$ 1.5 million will be necessary for implementing the CQS. With CQS it is reverting to long-standing plans. Back in 1972 it had started on an experiment in which the quotes of PBW specialists for NYSE listed securities traded on the third market were included in Nasdaq in order to demonstrate the potential of this system.

CQS will not immediately solve the problem of data quality but it may be expected that complaints on backing away from bids or offers entered as experienced when Nasdaq was started up, will soon lead to regulatory measures. Late in July 1976 the SEC had drafted and

published for comment a rule requiring quotations to be firm. This draft has been criticized from a number of sides, including the official Council on Wage and Price Stability which fears that implementation of the regulation will have inflationary effects and which has asked for a more thorough-going analysis of the project. Without a reliable quotation system it will be difficult for the regional exchanges and the third market to hold out against the largest exchange and to attract orders after they have been deprived of some of their advantages by the consolidated tape and the unfixing of commission rates. Further delay in the implementation of a composite quotation system is clearly likely to benefit the market share of the New York exchanges and may in this way settle the question of competition in a national market system.

3. Future stages of consolidation

The importance of a central order book for limited orders (CLOB) to secure priority for investors' bids or offers and to protect their orders against non-execution, particularly when block transactions occur, in the whole market of a multiply traded issue, not only in its sub-market on an individual exchange, has been explained in Section 1. In the United States, limit orders make up about 20% of all orders on the exchanges. They are particularly important since they openly reveal investors' judgements on prices and compete with market makers' bids and offers.

A CLOB, as a system protecting limited orders, would complement the CQS, as a system protecting unlimited

orders, and would do so in two ways - firstly because the best available price would be secured for both limited and unlimited orders, and secondly, because the CQS (or another quotation system) might have to include limit orders as additional bids or offers and expand the range of bids and offers shown on the screen, possibly narrowing or even eliminating the spread. Thus, the problem immediately arises of matching bids and offers and, consequently whether CLOB can be used as a consummation mechanism and whether trading should be fully automated. If we go that far, CLOB includes both protective systems; unlimited orders could in any event be integrated into the CLOB and, consequently, into automated trading, as buy orders limited above the prevailing price or limited sell orders below it.

The CLOB consequently presents stock exchange policy with a crucial problem. A decision as to CLOB techniques, as to whether the system could be used for consummating a transaction, implies a decision as to which member-commission-oriented members of the exchange, a particularly influential group on the American exchanges, would lose their jobs through automation.

The National Market Advisory Board, like the SEC, has opted for a protective system of this kind. Both have asked for system proposals. Proposals submitted should conform to the goals of the National Market System, implementation should be possible in the near future and the initial and the continuing expenditures of the system should be in line with the benefits anticipated. As might have been expected, some organizations have recommended relatively minor changes, while others have

suggested a largely automated system. Not all the proposals can be gone into here. We shall merely attempt to give a summary of the chief elements of the plans of the NYSE and NASD.

The NYSE recognizes the advantages of comprehensive protection against non-execution that a CLOB would offer, but considers it to be a problematical and over-expensive concept at least at present. Since system-wide protection of investors against non-execution would produce clearly more favourable contract prices only on major price swings, the NYSE is orienting its proposals to transactions that normally give rise to such swings, namely block transactions. Instead of a CLOB for all limit orders, they feel it is sufficient if an enquiry is made on all exchanges before block transactions are effected to find out to what extent orders for the security concerned are to be executed according to the books there at the prices at which the block transaction might be consummated.

To this end the NYSE suggests an Order Indication System (OIS) that could be set up in nine months. For this purpose, the terminals with display units, which already exist on the exchanges and on the third market, could be used and connected to a central computer. All specialists would be informed of each block order by this system and they could then inform the specialist or market maker handling the block of all the orders they hold that should be taken into account. In this way, information could also be obtained immediately as to what orders were included in the block cross. A computer print-out of all information exchanged

would allow execution of the orders to be checked at any time.

The NYSE considers that an investment of \$ 650 000 and annual costs of \$ 600 000 would be needed for OIS. The aggregated price advantages for those placing limit orders are likely to match these costs even if only a relatively small number of block orders is executed on markets other than the NYSE (the additional protection of limit orders by OIS is negligible for block orders crossed on the NYSE as the mass of limit orders is held by NYSE specialists). In addition, there may well be price advantages to institutional investors. In line with the requirements of procedural efficiency and with the goals of the National Market System, the need for immediacy services of market makers and of block positioners and their spread earnings would both be less than they would be without OIS.

Like the NYSE, the NASD builds its proposal on the basis of existing data-processing systems. Since Nasdaq already has a nationwide communication network available which is by no means utilized to capacity it may be considered for linking the systems of the exchanges. A few American exchanges have electronic order switching systems by means of which member firms can route their orders directly to the appropriate specialist. Under the NASD proposal, all orders will initially come on to the specialists' books in this way. The books will become automated and no longer kept manually. A separate book will be kept, or several books where there are competing specialists, for each exchange on which a security is traded. Only the specialist can read a book, and only his own

book, on his display unit (and possibly the exchange's consolidated book, if the exchange so decides). However, the highest bid and the lowest offer for the security at each exchange will be generally accessible through CQS, together with the quotes of market makers on the third market, and it is likely that some of the bids and offers will reflect investors' orders held on an exchange.

This linking of the order switching systems could facilitate the forwarding of orders to the market offering the best execution and could thus aid the specialist and complement the CQS. However, the NASD suggests it primarily as a move towards automated trading. If a broker receives, e. g. a market order to buy, he can first of all check through CQS whether a reasonable price will be attained. If he then enters the order, it immediately and automatically hits the lowest ask in the whole system and so the transaction is consummated. The contract note is then printed out on his terminal and on the terminal of the broker or market maker whose offer was hit. Finally, the CQS and the book, if it is affected, are automatically updated, and the sale is reported on the consolidated tape and is recorded for settlement purposes. The system would be programmed in such a way that the sequence rules (priority and precedence rules) would be observed.

With block orders, the procedure under the system proposed by the NASD would be as follows. The investor negotiates with a block positioner directly or indirectly in the usual way a price at which he can, for example, sell a block. As in the case of a cross,

the block positioner does not know at this point how many shares he will have to add to his position at that price without consulting the specialist. He then would enter the block order into the system limited at this price which will lie below the prevailing price, and the purchase orders limited at or above the block offer will be executed against the block order automatically. The projected system responds as described in the paragraph above and indicates the part of the order not yet executed. These shares left are then bought as previously agreed outside the system. The information concerning this contract is, finally, keyed into the positioner's terminal for ticker reporting and for settlement purposes.

According to the NASD this proposal could be implemented within two to three years and would require an investment of about \$ 10 million. Unlike the NYSE proposal it would even in the case of minor price differences secure for the customer the best price available throughout the market system and at the same time give system-wide protection against non-execution. It would implement the CLOB, to which no one, however, would have full access. The traditional trading on the exchanges would be discontinued, the floors possibly being retained as working space for the specialists. The floors of some regional exchanges would not even change appreciably in appearance, only the specialists' telephones losing their importance as compared with the terminals. However, the lively dealers' meetings would disappear at the major exchanges; the crowd, hitherto the essence of exchange trading, would no longer have a function. The specialists would retain their privilege of consulting the book of their exchange

which would facilitate their market making. This privilege would become all the more valuable as more orders came to their exchange. The NYSE specialists would thus retain their specially advantageous position.

A supplementary proposal made by the NASD entailing no substantial additional investment would eliminate these advantages. According to this plan, investors' consolidated orders would all be displayed anonymously on the screen of the terminal together with the market makers' quotes. In this way all market makers would obtain the same order information. In addition, it would be obvious in the case of block orders how many shares would have to pass through the book and how many would have to be positioned at each price acceptable to the institutional investor.

The problems with an "open book" of this kind have been discussed for years. It could increase realization risks, especially it would facilitate counter-action. Where, however, competing market makers participate in automatic dealing with an open book, orders to buy with limits too high and orders to sell with limits too low would not at all appear in the book as they would be executed immediately against market makers' offers or bids respectively and consequently would not be exposed to counter-action. The open book is nothing new in exchange trading. It has, for example, long been used for active stocks on the Brussels Exchange and for inactive stocks on the NYSE. In neither case are market makers involved; at the NYSE, however, the appropriate specialist always checks whether the contract price is reasonable. Knowledge of the book enables the investor and his broker to realistically

limit orders and so to protect themselves against counter-action. Besides, a broker still may gradually increase bids or reduce offers when trading with the aid of an automated open book as he does now when trading in the crowd. As now on the floor, this procedure is all the more likely to lead to a favourable deal for his customer the more actively the securities concerned are traded and the more that dealers actually observe new entries in the open book. An open book seems unsuitable for inactive securities without competing market makers, however. Where there is only one market maker, it is likely that there will be no adequate competition between bids or offers protecting out-of-line limit orders against counter-action. If there are no market makers, an open book would saddle an investor and his broker with the task of a market maker to name the price that they consider to be the market price on the basis of information that will be limited and possibly manipulated - even an empty book is conceivable in this case - and continuously to monitor the bid or offer.

Merrill Lynch have come forward with a proposal similar to that of NASD which expressly provides for a market segment for automated dealing in inactive securities along the lines described above with the aid of an open book, even if there are no market makers. This proposal also differs in an other interesting way from that of the NASD. A broker who feeds his order into the system has his task made much easier in this case. Whereas under the NASD proposal he would himself have to decide on a limit within the spread or on immediate execution, under the Merrill Lynch system

the programme would make this decision for him: the broker simply enters the order; if the prevailing spread for a security is wider than is normal for an order of this size, a bid is at first transmitted for a few minutes at a price within the spread, or even "broadcast" in the case of major orders, as with Instinet.

Merrill Lynch go further than the NASD even on crucial points. The firm's proposal deprives not only the floor broker but also the specialist of any further function as agent, no longer recognizes a specialist's book, and consequently provides for no member commission at all. Merrill Lynch, unlike the NASD, say so quite clearly. Since member commissions total at least \$ 40 to 70 million a year, there is no doubt that transaction costs for investor-commission-oriented firms could be reduced substantially by a system of the kind conceived by the NASD and Merrill Lynch. Because of the sequence rules, the specialists - or rather, the market makers - cannot seek via wider spreads compensation for member commissions lost.

It is still too early to say what consolidation steps will result from these and other proposals, but undoubtedly trading techniques will develop more or less along the above lines. A possible next step towards consolidation was proposed by the NYSE in autumn 1976. This would mean combining order switching systems at the exchanges in a way that would allow every specialist (and apparently oblige him) to pass on executable orders electronically to the market which according to CQS information allows execution at prices most favourable to the investors who placed the orders.

This so-called "dealer inter-market order-switching system" (DIMOS) could, according to the NYSE, be implemented within a year for \$ 750 000. DIMOS follows the lines of the NASD proposal, though it does not go quite so far, since it would in each case leave it to a specialist or market maker to execute the orders and automated trading is not contemplated for the time being. Forerunners of DIMOS already exist in simple form linking specialists by loudspeaker and microphone. The best known link of this kind is that between the floors of the PSE in San Francisco and in Los Angeles. In the past year a similar link was introduced between the BSE and the PBW. DIMOS could expediently complement a CQS as a system protecting unlimited orders and other immediately executable orders and relieve individual brokers of the trouble of passing on their orders themselves to the most favourable market.

The NASD and the six largest exchanges formed the National Market Association (NMA) to work toward a nationwide system jointly two days before the NYSE Chairman announced the DIMOS proposals at San Francisco. Although the NMA does not wish to encroach on the independence of the exchanges, individual exchanges will have the opportunity to merge. The first official discussions on a possible merger of the NYSE and Amex have begun.

For the NYSE, the merger would give it access to option trading. By combining administrative and supervisory functions into one organization, the Securities Industry Association estimates that savings would be made of several million dollars annually.

Because of the drop in Amex volume, its expenses have risen, despite economies, from 0.1% to 0.4% of sales, an extraordinarily high ratio for an exchange of this size, so that radical measures are indicated. A further attraction for merging arises from the competition that has just begun between specialists on the Amex and on the NYSE. This competition reduces the advantage of the New York specialist in the securities concerned as against other specialists and market makers, since there is no longer a "consolidated" book but only a New York book divided between the two exchanges, and consequently no longer any predominant principal market. A merger would at least for a few years recreate the natural competitive advantage of the dominant financial centre. Finally, the merger would allow a comprehensive system of competing specialists to be set up in New York and would therefore fall in with the goals of the National Market System.

Finally, reference should be made to consolidation steps with regard to settlement and custody sphere. A prerequisite for the execution of orders at any market within the National Market System is the existence of a reliable and equally comprehensive system of settlement. The settlement of transactions between members at different exchanges should be burdened at the most with costs only slightly above those of settlement between members of the same exchange. There would otherwise be the risk of the efficiency gained by a National Market System in the execution sphere being lost by additional costs of settlement, by costs of money and securities working balances tied up in various clearing associations and the need to monitor

them, and through additional delivery costs. Work has been in progress in the United States for years on improving clearing and settlement. In the spring of 1976, the NYSE, Amex and NASD merged their clearing organizations (Stock Clearing Corporation, American Stock Exchange Clearing Corporation and the National Clearing Corporation, into the newly formed National Securities Clearing Corporation (NSCC)).

The developments that led to the NSCC and the NMA could hardly fail to affect the present scope and structure of self-regulatory organizations. As outlined in Section I, there are at present numerous regulators whose powers to some extent overlap. There have been many proposals for delimiting these powers so that regulatory costs can be reduced. In an analysis, the NASD arrives at the conclusion that in this way \$ 10 million could be saved. Three self-regulatory organizations would, they say, suffice - a supervisory body for the settlement and custody sphere, one for the joint execution sphere, i. e. for the secondary markets in the narrow sense, and one to check on the financial and organizational soundness of broker-dealer firms, to check the professional competence of their staff and to monitor the primary market. This third self regulator would also take disciplinary actions against broker-dealer firms and their staff. Although the three bodies would be under the control of the SEC, some observers feel that the consolidation in supervision and in clearing and settlement could jeopardize further improvement of the organization of American securities markets by stifling competition and innovation.

P a r t 3

DETERMINANTS AND ASSESSMENT OF THE SEGMENTATION
OF SECONDARY MARKETS

A. FACTORS DETERMINING SEGMENTATION

At the end of Part 1 of this study we posed three questions. The basis for these questions is a situation which is widely regarded as the norm: a security is listed on a stock exchange and is traded exclusively on that stock exchange. From this situation - at first sight so straight-forward and orderly - there are deviations of differing degrees from country to country, and this gives rise to the questions: why are listed securities often traded on other stock exchanges, why are they also traded off the exchange, and why are many securities not dealt in on a stock exchange at all? Whom do these deviations benefit, what are their advantages and disadvantages? The questions as to why some securities are traded both on and off the exchange and why others are not traded on a stock exchange at all can be answered together and will be dealt with first.

Anyone seeking an answer to these apparently simple questions will first notice that the dividing line between stock-exchange and non-stock-exchange markets varies from country to country. The smallest deviations from our "norm" will be found in the country whose stock exchange is equipped to handle securities with the most widely varying average sales, which can deal

with both small, medium-sized and very large orders, and which has long trading sessions (for the sake of exposition we shall disregard the fact that it may be mandatory to deal through a stock exchange). But the descriptions given in Part 2 suggest that an apparently ideal stock exchange of this kind simply does not exist. In reality, stock exchanges either attempt - unsuccessfully - to cover the whole of the secondary market or they confine themselves at the outset to organizing only part of that market. In the section that follows we shall discuss the reasons for this.

I. DIFFERENCES IN THE COST OF PROVIDING FINANCIAL SERVICES AS FACTORS DETERMINING SEGMENTATION

The financial services provided by a stock exchange in what we have called the "execution sphere" are part-services, which nevertheless constitute an important part of the transaction services demanded by investors from security-dealing organizations. The first part-service which a stock exchange renders is the fastest possible consummation of securities transactions at fair market prices. "Fastest possible" means, firstly, that it is more likely that the other side to an order will be found rapidly - indeed often immediately - through the stock exchange than in any other way; secondly, that a minimum amount of time is required for actually effecting the bargain itself. Stock exchanges keep the time required down to the minimum by:

- using standard contracts for securities transactions;

- standardizing orders;
- ensuring a minimum solvency of members, i. e. the counterparties to stock exchange contracts;
- requiring bids and offers made to be binding;
- providing the opportunity of having limited orders held on the market ready for execution by other members or employees of the stock exchange;
- laying down time-saving stock exchange terminology;
- employing other refined organizational measures;

in short, by subjecting orders or bids or offers to certain trading procedures. These procedures homogenize both supply and demand in such a way that as many matching bids and offers as possible come into being. The decisive factor governing what we have called the first part-service is not primarily the organizational details but the fact that a great number of bids and offers are brought together, traditionally concentrated at one time and in one place. However, it is the way a stock exchange is organized over and above this basic concentration that determines how strongly a security-dealing firm is attracted to bring its orders to a stock exchange and how easily other markets can set themselves up in competition.

The second part-service rendered by a stock exchange is the provision of information on the state of the market and, in particular, information on the current price of a given security for a given kind of bargain, e. g. for cash or for future settlement. This part-service is the result of the first part-service but

also precedes it in that it renders it easier to make bids or offers on the stock exchange in line with the market. The first part-service is therefore usually demanded in conjunction with the second. But the second part-service may also be offered on its own, especially in connexion with off-exchange trading, and it is of particular interest in connexion with the crossing of orders outside the exchange because in this case the first part-service is not needed. It is therefore understandable if a stock exchange refuses to give price information which, as in the case of current bids and offers, reveals existing opportunities for bargains to persons who are not compelled to transact their business through the stock exchange.

Owing to the link between provision of the two part-services, we need base our considerations in the following sections only on the central financial service rendered by a stock exchange, namely facilitating the fastest possible consummation of securities transactions at fair market prices. The segments within a stock exchange mirror which procedures an individual stock exchange considers most efficient at providing this service for securities with certain turnover characteristics. Our examination of the markets in various countries has clearly shown that stock exchanges, in assigning securities to certain market segments, use as a criterion the expected turnover in the security in question and/or the size of the individual transactions involved.

In some securities there is a strong and continuing demand every day over a lengthy period of time for transaction services; for other securities this

demand is only sporadic. As in all lines of business, it makes sense to use different methods for the mass-production of transaction services than are used for occasional production. The securities to be found on a secondary stock market may be classified into various groups with typical turnover characteristics. It is these typical turnover characteristics more than anything else that determine the number and structure of the segments that will be met with on a secondary market.

From the number of the segments and the nature of the procedures chosen the possible dividing lines between the stock-exchange and the non-stock-exchange markets will emerge. It is obvious that the dividing lines will be differently situated in different countries. A few examples may illustrate this statement. The American exchanges offer procedures for continuous trading during a long exchange session under which orders are matched and there is as a rule no need for the assistance of a market maker. These procedures demand substantial turnover in every stock traded in this way. Therefore the bulk of American stocks do not qualify for dealings on these exchanges. On the Japanese and some continental European exchanges collective-price procedures are used; here the definitive or at least the provisional price is calculated from the bids and offers received. These procedures can accommodate securities having various turnover characteristics and are suitable, as their employment for calculating the opening prices even on the NYSE shows, for very active shares as well. But they provide a solid basis for determining prices only if a certain number of orders enter the

calculation. Therefore the procedure ought not to be used for stocks in which there are only occasional dealings; in this way markets outside the official stock exchange may become necessary. The unrestricted application of this procedure to inactive securities in Paris makes sense only despite the additional safeguard provided by maximally permitted price changes, if one must assume that no-one is prepared to deal in such stocks by a more suitable procedure. The least room for securities traded off the exchanges only is left by procedures which are either directly geared to individual prices, as in the United Kingdom and Denmark, or by collective-price procedures allowing trading at individual prices in collective negotiating sessions where orders are insufficient, as in Italy, Luxembourg or on the French provincial exchanges.

These points have explained the most important reason why exclusively off-floor traded securities exist at all and why the number and composition of such stocks varies greatly from country to country. There are other reasons, particularly the initial costs and the recurring costs of listing to issuers. Since some issuers, for various reasons, consider these costs excessive, one finds in many countries securities which could quite clearly satisfy the requirements of a stock-exchange market-segment but which nevertheless are traded only off the exchange. These securities, however, are the exception in the group of stocks dealt in exclusively outside the exchange.

The pattern of the segments of a stock exchange, or, to put it another way, the orientation of the

procedures used in it, is an important starting-point also for answering the question why listed securities are traded outside the stock exchange: some stock exchanges have geared certain segments to transactions which, taken individually, neither exceed nor fall short of a certain volume (transactions of "normal" volume), and offer no procedures - or only rather unsuitable procedures - for handling anything except normal transactions. Whereas, for example, French, German, Belgian and American stock exchanges have supplemented these segments by creating facilities for dealing with small orders or odd lots, the Japanese exchanges offer no dealing services for odd-lot orders. Odd-lot trading in listed stocks in Japan therefore has to take place outside the exchange. In Denmark this is also the case, since the procedure provided by the stock exchange is not in fact used.

Similar circumstances are found in connexion with block transactions. Admittedly, there is, on account of the differing turnover characteristics of different securities, no clear dividing line separating block deals from transactions of normal volume as there is between the latter and odd-lot dealing, but the larger the desired transaction the less likely it is that it will be possible to find the other side to a bargain at a fair market price in the market segment for transactions of normal volume. Since the search for a counterparty can often be successful only outside the exchange, some stock exchanges, quite logically, dispense with special block-trading procedures. Other exchanges, by contrast, offer several block-trading procedures at the same time. For example, the NYSE

is prepared to call on investors far and wide over its ticker to make bids or offers and in 1970 it set up its Block Automation System. The success of these methods has been very varied. BAS, as we have stated, was soon closed down and a Japanese system for handling block transactions through the exchange has been awaiting its first proving trial for ten years. Other procedures seemed to have become obsolete with the passing of time but then suddenly came back into demand. Some were successful but did not succeed in stopping anything like all the off-the-floor block transactions.

A few more points should bring out the reasons for the existence of off-exchange trading in quoted securities. The limited success of stock exchanges in integrating security trading wholly into stock exchange dealing is in itself nothing remarkable. Stock exchanges provide certain financial services. With some transaction services they enjoy a distinct cost advantage, with others they do not. That is the first reason. The second reason lies in the fact that stock exchanges, like any other business concern, only produce services of a certain quality; just as in the manufacture of motor vehicles or safety razors, similar or substitute products in plain or "de luxe" design are conceivable and they are in fact offered particularly on the larger and more competitive stock markets and within those markets particularly for block orders. Further explanation of both reasons is called for.

The latest developments in odd-lot dealing in the United States show the limits of the cost advantage

accruing from the joint provision of transaction services. Aided by ticker tape and quotation systems, a few exchange members with a large number of clients and with positions in most listed securities can provide the financial service of executing small market orders in listed stocks entirely within their own house, taking stock in at the prevailing actual bid or supplying stock at the current ask, and can do it more cheaply than if they made use of the stock exchange's part-service and passed their orders to the stock exchange; other members are not able to do this and accordingly continue to use the stock-exchange segment devoted to odd-lot dealing. The large Danish and Italian banks and some market makers on the American "third market" have long been using such procedures. Large security-dealing firms are often able to find the other side to orders of normal or even fairly large volume without the help of the stock exchange, whether by in-house procedures for identifying offsettable orders, as is especially common in Italy and Denmark, or by specializing in block-assembling. In all these cases the security-dealing firms are interested only in the stock exchange's second part-service (provision of information on the state of the market). As for the "fastest possible consummation of transactions", they are able to arrange this more cheaply themselves.

Expressed in terms of the theoretical categories laid down in Part 1 of this study, we can state as follows. Firstly, a stock exchange or other organizer of the market will confine itself to providing those financial services for which joint provision for a large number of security-dealing firms is clearly

superior to individual provision (financial services of category 2). Provision of the other financial services that can be marketed for a consideration (category 1) remains the province of the individual security-dealing firms themselves. Secondly, classification of services under category 1 or category 2, and hence the boundary between stock-exchange and non-stock-exchange trading, can never be definitive. It depends on the many factors which determine cost functions under individual or joint provision of services and on which part of these cost functions is relevant due to the demand for the services prevailing at the time. It is therefore quite possible, as happens elsewhere in the world of business, that some firms will decide to provide the services themselves whereas others will decide that the services should be hived off to a joint organization (or to another specialized firm).

With the foregoing explanations we have given sufficient reasons why there will usually be off-exchange trading in listed securities even where from the investor's point of view the quality of the transaction services offered outside the exchange is identical with that of those offered by the exchange itself. Of course, in some countries interest in off-floor trading cannot manifest itself because it is mandatory to consummate securities transactions on a stock exchange. Transaction services in connexion with before and after-hours dealings, too, also prohibited in some countries, can be classified as services of category 1 and hence can be explained as non-stock-exchange activities. If investors wish to trade outside stock exchange hours only very infrequently and if

the potential participants in such dealings in a certain issue are known, there is no point in keeping the stock exchange open for the sake of an occasional transaction; before and after-hours telephone dealing will suffice. As the example of the stock exchange system in the United Kingdom and Ireland shows, such before and after-hours dealings need not take place "outside the exchange". Since the British and Irish system is based on the market-maker principle and hence telephone dealings before, during and after normal stock exchange hours are regarded as a regular form of exchange transactions, bargains may be done at any time provided that at least one jobber can be reached on the telephone.

Thus far we have merely explained whether certain financial services should be classified as category 1 or category 2. For the purposes of this study that would seem sufficient. In other connexions detailed analyses of the cost function for provision of the services by individual firms or for a joint organization might be necessary. A note about the factors determining the costs of provision of the services on an individual basis would seem appropriate at this stage, however. Monopolies in dealing on a stock exchange, whether their basis lies in private law or in action by the public authorities, and, connected with this, minimum commissions for stock exchange services, constitute an essential cost factor working to the advantage of the provision of services on an individual basis and therefore favouring off-exchange trading. In Denmark, for example, this factor probably stimulated efforts to cross orders within individual banks. In other countries this effect is forestalled by

forbidding the banks to offer certain transaction services in their own country, while in other countries of the Community such banks are themselves members of the stock exchange or could become members. Such prohibitions on the provision of services prevent the supplier with the most efficient procedure from becoming established.

A security-dealing firm will compare its costs for in-house production of financial services with the costs of operating through a particular stock exchange, and it will take into account also other security-dealing firms, other market organizers, in particular other stock exchanges prepared to sell this firm the transaction services it needs. Limited access and minimum commissions are an important factor in this connexion too. In the United States and the United Kingdom these restrictions on competition have helped other markets to emerge in competition. The dealing facilities provided by the fourth market or by Ariel do not even have to be more efficient than those provided by the stock exchanges, they must merely charge the security-dealing firms or investors using these competing markets lower rates of commission than are charged by stock exchange members. For this reason commission regulations have helped competing markets to maintain themselves in existence throughout the world. A regional stock exchange in the United States, in Belgium or in Germany, for example, gives the security-dealing firm which is merely a member of that exchange direct access to dealings in the securities listed there; on the third market not even membership is required for this. If every security-dealing firm had commission-free access to the principal

market or to every stock exchange, or at least access at commissions dictated by competition, they would probably not be interested in the regional exchange or the third market at all. In the United Kingdom the former members of the regional exchanges have acquired such access as a result of the amalgamation of the stock exchanges and it is thought that within a few years all or almost all of the provincial exchanges will have been closed. In America a similar development is expected now that commissions are allowed to be competitive.

This in part answers under the aspect of the costs for individual security-dealing firms the initial question that had so far not been addressed: why are many titles traded on more than one stock exchange? This answer is applicable primarily to national but not to international parallel exchange markets. Dealing in a foreign security on a domestic stock exchange has indeed commission advantages for the members of the latter, but if such dealings are organized there will be substantial additional cost advantages due to the fact that an order can be executed here in fewer and simpler stages than on a foreign stock exchange. In particular, there is no need for the usual foreign exchange transaction or for the use of the foreign settlement system. With the progress of communications technology and the development of national currency, payment and delivery systems, comparable costs within a country have ceased to be significant although they have been decisive for the emergence of stock exchanges in all financial centres of any standing.

II. DIFFERENCES IN THE QUALITY OF FINANCIAL SERVICES AS FACTORS DETERMINING SEGMENTATION

As mentioned, the reason for the existence of competing markets does not lie only in the cost advantages offered to investors and/or security-dealing firms but very often also in the special quality of the transaction services they offer. In the case of a few non-stock-exchange markets this is obvious:

1. The third and fourth markets in the United States, as explained in Part 2, offer block-trading facilities of a different quality from those offered by the NYSE or the regional exchanges.
2. The dealing facilities of the British stock exchanges basically include the service of a market maker and the market maker cannot be bypassed as on other exchanges; Ariel and other British markets outside the Stock Exchange offer transaction services without the market-maker service.
3. In the case of bond trading in other countries the situation with regard to the market-maker service is exactly the opposite of that in the United Kingdom: it is the rule on non-exchange markets, but is unknown on the exchange.
4. Financial services offered in connexion with dealings in unlisted titles are usually different from and of lower quality than those offered in connexion with stock exchange trading; prices in the former often have a narrow basis and it is therefore good practice that they should be made public only in the form of bid-ask spreads.

The last example indicates that quality differences may be connected with the typical turnover characteristics of a security. Therefore stock exchanges mindful of their prestige, such as those in America, refuse to offer transaction services for low-volume stocks. The German exchanges are prevented from providing such services for a different reason: the legal system links the official stock exchange price with certain rights which can make sense only if that quoted price constitutes a reliable basis. That is why trading in a group of securities is not organized by the stock exchange - or at least not officially - when it might be in other countries.

Where listed issues are traded not off the exchange but on several domestic exchanges, the differences in quality between the dealing facilities are usually less obvious. It is true that dealing procedures on such exchanges are generally not completely identical and the turnover characteristics of a security may vary from one financial centre to another, with the result that the security is assigned to different segments within stock exchanges; but these differences probably do little to explain why parallel dealings take place on domestic exchanges. This also applies to the argument that major investors, in particular, prefer their orders to remain in the hands of their local banker or broker and are not forwarded to other firms for execution. Sometimes, however, the different exchanges' standard contracts differ so much that - unlike the differences hitherto mentioned - their effect on the position attained by an investor as a result of a transaction is not marginal but is quite decisive, as when a contract specifies that settlement

should be "for the account" or should be merely conditional as with option contracts. The latest developments in the United States demonstrate that there is quality competition between stock exchanges that goes beyond the quality of the transaction services and focusses on the creation of positions in securities in such a way that these positions will better conform to the preferences of certain investors.

Trading in foreign titles on domestic exchanges can also be seen in this light. Because the qualitative differences between trading services are more marked on the international than on the national scale of comparison, these differences are also of significance, particularly owing to differences in settlement periods and differences in safeguards against transaction risks. But a stock exchange with foreign securities primarily offers domestic investors easy access to positions which are composed of a foreign currency position and a securities position. Such positions will often be an interesting complement to domestic portfolios. Finally, as explained in the first part of the study, every transaction service affects the interest of the issuers; this is obvious in the case of dealings in a security on foreign stock exchanges when the issuer thereby gains improved access to a large and efficient capital market.

B. ASSESSMENT OF SELECTED FORMS OF SEGMENTED
SECONDARY MARKETS

The reasons why securities are traded in different market segments have been discussed in the foregoing sections. In this section we are concerned to answer the question of how the segmentation is to be evaluated. The criterion used is whether segmentation does or does not increase the efficiency of the organization of the market - procedural efficiency - in the execution sphere. In Part 1 it was shown that the criterion of procedural efficiency was one which took due account of the interests of both investors and issuers and also those of the security-dealing organizations provided they accepted competition on the markets for their services. Since this study is directed principally towards the execution sphere, we need not have regard to all elements of procedural efficiency. It will be sufficient if we make clear the influence of segmentation on:

1. The cost of finding the best price available for the investor and the cost of consummating the trade itself;
2. the cost of guarding against transaction risks;
3. the investor's transaction-related information costs;
4. the cost of immediacy.

The investor's transaction-related information costs were classified under the information and decision-taking sphere on page 29, but since with the information

about the state of the market part of the data required by an investor for taking a decision is produced in the execution sphere, these costs must also be considered here. Our analysis of the reasons for the emergence of different market segments suggested that it would not be appropriate to attempt an overall appraisal of segmentation. But neither would it be reasonable to present the reader with a detailed evaluation of every theoretically conceivable or actually existing form of segmentation as a host of segments could be constructed based on the factors determining segmentation. What we shall try to do here will be merely to assess a few important basic forms of segmentation, selected neither according to a rigid taxonomic system nor arbitrarily but on the basis of the programme of reference of this study (Annex 4). The system used for reference purposes will be a country's integrated secondary market, in other words: a central stock exchange. A central stock exchange may be homogeneous or it may be divided into several segments. The two solutions will first be compared with each other. This will enable many basic problems to be cleared up and from this will emerge a basis of comparison for the assessment of a few more realistic types of segmented secondary market.

I. ADVANTAGES AND DISADVANTAGES OF A SEGMENTED
AS OPPOSED TO A HOMOGENEOUS CENTRAL STOCK EXCHANGE

We will start by postulating an imaginary central stock exchange. Let us suppose that the management of the stock exchange has set itself the objective of arriving in a few years' time at a situation where all the country's security transactions are voluntarily effected on the central stock exchange. The requirement that all security dealings have to take place on the central exchange would then be lifted and all other restrictions on competition in securities business would be abolished. In our imaginary country there are about a dozen stocks with very high daily turnovers; several hundred stocks are bought and sold only a few times a year; between these two extremes are to be found a large number of other stocks with intermediate turnover characteristics. For the sake of simplicity we will not specify the composition of the membership of the exchange, and in particular we will not say whether market makers or member-commission-orientated traders can exert strong influence on management. Automation of dealing is not an immediate possibility; electronic data-processing systems for the transmission of order and transaction data, on the other hand, have been adequately developed.

In the previous section it had become evident that special procedures tailored to the turnover characteristics of a security could reduce the cost of finding the other side offering the best price available as compared with the cost under a universal procedure. There are no fully satisfactory universal procedures, not even for transactions of normal

volume, transactions which stand at the centre of this study and on which therefore the following analysis concentrates. The only universal procedures to be considered are a collective-price procedure and dealing through market makers.

Collective-price procedures are not, however, used on any large stock exchange in a uniform way for active and inactive securities. For the less active titles a calculated collective price is sufficient. Transfer of the task of calculating the price to a single dealer or stock exchange employee - to take the extreme case, which occurs quite often - helps reduce to a minimum the time a dealer requires to find the best available price and to consummate the bargain (cf. Annex 2). We shall call the markets for securities in which procedures of this kind are used "Segment 2". But in the case of very active stocks demand and supply change so rapidly that calculation of a price is difficult without the aid of a computer into which all bids and offers are fed by the members on a continuing basis and can be withdrawn or changed; the rapid flow of orders may require a new calculation before the first one has been finished. For that reason the Tokyo and Paris exchanges employ special collective-price procedures for such securities ("Segment 1"). The NYSE does not have such procedures and therefore frequently suffers its well-known delays in determining the opening prices and in coping with other peak inflows of orders that occur from time to time - much to the delight of its competitor exchanges which can then attract business to themselves since although they operate by the same method as the NYSE they have very much smaller

volumes of orders to deal with. So they are in a better position to handle peak loads.

If the management of the central stock exchange opts for collective-price procedures, then for the reasons just stated it will set up not a homogeneous execution sphere but at least two different segments. If the exchange wished to have all dealings handled by market makers, it would compel all other dealers and investors to make use of the financial service "immediate bargain" for every transaction. Even if the price of this for active securities were zero, that is to say if the market maker let his bid and ask merge and the members could either buy or sell at this price, an additional and superfluous party would nevertheless be involved in many cases - in comparison with other individual-price procedures and in comparison with collective-price procedures based on the auction principle (cf. Annex 2). If only for that reason, the spread will never be zero (cf. Annex 3). A competitor stock exchange could exploit this disadvantage of a market-maker-based individual-price procedure, and this has happened in London. From the point of view of the cost of seeking the best available price and the cost of consummating a trade, a segmented central stock exchange is superior to a homogeneous one.

Under the second aspect of procedural efficiency in the execution sphere, the aspect of guarding against transaction risks, too, a segmented central exchange seems to be more advantageous. Protection - particularly of investors - against realization risks in the execution sphere on the stock exchange is achieved basically through competition between bids or offers,

whether in the form of competition between market makers or because such competition is implicit in trading methods based on the auction principle, particularly in the collective-price procedures. From this an important distinction can be drawn: it is quite possible that turnover in a security, although sufficient to attract two or three market makers, does not provide enough orders to enable an collective price to be calculated reliably. The characteristics of the least active Nasdaq stocks suggest that such securities do exist. So a "Segment 3", in which the stocks are traded exclusively through market makers, could make sense on grounds of investor protection. However, in the case of many even less active securities, such as are frequently listed on all European stock exchanges, one can only in exceptional instances assume that there is sufficient competition to provide protection for investors. Strong additional safeguards must therefore be built into the organization of stock exchange dealing here, especially to protect isolated incoming orders against counteraction ("Segment 4"). The French attempt to arrange for a few very inactive titles of the Paris "hors-cote" market to be traded through market makers ("procédure spéciale") also showed - as did the segmentation of the OTC market in the United States - that such securities are not suited to market-maker dealing as they do not attract market makers and that a great many securities must be assigned to a fourth segment.

The "ventes publiques" in Brussels and the "Efterbørs" in Copenhagen are good examples of how investors can be adequately protected in Segment 4. Such system-

inherent safeguards require additional dealing time in comparison with the simple calculation of prices from time to time, and in the Belgian example additional costs arise for the printing and distribution of lists of offers. These costs must be weighed against the expected reduction in the cost of guarding against transaction risks. It is quite possible that such considerations under the second relevant aspect of procedural efficiency suggest a splitting of the market sector for inactive stocks, that is to say that they lead to a segmentation beyond what seemed necessary under the first aspect. As we will be coming back to this finding, which already seems plausible at this early stage of the analysis, we will call it "Basic Structure A" for short. Basic Structure A is characterized by being composed of Segments 1 to 4. The reasons presented in favour of Segments 2 and 4 are very strong. Segment 1 is necessary only if there are some securities enjoying extremely active trading. The reasons for the existence of Segment 3 are not prima facie compelling.

To prevent misunderstandings, let it be said quite specifically: safeguards against realization risks in the execution sphere do not manifest themselves either alone in special trading procedures nor are they superfluous in the market segments in which there is normally intense competition between tenders. Rather, other safeguards are also possible and are applicable in all market segments. Such safeguards are particularly marked on the NYSE. In part they are directed against several types of realization risk, e. g. by attempts to avoid short term price fluctuation and preferential treatment for stock exchange members by means other

than competition, in part they are directed against individual relaxation risks. These safeguards do not determine the trading procedure, they merely add a certain emphasis. By audits, rewards and penalties the stock exchange management, in particular, is able to lend weight to these points of emphasis. Some safeguards, taken on their own, are hardly of interest to the investor, e. g. the fact that a cross by a specialist for his own account requires the subsequent approval of the broker of the person who gave the order. Other safeguards would be attractive to knowledgeable investors who would possibly be quite prepared to buy them as special financial services, e. g. the obligation of the dealer to execute clients' orders to buy ahead of his own orders with slightly lower limits (i. e. to abstain from "fellow-travelling"), or execution in accordance with general rules on the sequence of execution which give priority to investors. Since, however, like safety belts in cars, they will not be bought by everybody voluntarily, the question arises: should not the provision of such financial services be made mandatory (see p. 19 f.)? This set of problems cannot be further discussed here, however, The safeguards referred to are not relevant to a discussion of the advantages and disadvantages of a homogeneous central stock exchange vis-à-vis a segmented one, as they can be built into the trading procedure in both cases.

The investor's transaction-related information costs are the third aspect that must be taken into account in assessing procedural efficiency. The relevant point here is merely the question of the effective and efficient production of basic information about the

state of the market, not the use of that information. What information, presented in what form, will on the one hand make it easier for investors to take decisions and on the other hand be appropriate for assisting supervision of stock exchange members by the investors themselves is not dependent on the type of central stock exchange and therefore need not be discussed. Whatever type of central stock exchange the management adopted, all market information would be in its hands and it could ensure that information on current bids and offers, and on the latest prices and quantities traded were available to investors. But as mentioned at the beginning of this section, the NYSE faces difficulties occasionally in establishing the opening price shortly after the exchange has opened. On some occasions a whole morning has gone by without any dealing taking place on the NYSE and there was therefore no information available on the NYSE on the state of the market. So an investor planning a transaction in one of the stocks affected would either have to do without information on prices or would have to obtain it from other markets, which would entail additional expense, unless there were a consolidated tape or a composite quotations system. The aspect of information costs underlines - in such extreme cases - the importance for procedural efficiency of a dealing technique suited to the turnover characteristics of the security and suggests, as did our discussions in connexion with the first aspect, that there should be a special segment for the stocks with extremely active trading, in other words that the market in active securities should be divided into a Segment 1 and a Segment 2. Similar considerations

apply in respect of less active titles. It is conceivable that trading in these securities through market makers will produce a more continuous flow of information on current bid and offer prices than trading based on collective prices, under which in certain circumstances there are either no bids or offers at all or none at fair market prices. The aspect of transaction-related information costs thus provides another argument for Segment 3.

The fourth aspect, the cost of immediacy, brings us to a whole range of important questions. First the stock exchange management must decide how far it should meet the wishes of investors and dealers to be able to do business at any time of day. If it gives very high priority to such wishes, it will strongly support continuous trading at individual prices, probably through market makers and in that case possibly by dispensing with collective prices and in the extreme case even by making it mandatory to deal through a market maker. Segments 1 to 3 might then have to give way to a single homogeneous segment. Mandatory dealing through a market maker, as applied by the British and Irish system to most securities, brings the market maker into contact with the full flow of orders and therefore makes it easier for positions to be closed as quickly as possible; in other words mandatory dealing with jobbers reduces the market maker's risk and thus reduces the cost of providing the financial service "immediate bargain". Dispensing with trading at collective prices has a similar effect. Whether this advantage for the market maker will be reflected in the cost of immediacy to the investor will depend principally on the

competition to which a market maker is exposed, whether from other market makers in the same security, from limited orders (not possible where market-maker-dealing is mandatory), or from market makers in similar securities.

As explained in Part 1, what is important is not that every individual category of market-organization-determined costs should be minimized but that the sum of these costs in the execution sphere should be kept to a minimum, and this applies to the transaction services demanded by investors in this sphere. Where all investors are satisfied if they are able to deal in every security at least once a day, the immediacy services will not be taken into account in determining the optimum segmentation of the central stock exchange. In that case "Basic Structure A", which was arrived at after discussion of the first two aspects, will be the result. Where, however, all or almost all investors desire to be able to do an instant bargain at any time they like, the relevant market-organization-determined costs must always include the cost of immediacy. Reduction of these costs as a result of mandatory market-maker-dealing may offset the additional cost of consummating a trade caused by dealing at individual prices through market makers as opposed to dealing at collective prices. The stock exchange management must therefore first ascertain the proportion of investors who desire immediacy services and are prepared to accept additional transaction costs to get it. Only then can it try to determine the optimum degree of segmentation and the form the segments are to take.

Some indication of the proportion of investors desiring immediacy services is provided by the proportion market orders bear to total orders. However, security-dealing firms usually prefer market orders on cost grounds and tend to try to persuade their clients to give their orders in this form, for instance by charging higher commissions for limited orders. If only for that reason it is not just those who give limited orders who are prepared to wait for a bargain. Statistics on the proportion of limited orders are not usually available, but in any case the proportion is probably substantial. On the NYSE every second or third bargain involves a limit order. This statistic does not take into account the fact that it is precisely the larger orders that are generally limited. It would therefore mean inviting the creation of competing markets, if the stock exchange management were to accommodate the investors who were unwilling to wait for a bargain and thus failed to ensure that those willing to wait had the lowest possible transaction costs, in other words if it made the second group subsidize the first. But mandatory market-maker-dealing implies just that.

Without precise knowledge of investors' preferences, it would probably be best to start from Basic Structure A since this structure does not force investors who are willing to wait for a bargain to subsidize those who are not. Basic Structure A should, however, be supplemented in order to accommodate trading at any time. The volume of orders coming in from investors unwilling to wait for a bargain determines firstly the length of trading session, and secondly the way in which Basic Structure A

is supplemented. Supplementing Basic Structure A may in some circumstances not be necessary at all. A succession of collective prices at short intervals may already be provided for in Segment 1, as in the Gekitaku procedure in Japan. Nor is supplementing necessary in Segment 3 of Basic Structure A, in which market makers are in any case introduced in order to reduce the transaction risks. Segment 3, for the existence of which it has so far not been possible to advance compelling reasons, would receive great additional justification if there were a high proportion of investors unwilling to wait. For securities in Segment 4 an investor cannot expect standing facilities for immediacy services.

The question as to the additional structural elements providing for immediacy services to investors unwilling to wait is therefore primarily relevant in connexion with Segment 2 and, within limits, also in connexion with Segment 1. In addition to trading at collective prices, trading at individual prices will also be admitted here. Where there is a very large number of transactions it may make sense to recruit one or more market makers, as the example of the CBOE shows. Smaller turnovers may still be sufficient to support a specialized trader who is spread-orientated and member-commission-orientated as well, a person who appears with different duties on many exchanges, as a "specialist", a "hoekman" or a "Kursmakler" (official broker). Or it can be left exclusively to any investors and/or dealers who are willing to wait for their bargain to hold themselves ready with their bids or offers as potential counterparties for those unwilling to wait, either with the help of an "open

book" as in Brussels, or with the help of a "closed book" as in the case of the Saitori or without a book as in Italy. Whenever structural elements of this kind are encountered we shall, in the following segment, speak of a "modified Basic Structure A".

The modifications, especially of Segment 2, in the form of the introduction of trading at individual prices may, however, give rise to additional realization risks for investors unwilling to wait for a bargain. In trading at individual prices without (competing) market makers it is quite possible for example that an order will lead to the only bid or offer that is on the market at all, so that for this or other reasons there is no protection through competing bids or offers on the other side of the transaction. One answer to problems of this sort might be additional specific investor-protection measures as on the NYSE, the cost of which is usually borne not solely by the investors unwilling to wait but by all stock exchange users. It is conceivable, therefore, that for such cases extension of Segment 3 at the expense of Segment 2 would be the more efficient solution. A third solution would be to do without individual prices for all the securities of Segment 2 for which generally there will not be competing bids or offers in dealings at individual prices. Dealing could then always take place exceptionally at individual prices if, owing to a sudden higher inflow of orders, there was certainty that there would be competing bids or offers, in other words when there were a fairly large number of investors and dealers unwilling to wait. This flexible

and efficient solution is practised in Amsterdam ("opengaan van gesloten hoeken").

The analysis has reached a point where it is possible to answer the question posed. Only in the extreme case where there are no or hardly any investors willing to wait for a bargain can taking into account the cost of immediacy lead to Basic Structure A being rejected as being over-segmented. In that case one would possibly recommend a Basic Structure B consisting of two segments, one for all securities attracting market makers and one for all other securities. Only very detailed investigations of relevant costs could help one to specify whether it was possible for Basic Structure B ever to be the superior solution and if so, from what (high) minimum proportion of persons unwilling to wait for a bargain. Such investigations would be beyond the scope of this study. However, the structure of most stock exchanges suggests that the demand for both types of transaction service - transaction service with or without immediacy service - can be very efficiently met with a modified Basic Structure A. Moreover, a modified Basic Structure A does not necessarily violate the principle that investors willing to wait should not be forced to subsidize investors not willing to wait.

In conclusion, let us touch on a few peripheral problems. To relieve Segment 1 and the upper part of Segment 2 a special segment for small orders may be very appropriate. The stock exchange management may, as the French and Belgian examples show, combine the establishment of such a segment with a differentiation of the standard contracts and thus limit

the scope for potential competition by other market organizers. For the same reason segments for various forms of conditional forward trading, e. g. for option trading, could also be established. Since segmentation of this kind is not central to our study, we shall not go into it any further. Finally, block segments may be necessary for those blocks of securities which cannot be handled in the course of normal stock exchange trading or, more precisely, whose buyers and sellers would have to accept such high costs of immediacy and cost of guarding against realization risks on the stock exchange that a special transaction service would pay for itself if it wholly or partially prevented such costs arising and itself cost less. As the description of block trading in the United States has shown, a special block transaction service of this kind must start outside the stock exchange. The problem of the integration of block dealing thus resembles the problem of the integration of parallel market, which will be discussed in the next section but one.

Finally the question arises whether it may be possible that a segmented central stock exchange has no disadvantages at all; so far it has been possible only to bring out its advantages as compared with a homogeneous central stock exchange. Our considerations have been based on the bargain-dependent components of transaction costs or at least on the components directly explicable by the number and size of the transactions, on - so to speak - the variable production costs of transaction services. (Of course, it only makes sense to speak of variable costs here if one follows the plan of this study and bears in mind

that the total service corresponding to the transaction costs is made up of elements produced partly by the stock exchange, partly by other security-dealing organizations, partly by the supervisory authorities and partly by the investors themselves.) Now in assessing the cost of securing the best available price and the cost of consummating the trade itself, as well as the cost of guarding against transaction risks, there are no doubt fixed costs to be taken into account in addition to the variable costs, particularly the costs of the stock exchange itself and those of supervision of the exchange. Since a segmented stock exchange is more complex than a homogeneous one, the costs of the former are probably somewhat higher than those of a homogeneous exchange. But the degree of complexity is certainly not so much greater that more intelligent and better-qualified staff are required for a segmented exchange. The additional costs are therefore likely to remain within narrow limits and should be outweighed by the reduction in "variable costs" as a large number of transactions is concerned. A related possible disadvantage of a segmented central stock exchange might be the periodic reviews of the allocation decisions taken earlier as the turnover characteristics of a security may have changed to an extent requiring reallocation to another segment. Since such work might on the one hand slightly increase the fixed costs of the stock exchange management but on the other hand reduce the variable costs, what has just been said also applies to this point.

So the question of whether a homogeneous or a segmented central stock exchange is the better solution

from the point of view of procedural efficiency has been answered. Our analysis has shown the superiority of a stock exchange divided into segments. It only remains to decide what form of central stock exchange should serve as the reference system for assessing secondary markets with non-exchange segments and with several stock exchanges. The reference system for the purposes of the next section will be a central stock exchange of Basic Structure A. In Segments 3 and 4 it included the type B as a special case and uses more general assumptions with regard to the proportion of participants not willing to wait for a bargain, the turnover characteristics of the securities traded and the main source of income of members, be it spreads or commissions.

II. ADVANTAGES AND DISADVANTAGES OF VERTICAL DIS-INTEGRATION OF A SEGMENTED CENTRAL STOCK EXCHANGE

It has become clear on the last few pages that two kinds of segmentation may be distinguished: a vertical segmentation, as in Segments 1 to 4 or their equivalents in the real world, and a horizontal segmentation. Every security is in principle assigned on the basis of its turnover characteristics to a single vertical segment only (provided that it is traded on only one market, e. g. only on a stock exchange). Each vertical segment may then be supplemented by horizontal segments: by special segments e. g. for odd lots, blocks, options, and it may be divided into two or more sub-segments such as parallel markets or competing markets.

Whilst the next section of the study will deal with

questions of horizontal segmentation and in particular with the problem of parallel markets both within and outside the stock exchanges, the present section will concern itself with the question of how we should evaluate a situation in which the vertical segments are not comprised within a central stock exchange but come under the control of several different market organizers, in other words where some of the securities are traded on a stock exchange and some are traded off the exchange. Exchange traded securities may be distributed over different stock exchanges, as for example in New York over the NYSE and Amex when there was no dual listing or in France over the Paris Bourse and the provincial exchanges, with no security being traded on more than one exchange, on more than one market. For the securities traded on the largest stock exchange, which is generally the case with the bulk of active stocks, there is no difference between this set-up and a segmented central stock exchange. Thus, this section of the study will not focus on the leading exchange but will concentrate on the intermediate and lower segments which have found special market organizers. Non-exchange market organizers can be found in all the countries we have examined except Denmark and France, exchange market organizers for securities of the intermediate and lower segments on the other hand were observed in pure form only in France and the United States.

1. Several stock exchanges as market organizers

The American and the French case of disintegration of an (imaginary) segmented central exchange, as we may call them in line with the course of our analysis, differ from each other. The most striking case is the unique example of the division of the market between NYSE and Amex. Since both stock exchanges are basically examples of a modified Segment 2, the existence of two exchanges is very hard to understand. Admittedly, issuers moving up to the NYSE have to pay another initial listing fee. Moreover, owing to the enormous volume of sales and the traffic associated with it another floor may be required in addition to those of the NYSE. But neither of these reasons is an adequate explanation for the existence of two complete sets of stock exchange apparatus in one city. The explanation is more likely to lie in the fact that the NYSE has been unable to secure acceptance of its listing requirements from a fairly large number of issuers whose securities fit the Segment 2 and unwilling to frame these requirements as to encompass all securities eligible for this segment. This has left room for a second stock exchange. Since both exchanges' listing requirements have grown closer over the decades and now that, with the unfixing of commissions, the limit on the number of members of the NYSE is no longer as important as it once was, the verdict on this unique case from the point of view of the participants has become the same as the criterion of procedural efficiency would suggest. Since the dealing techniques are largely identical, there are no differences from the single stock exchange situation from the point of view of

procedural efficiency in the execution sphere apart from distinctly higher fixed costs, resulting from the fact that there is administrative duplication. This increases the cost of providing the transaction services. The contemplated amalgamation of the two exchanges therefore seems logical. However, this first case, like all other cases of disintegration, also has its competitive-dynamic aspects, and these will be discussed at the end of this section in their overall context.

The second case is exemplified by the French provincial stock exchanges. The reform of the French stock exchange system in 1961 ended the mixture of vertical and horizontal segments which is typical of the smaller exchanges in the other countries examined. The purely regional securities are usually stocks with low turnover. Thus in France the disintegration of a segmented central exchange into several exchange markets splitting off the lower segments has just as distinct a real background as has the just described case of splitting off parts of the upper segments in the United States. Both cases have in common the problem of duplicative stock exchange facilities and additional costs of exchange supervision compared with a situation where there is a segmented central exchange. This duplication may reduce procedural efficiency. In contrast to the first case, however, it seems that there may be positive effects here on those components of transaction costs directly related to the number and size of transactions. These effects will be examined below, by reference once again to the four aspects or sub-elements of procedural efficiency which are relevant to the execution sphere.

The cost of finding the best price available and the cost of consummating the bargain were formerly no doubt very favourably influenced by the fact that most of those interested in regional securities lived near the provincial exchanges and communications with these exchanges were therefore short and inexpensive. These short lines of communication still exist today, but their significance in connexion with the cost of finding the other side has diminished; with the advent of electronic order-switching systems, they are of little account. Where the provincial exchanges employ the same trading methods for securities in the lower segments as does the central exchange, no further positive or negative effects arise apart from the fact that on a central exchange there is a greater number of persons ready to deal in securities of all kinds so that it may on occasion be easier to find the other side or encounter competing tenders. Of course, this applies only where at least some of the stock exchange members are allowed to deal in the securities concerned for their own account or on behalf of others on a discretionary basis and where dealing procedures on the central stock exchange do not impede the participation of these members.

However, smaller stock exchanges frequently use dealing procedures different from those that would be found for securities of lower segments on a central exchange. On the French provincial exchanges such securities are traded at individual prices - or at collective prices provided there are sufficient orders - in a collective negotiating session in which generally all dealers at that exchange take part ("à la criée"), whereas in Paris such securities

in principle are traded "par casier", that is to say at calculated collective prices only. These procedures increase the time spent by each dealer per trade and accordingly will tend to increase the transaction costs. Fortunately, the traders on a provincial bourse are usually not really busy and draw salaries well below those required at the location of the central exchange.

Of course, these expensive procedures can be expected to have a positive effect on the cost of guarding against transaction risks, as has already been stated in setting out the reasons for the advisability of Segment 4. With these procedures the appropriateness of the price is assured as it implies the judgment of a fairly large number of dealers. Since less attention is usually paid to dealings in inactive issues on large exchanges than on provincial bourses, an argument emerges here in favour of stock exchanges exclusively concentrating on securities of the lowest segment. This argument fails, however, if the central exchange, which serves as the basis for comparison, is segmented "correctly", i. e. has developed the "right" procedures for the securities traded on it. The argument therefore points in the direction of competition between market organizers. This competition must first bear out which organizer - in certain circumstances supported by favourable production conditions - has found the "correct" procedure and can therefore offer the most competitive transaction services.

Under the aspect of the investor's transaction-related information costs there are no substantial advantages or disadvantages compared with a segmented central

exchange, apart from the afore-mentioned duplication of facilities. From the point of view of the cost of immediacy no clear advantages or disadvantages can be discerned.

In conclusion, the second case of vertical disintegration of the secondary market into several exchanges does not seem to increase the procedural efficiency of the secondary stock market compared with a segmented central exchange either. Admittedly, a central stock exchange might not be suitably organized in the area of Segment 4 and additional stock exchanges could remedy this defect. Nevertheless, this advantage of splitting would, because of the low turnover in the bottom segment, only in the rarest instances counterbalance the disadvantage of additional costs due to duplication of facilities. It is to be feared, therefore, that such exchanges would not themselves be able to bear the financial burden of maintaining markets for bottom-segment securities since neither investors nor issuers would be prepared to pay commissions or listing fees that were sufficiently high to cover costs. Thus the French provincial stock exchanges have to rely on subsidies and the Paris Bourse actually has to charge higher listing fees than the provincial exchanges as an incentive to listing in the provinces. It must not be overlooked that such stock exchanges and their members, above and beyond their transaction services, render special financial services in the form of financial public relations for regional securities, that they improve the standing of provincial financial centres and often keep alive a centuries-old tradition. Moreover, like other institutions involved with

securities, they may fulfil further important functions beyond their primary purpose. None of this is a justification, however, for stock exchanges which handle lower-segment securities becoming a cost burden on issuers and investors in the upper segments. Even these stock exchanges should in principle be able to withstand competition and offer transaction services of competitive quality at attractive prices. If such transaction services can be provided neither by a central stock exchange nor by several stock exchanges, it seems better that other forms of market organization should be allowed to come into play.

2. Exchange and non-exchange market organizers

The third case of a disintegrated secondary market which will be discussed here differs from a segmented central stock exchange in that in addition to one or more exchange market organizers there are also non-exchange market organizers who devote themselves to various different vertical segments. In this connexion we shall examine the question of what advantages and disadvantages accrue if, instead of one central exchange or several exchanges organizing all segments, some segments are catered for by one or more exchanges but others are looked after by non-exchange market organizers. Of course, it is difficult to distinguish exchanges from non-exchange market organizers. In the execution sphere a stock exchange is characterized by the fact that it helps its members (security-dealing firms and also, exceptionally, certain investors) to transact business more cheaply

by making elaborate dealing procedures available to them, by supplying information on the current state of the market and by making it easier to find counterparties of acceptable financial standing. Since the settlement sphere is frequently organized not by the stock exchange itself but by one or more other bodies and since stock exchanges conceive their functions differently in the decision-taking and information sphere, these two spheres are of no help in drawing the dividing line; for example in London, Brussels and on the smaller American exchanges securities may be dealt in even though they have not been listed, whereas most other exchanges always do require some form of admission, although they may maintain a form of admission on less stringent conditions alongside the official listing. Therefore a demarcation on the basis of the execution sphere seems most appropriate.

Unfortunately the above-mentioned criteria for the execution sphere similarly do not enable one to make a clear distinction. As stated in Part 2, Ariel, Nasdaq and Eurex would certainly qualify as stock exchanges under those criteria as would possibly some other market organizers and their markets. It might be helpful to base the differentiation, in accordance with the traditional concept of a stock exchange, on the regular assembly of traders on the floor of the exchange. But the fact that not only Nasdaq and Eurex but also the National Market System in the United States and telephone dealings between brokers and jobbers in the United Kingdom and the Republic of Ireland - which are regarded as stock exchange dealings - would be classified "non-exchange"

demonstrates that this criterion is of limited value. Therefore it might seem appropriate to disregard the difference between "exchange" and "non-exchange" dealings and to focus on the vertical segment organized as we did analysing the first two cases of disintegration. Nevertheless the following criterion was used in Part 2: dealings that take place on the floor of a stock exchange were classified as "exchange" and all other dealings were classified as "non-exchange", apart from telephone dealings between brokers and jobbers in the United Kingdom and Ireland. In the present context, too, that method provides us with a useful dividing line between exchange and non-exchange forms of market organization.

This terminological clarification suggests the following two steps. First, one must determine what segments could have their procedural efficiency improved by having dealing take place without a physical assembly of dealers, in other words one must decide where, even within a segmented central exchange, dealings off the floor would seem appropriate. Only when this preliminary question has been answered can there be a discussion of the advantages and disadvantages of dividing the market-organizing function between exchange and non-exchange organizers. As in Section I, it will again be assumed here that automation of dealing is not yet possible. Nevertheless, certain consequences of automation will be examined where this now appears necessary.

It became clear in Section I that dealings in Segments 1 and 2 ought to take place on the auction principle. Both segments are therefore *prima facie* unsuited to

trading off the floor since in the absence of automation the personal presence of as many dealers as possible at the place of dealing, e. g. in the crowd, is essential. The securities of Segment 3, on the other hand, are best dealt in, as we have shown, by the market-maker principle; therefore, since the introduction of the telephone, trading on the floor of the exchange is no longer necessary here. This applies particularly when there is only one market maker. From the point of view of the cost of consummating the trade, it seems more advantageous in this case if the contact, which otherwise serves to transmit the order to the floor booth of the firm holding the order, is established direct with the market maker resulting in immediate execution. Since a market maker can also usually be phoned on the floor of the exchange, this is no argument for trading off the floor but simply an argument that efficient trading without an assembly of dealers is possible in contrast to the situation formerly prevailing.

Trading direct by telephone is also to be recommended from the point of view of the protection against transaction risks, since an order becomes known to fewer people, thereby reducing the risk of "fellow-travelling". However, with trading decentralized it is a disadvantage that the market organizer does not have as easy access to information about prices and market makers' spreads as on the floor of the stock exchange. Firstly, supervision - and hence the cost of guarding against transaction risks - may thereby be rendered more expensive, and secondly off-floor trading may hamper the central supply of up-to-date information on the state of the market to investors and to the

market makers themselves. Insufficient information about developments on the market as a whole may result in market makers charging higher forward-cover premiums in decentralized dealing than when the operations are concentrated on the floor of a stock exchange, although the more titles a market-making firm holds positions in the less likely is it that this effect will occur.

When traditional communications technology is used there is a great deal to be said, therefore, for concentrating trading on a floor even in Segment 3. But with communications improved by the introduction of an electronic quotation system, as has happened with Nasdaq, the drawbacks mentioned disappear, as they are attributable primarily to lack of insight into the latest state of the market which is considerably improved by systems like Nasdaq compared with the simple traditional concentration of information on the floor of the exchange. But modern price information systems operated by some stock exchanges provide equally good insight. However, Nasdaq or similar systems solve the problem of securing the best available price where there are several market makers better than does mere spatial concentration of market makers on a floor. A further advantage of spatially-decentralized trading with an electronic concentration of trading information compared with spatially-concentrated dealing may be that personal contact between competing market makers is less resulting in narrower spreads due to intense competition. Since in decentralized dealing market makers are free to choose the location they operate from, they may be able to reduce their costs in this way, tax advantages possibly being

a factor. Finally, an important advantage of decentralized dealing is the possibility that regional firms which would not contemplate participating in trading on a distant stock exchange may be induced to become market makers. In this way, too, more competition would be generated between market makers, with a favourable effect on the cost of immediacy. To sum up, it can be said that with communication facilities increasingly being improved and made cheaper a spatially-decentralized form of dealing in Segment 3 will tend to be able to reach a higher degree of procedural efficiency than dealing on the floor of a stock exchange.

In the case of Segment 4, the question whether dealing on the floor of the exchange is more efficient than a decentralized form of dealing again cannot be the subject of a simple answer. Very few stock exchanges have tried to organize such dealing and only in the case of France and Denmark can one speak of an almost complete integration of Segment 4 into exchange dealing. In contrast to Segments 1 and 2, for which trading on the floor of the stock exchange is the rule in all countries, no uniform solution has emerged. However, it appears that off-floor trading predominates as it does in Segment 3.

The question as to the cost of finding the best price available and the cost of consummating the trade in decentralized dealing as opposed to dealing on the floor of a stock exchange is sufficient to reveal the most important aspects. For any given security the probability of finding an other side at all must inevitably be greatest and the choice of the best

counterparty the easiest where there is a concentration of all bids and offers. This is true regardless of the number of bids and offers arising in a given period, that is to say even when there is so little activity in a security that no firm makes a market in it. Because of economies of scale where there is intensive use of stock exchange facilities, because of the auction principle and its importance for combating transaction risks, and because of simplicity of supervision, it is best for trading to be concentrated not at any random location but on the floor of a stock exchange. Now, since it very often happens with securities of Segment 4 that only one order at the most is received in a day, it appears to be a good idea to intensify the concentration by going beyond spatial concentration and the usual temporal concentration of dealings and achieving an even stronger temporal concentration as in Copenhagen with the weekly calling of the B List or in Brussels with the weekly or monthly "ventes publiques". In this way the probability of a bargain being done would be heightened and at the same time the daily call could be cut out, thus saving dealers' time. This approach assumes that the stock exchange and its members accept that they should only passively receive and execute orders; against that background it makes sense, even though, like the daily attempts to quote inactive securities customary on other exchanges, it is no guarantee that any transactions can be effected.

Most days it will not be possible to find an other side at all. Therefore the question arises whether transactions in securities of Segment 4 cannot be

brought about in another way, i. e. not by passive waiting for counter-orders but - by analogy with block assembling - by actively contacting potential counterparties. As outlined in Part 2 (see for example pp. 73, 96, 138, 255), some firms and indeed some individuals are very well qualified to fulfil this function by virtue of their contacts with shareholders in a company or with a comparable body of persons. Their search for a counterparty regularly results in transactions even in situations where mere concentration would not. There is basically no reason why a member of a stock exchange who is investor-commission-orientated and at the same time specializes in a few inactive securities, such as the Belgian "spécialiste", should not make contacts of this kind outside the exchange and thus combine the advantages of such contacts with the advantages of a concentration of dealing. This unusual combination, which is not permitted in all countries, could be successful in some cases, but frequently the expense of making such contacts will not be worthwhile in view of the small volume of business that can be expected. Other security-dealing firms, particularly banks, however, do possess the necessary knowledge and contacts even in minor financial centres by virtue of their activities in other fields. To them therefore falls the role of successfully acting as occasional brokers in securities of their customers that are rarely dealt in; many banks deliberately engage in such activities and actively organize a market in stocks of issuers who are affiliated to them.

From the point of view of transaction risks, a situation arises here that is in general very difficult

to assess. Nevertheless, it is more likely than with dealing in the same securities on the floor of an exchange that an investor will be able to sell or buy within an acceptable period of time and at prices that seem more or less reasonable to persons with knowledge of the stock in question. Other requirements are hardly relevant unless these two basic prerequisites are fulfilled, in other words basic effectiveness takes precedence over efficiency.

This is not to say that dealings in Segment 4 ought to take place off the floor of the exchange. Just as stock exchange managements in the higher segments place specialist dealers at the centre of trading, so one could envisage firms with special contacts as "central brokers" with a duty to consummate bargains on the floor. But making it mandatory to deal on the floor would in these cases raise costs unreasonably since the counterparty will be sought outside the exchange and there will be no competing bids and offers on the floor anyway; in contrast to the situation with block transactions, for example, there will be no orders on the stock exchange awaiting execution and therefore be no need to protect orders against non-execution. Other aspects of investor protection point to the same conclusion. The investor faces transaction risks primarily as he decides on the transaction and places the order. Contrary to the situation in the higher segments, he usually cannot expect rectification by the time the execution phase has been reached, e. g. a competitive pricing of his order to sell limited well below what would be considered a fair market price. In other words, the importance of a

well-organized dealing procedure for and its contribution to the protection of investors decreases as the frequency of transactions in the securities concerned declines. To sum up, it emerges that dealing on the floor of the exchange seems superfluous wherever certain security-dealing firms, by virtue of their contacts, are able to bring about executions more dependably than can the exchanges by virtue of their spatial and their usual temporal concentration. In those securities for which such brokers are not available the exchanges could try to facilitate occasional transactions on the floor.

Now we are prepared for the main question: what are the advantages and disadvantages of dividing the market-organizing function between exchange and non-exchange organizers? In principle, a "central broker" of Segment 4 could be a member of the exchange with all the rights and duties attaching to such membership, even if he were not subject to the requirement that all dealing must take place on the floor of the exchange - like some British jobbers who, because of the nature of their business, do not deal on the floor of the exchange. So the stock exchange management could regard all dealing in Segment 4 as exchange trading and could organize and supervise it accordingly. This would correspond to the concept of a segmented central stock exchange which endeavours to establish and maintain in all segments procedures that are effective and as efficient as possible. If, however, this solution seldom occurs in reality, it is for a number of reasons which do not require examination since they are not of great significance for the overall assessment of the third case of vertical

disintegration, be those reasons unevenly graduated listing requirements, listing fees unacceptable to small issuers, prestige-seeking by stock exchanges, demarcations imposed by stock exchange law, cost considerations entertained by the stock exchange management, and/or simply the knowledge that hardly any benefit can accrue from the transaction service rendered by the stock exchange - unlike the situation prevailing in the higher segments.

It seems to depend primarily on the aspirations of individual stock exchanges whether or not they wish to organize the whole secondary market - from the stage of advising the client to the stage of consummating the bargain or even right through to the settlement stage. A typical example of an exchange with comprehensive organizational aspirations is the Stock Exchange of the United Kingdom and the Republic of Ireland. The Stock Exchange registers even every occasional transaction effected by its members in securities of Segment 4, since these off-floor transactions (cf. pp. 68 and 74) require approval, and as soon as sales show a certain degree of regularity the Stock Exchange does not allow the security to continue to progress gradually within Segment 4 but calls upon the issuer to apply for an exchange listing. Hence the issuer has to make sure that a minimum portion of the issue is publicly held, the security is listed and progresses directly to Segment 3, for which the Exchange possesses an outstandingly suitable trading procedure.

For that reason non-exchange market organizers

of Segment 4 play a much smaller role in the United Kingdom and Ireland than they do in other countries. Only in France and Denmark is their role of even less significance, but that is mainly a consequence of official regulations, although in Denmark it is also the result of the limited scope of the Danish secondary market. Since non-exchange market organizers are more strongly in evidence in all the other countries examined, the fact that a different situation has emerged seems to call for an explanation. The British and Irish concept of an exchange may be applauded as an attempt at comprehensive self-regulation but it may also be explained by saying that this Exchange can have no interest at all in non-exchange market organizers of Segment 4 since it trades in securities of Segments 1 and 2 by the procedure of Segment 3 and that it must therefore necessarily regard every market organizer as a potential competitor with good prospects of success in the upper segments as well. Stock exchanges that are confident of the efficiency of their dealing procedures can afford to tolerate non-exchange market organizers.

To sum up, it can be said that the more a country's stock exchange or stock exchanges concentrate their organizational efforts solely on the execution sphere, the more likely is it that they will neglect the Segment 4 securities and the more frequently will non-exchange market organizers be found in that segment. Efforts by exchanges to organize the secondary market more comprehensively tend to produce a segmented central stock exchange or exchange system. At first sight a central exchange which

regulates the entire secondary market and is optimally segmented would seem to be the best form of market structure from the point of view of procedural efficiency, since only this form will prevent a superfluous duplication of facilities.

But this finding is based on assumptions that are hardly in line with facts: there would have to be certainty at all times as to which financial services of what quality would have to be offered to investors and issuers on the secondary market and as to how such services could be most efficiently provided. Under these circumstances an efficient central stock exchange would be conceivable. There is no guarantee, however, that such a central stock exchange would always adapt itself promptly and correctly to the preferences of investors and issuers and would improve its "production" techniques as soon as more efficient methods became available. It therefore seems sensible to regard procedural efficiency not as something static or related to a particular point in time but as a dynamic concept relating to a fairly long period of time. Accordingly one should concentrate less on the question of which secondary market structure offers the highest degree of procedural efficiency at a given moment than on the problem of how a high degree of procedural efficiency can be guaranteed in the long run.

From this angle it seems quite acceptable for several mutually independent market organizers to exist side by side, despite the costs caused by duplicative facilities. In other lines of commerce and industry the decision to forgo the cost savings

that could be achieved by concentration of production is for similar reasons one of the tenets of antitrust policy. Duplication usually works to the advantage of investors and issuers as well as it does in favour of consumers generally. This is the easiest way of ensuring that there is a market organizer for each segment improving procedural efficiency. Whereas an organizer of all segments can afford to neglect or subsidize one or more segments, the organizer of a single segment will always try to attract as many issuers and investors as possible to his market by the quality and price of the services he offers. It is not a matter of indifference to him which organizer an issuer decides to opt for. If he is successful, the organizer of one segment will exert competitive pressure on the organizer of another segment and thus force him to improve the production and the marketing of his transaction services. As a result, the direction of the competitive pressure may well be reversed, unless both organizers save themselves the trouble of competing by co-operating or amalgamating.

The neglect of a vertical segment or of part of it has become evident in recent years on several occasions, e. g. the establishment of the Tonto Shoken in Japan (see pp. 194 f.). In this context one may also want to refer to the markets that replaced the "mercati ristretti" in Italy (see pp. 170 - 173), and to the activities of Nightingale & Co. in London (see pp. 74 f.), a firm trading in securities with turnover characteristics which do exist, although not in line with the philosophy

of the Stock Exchange. There is a recent example for the beneficial effects of pressure emanating from a competitive market organizer: the effect of the NASD and its Nasdaq system on the New York stock exchanges (cf. pp. 236 - 239), which was particularly evident in connexion with the shares of the Bank of America. On the basis of its turnover characteristics this stock could long have been traded in Segments 1 or 2 but up till 1976 the Bank of America allowed it to be dealt in only off the exchange, that is to say by a procedure that was optimal only for securities of Segment 3, though other major banks have had their shares listed on the NYSE for some years. Clearly, the issuer was convinced that NASD had organized Segment 3 so much better than the stock exchanges had organized the higher segments that even the basically more suitable procedure used could not increase procedural efficiency in trading the share. Not until the NYSE allowed commissions to be determined by competition, as it was standard practice in off-board trading, and after the NYSE had adopted competition between specialists and allowed orders to be executed on the third market in a practical manner did the Bank apply for listing, expressly referring to the above innovations as the reason for its action. The result of these developments was to ensure that on the one hand investors in the Bank's shares who were not willing to wait for a bargain suffered no disadvantage through the stock exchange listing since the intensive competition between market makers could continue, and on the other hand that clear advantages were produced for investors who were willing to wait.

From the longer-term aspect the thesis of the superiority of a sole market organizer for the entire secondary market, which seems acceptable from static analysis, is untenable. Dynamic analysis suggests a market structure comprising vertical segments, or even parts of such segments, under the control of several competitive market organizers. It is irrelevant today whether the market organizers in the two lower segments operate a trading floor and thus may be called "exchange" or not. A secondary stock market that is vertically segmented in this way will be the basis of comparison for the next section which is devoted to the assessment of parallel markets and similar forms of horizontal segmentation.

III. ADVANTAGES AND DISADVANTAGES OF SELECTED FORMS
OF HORIZONTAL SEGMENTATION OF THE SECONDARY MARKET

As stated at the beginning of Section II, a horizontally segmented secondary market is characterized by the fact that instead of there being a single market for a given security there are several sub-markets. This horizontal segmentation or fragmentation is more pronounced in the upper vertical segments of the secondary market than in the lower. In addition to the principal market for the security, on which most transactions of normal volume are effected, there are special (horizontal) segments for odd lots, for blocks, and for forward trading, and sub-segments for offsettable orders and for before and after-hours dealings, as well as sub-segments in the form of domestic and foreign parallel markets. Majority-interest transactions will not be regarded as forming part of the block segment for our present purposes. The price of a controlling interest is influenced by special company-law and tax factors and the market for controlling interests can therefore be regarded not as a horizontal segment. It is a special market which is not distinguished from the principal market solely by differences in market organization.

The factors giving rise to various forms of horizontal segmentation have been set out in Section A and it has emerged from Section B I that special segments will be found even in a central stock exchange which strives to attain the highest degree of procedural efficiency and does not wish to give other market organizers any openings for successful competition. Therefore our prime concern here will be to examine

the importance of parallel segments for procedural efficiency. The two main problems of horizontal segmentation are the result of the decentralization of bids and offers in a security; they will first be explained paradigmatically by reference to in-house crossing and by the example of a parallel market. In the light of the findings that emerge we shall then evaluate other forms of horizontal segmentation and analyse the special problems attaching to such forms.

1. Advantages and disadvantages of in-house crossing

Whilst in-house crossing is common in Italy, Luxembourg and Denmark, it is forbidden or severely restricted in all the other countries under consideration as it is mandatory there to deal solely through a stock exchange. "In-house crossing" or "offsetting" refers to the consummation of securities transactions on the basis of orders or other bids or offers held within a security-dealing firm and at the prices prevailing on the principal or another market. In short, offsetting means in-house matching of bids and offers at prices established elsewhere. Admittedly, it is irrelevant where the crossing takes place and for that reason regional stock exchanges on which orders are executed at the prices prevailing on the principal market were described as crossing facilities in Part 2 (see for example pp. 116, 129 f., 243 f.). Hence the problems to be addressed in this section are more general than it may appear at first sight, particularly since other transactions, e. g. certain block transactions, may also be judged to constitute crossing.

In the passage that follows we shall assess in the light of the relevant aspects of procedural efficiency the advantages and disadvantages of the execution of orders by in-house crossing as against the concentration of all bids and offers in the principal market.

The cost of finding the best counterparty and the cost of consummating the bargain are obviously reduced by crossing. Where orders can be offset, no costs arise for passing on the orders or for their execution at the principal market, e. g. member commissions. Offsettable orders are usually matching unlimited orders; in exceptional cases limited orders, whose limit is so far away from the market as to be without significance, may also be offset. If owing to unexpected price fluctuation such limits become effective, the crossing firm must substitute its own bid or offer for the limited order scheduled for crossing that has become inexecutable. "Risky crossing" of this sort is conceivable, but in practice only "safe crossing" is met with, mainly because it provides the simplest way of separating offsettable orders from those to be transmitted to the floor. Moreover, orders with limits far away from the market are extremely rare, in contrast to orders limited close to the market and market orders. No costs usually arise for separating offsettable orders since the firm's order department records and sorts the orders received anyway.

In connexion with the cost of guarding against transaction risks, it is appropriate to deal with realization risks and information risks (see

pp. 24 - 28) separately. We will first examine whether there are in fact any realization risks at all that result from crossing, that is to say whether it is possible for an investor to obtain a worse price where there is offsetting than he would if the bids and offers were concentrated entirely on the principal market. The answer to this question as to the effect of offsetting on prices depends on whether, if there were no offsetting, the orders would have to be executed on the principal market at certain specified times at collective prices or whether they would have to be executed continuously at individual prices. Where there are collective prices, only the net balance of market orders can have any influence on the price; the absolute number of units the market orders are for is irrelevant, so there is no realization risk as a result of offsetting here. Only where there are unexpectedly sharp price movements is there a danger that "risky" - but not "safe" - crossing will accentuate the price movement and hence give rise to a special realization risk. As stated above, this occurrence may be disregarded.

Another complication would arise if, as a result of in-house crossing, no price could be established on the principal market for lack of orders. This conceivable disadvantage of crossing is, however, unlikely to occur, as the orders other than those to be crossed would in that case have to be all on one side or limited in a way that the highest bid is below the lowest offer. Since in that situation a collective price could not be readily determined even if there were not any in-house crossing and

since in such circumstances the existence of offsettable orders seems particularly unlikely, no significance will be attributed to this disadvantage. In reality there will be no in-house crossing in securities that are not regularly dealt in, with the result that sub-segments for crossing will be found only in the two upper (vertical) segments, in line with the thesis set forth at the beginning of this section.

A further argument against offsetting might be based on the fact that on some exchanges a price may be quoted only if a certain number of units were traded. It would therefore seem appropriate to ban in-house crossing in order to enable a price to be quoted more often. However, if a particular firm would forward to the floor matching market orders for the quantity required even the smallest limited order is enough to determine (or at least to influence) the price. Thus, the purpose of such rules - to let only price-judgements determine the price clearly expressed in and backed up by orders of sufficient weight - is better served by making in-house crossing mandatory than by banning it. The effect of a ban on offsetting on the scaling-down of orders, which is permitted on some exchanges in order to allow transactions even where there is a substantial excess of supply or demand, should be regarded in the same way. Admittedly, a ban on offsetting could increase supply and demand on the floor equally by the amount of the orders that would otherwise have been crossed and thus enable a higher quota. But it would still not be possible to ascertain the price that clears the market firmly based on the auction

principle. As in the case of minimum quantities, a ban on offsetting merely improves the outward appearance of an intrinsically unsatisfactory situation. This advantage is insignificant, particularly since many stock exchanges prohibit dealings in situations of disequilibrium in order to protect investors from the risk of transacting at prices that are not fair market prices.

In the case of continuous trading the question as to whether there are any realization risks occasioned by in-house crossing can be answered only if the origin of the price at which crossing takes place is known. Whereas in the previous instance execution without offsetting would have taken place at a certain collective price such as the opening price or at the price calculated once a day, there is no such clear reference price in the present instance. Basically, therefore, we must accept that the price will be affected. Even if the bid or ask prevailing on the principal market is used as the basis and offsetting takes place for example on the bid, offsetting increases the risk of non-execution since behind this bid there may be a buying order which will be ignored even though it reached the market before the buying order that was crossed. Against this disadvantage, however, there is an advantage for the buyer involved in the cross who, thanks to offsetting, is able to buy not on the offer but on the lower bid. A cross at a price within the spread would obviate non-execution problems and would give rise to no other realization risks. If the spread is wider than two minimum price-variations, it may be advisable, for the

purpose of a more accurate determination of the price, for the bids or offers to be called out on the floor of the principal market. In place of an (off-exchange) offsetting there would than be an exchange offsetting (see for example pp. 62 f., 133 and 226 f.), which is not offsetting in the proper sense at all since in this case the price is determined on the principal market, on the floor. Except where the current spread is known, is not wider than two price-variations, and the bargain is done within the spread, realization risks as a result of in-house crossing cannot be ruled out if there is continuous trading at individual prices. It would be different in the case of continuous trading at collective prices encountered in Japan and France. Here a clear reference price would always be available in the form of the next collective price and what has been said above in connexion with trading at collective prices will apply.

So far we have not taken into account the fact that in-house crossing may take place between an order and a matching unlimited bid or offer for the account of the offsetting firm. A chance offsetting transaction for own account should be viewed no differently from any other offsetting transaction. However, since the transaction costs relating to own-account crossing may be lower for the firm than the transaction costs in connexion with a normal bargain, there may be an increased readiness on the part of the firm to make changes in its own portfolio. If one assumes that if it did not cross in house the firm would have to pay a member commission, the situation can be expressed as follows. A contemplated change in the

portfolio which, in the absence of offsetting, would result in a sufficient yield only if the selling price on the exchange were higher by the amount of one member commission than at present - a change which is therefore not made - could be made by means of own-account offsetting if an offsettable buying order was received. Provided there is trading at individual prices the in-house cross could be made at the bid prevailing, which would be extremely favourable to the client and which could be raised slightly in order to avoid non-execution problems as explained in the paragraph above. This effect has repercussions on supply and demand and may therefore lead to price effects. These price effects do not, however, entail realization risks. On the contrary, they should be welcomed from the point of view of allocational efficiency since they represent a step in the direction of a situation in which there are no transaction costs. If, on the other hand, the own-account offsetting transactions occur neither by chance nor for reasons of cost-saving but are motivated by inside knowledge, the firm can be interested in offsetting only because it is desired that the strength of existing differences of opinion with regard to the value of the security should not become apparent through exceptionally high published volume, in other words what arises in this case are not realization risks but information risks caused by in-house crossing.

Information risks caused by in-house crossing can arise if accurate knowledge of the trend of the volume of sales is relevant for decision-taking by one or more investors and for the success of their decisions,

but the real trend of turnover is concealed by undisclosed crossings. Of course, if the principal market does not publish volume figures for individual securities at all, offsetting cannot impair the "transparency" of volume trends. Where sales of individual securities are published, it is advisable, if there are in-house crosses, for the principal market to be kept informed of these transactions, and this also applies under the aspect of investors' transaction-related information costs.

The cost of immediacy, which is relevant in this connexion only where there is trading at individual prices, does not arise for persons placing offsettable orders since crossing replaces the immediacy service. As far as the speed at which a market maker can liquidate his position if he so desires, crossing is without influence, and so there is not even a negative repercussion on the provision of this service for other investors. However, there no longer has to be any subsidizing of investors who are unwilling to wait for a bargain by those investors, who, thanks to offsetting, no longer need this service and no longer permit a market maker to earn a spread in riskless transactions. This must be considered a further advantage of in-house crossing. The execution of orders at an offsetting price within the current spread is a reflection of this advantage.

One sometimes encounters the view that a ban on in-house crossing increases the depth of the market, i. e. it would make it possible to buy or sell substantially more units if small price concessions are made. However, if there are offsettable (unlimited)

orders even maximum price concessions are not sufficient, for example, to give access to the offsettable market orders to buy where there is an urgent sale; no price is low enough to displace the market orders to sell. Basically, therefore, the depth of the market cannot be increased by bringing offsettable orders to the floor.

In conclusion, the existence of sub-segments for in-house crossing in the two upper market segments would increase procedural efficiency where dealings take place at collective prices if offsettable orders are crossed at the next collective price and if the volume of crosses is reported to the principal market for publication. Crossing of orders which would otherwise be executed on the floor at individual prices causes serious concerns because the current spread on the principal market is not usually known and quickly changes. If, however, the spread is known, an offsetting at a price in the middle of the spread gives the investors involved such clear advantages that possible realization risks occasioned by in-house crossing are counterbalanced.

2. Advantages and disadvantages of parallel markets

Parallel markets are facilities for transactions in certain securities characterized in the following six ways:

1. there is at least one other market (the principal market) for transactions of normal volume in these securities;
2. the prices are established autonomically, i. e. on the basis of orders received and not merely taken from another market;
3. the individual transactions are of normal volume;
4. as a rule, at least two security-dealing firms are involved in the transactions;
5. dealing takes place on the principal market and on the parallel markets at the same time, although the length of the trading sessions may differ;
6. the various markets in a particular security are linked with each other through arbitrage.

The features stated above provide sufficient demarcation between parallel markets, particularly vis-à-vis in-house crossing of orders at prices established elsewhere, vis-à-vis special segments such as block markets and facilities for the execution of odd-lot orders, and vis-à-vis a market system, another form of spatially decentralized dealing. Parallel markets in the sense of our definition are often met with in real life. Firstly, they take the form of stock exchanges: in Germany, Japan, Italy, the United States

and to a lesser extent in Belgium a fairly large number of securities are traded on several domestic stock exchanges simultaneously. Secondly, in these and other countries there are parallel markets outside the stock exchange for securities listed on the exchange, especially for bonds but also, as the example of the third market in the United States demonstrates, for stocks. In assessing this important form of horizontal segmentation we need not specify which market is to be regarded as the principal market and which market or markets as the parallel markets.

As in Section II, the competitive-dynamic aspect will initially be ignored. We shall first discuss the advantages and disadvantages of parallel markets vis-à-vis a secondary market that is merely divided into vertical segments, viewing the matter under the static aspect.

From the point of view of the cost of finding the best price available and the cost of consummating the bargain, the question immediately arises whether centralization of the orders would not in many cases make it possible to promote a security traded on several markets to a higher segment and hence to deal in it by a more efficient procedure. In this connexion it must be borne in mind, first, that parallel markets exist mainly for securities which rightfully belong in the upper segments. Secondly, Segment 1 is of exceptional character and differs little in its degree of efficiency from Segment 2. Thirdly, Segment 2 is characterized by the broad spectrum it covers, accomodating securities with

modest turnover as well as highly active securities. For these reasons progress to a higher segment seems either improbable or irrelevant. The fact that securities of Segment 2 can be traded on several markets by the procedures of Segment 2, because there is a sufficient inflow of orders even on smaller markets, may constitute an important reason for the existence of parallel markets. It is by no means certain that centralization of the orders would not reduce the total flow of orders to all markets. Even apart from arbitrage orders, parallel markets are thought to have the effect of stimulating investor interest in trading, since for example the members of regional exchanges open up remoter markets for transaction services. It can be left open whether the efforts to sell transaction services would be less strenuous and less successful if there were no parallel markets. Whatever the answer to that question, centralization of orders would probably not mean that the securities traded on parallel markets would be assigned to higher segments. Another factor which may be relevant under the first aspect of procedural efficiency of the execution sphere are the short channels of communication where there are regional parallel markets. It is no longer as important as it once was, although it does still remain an advantage. Thus, it can be said that parallel markets under this aspect exhibit slight advantages rather than disadvantages.

The situation is different if one looks at it from the angle of the cost of guarding against transaction risks, an aspect that is closely connected with finding and securing the best price available.

With centralization the originator of the order deals, through his broker, with the most favourable counterparty on the entire market for the security in question, in other words, he has access to the lowest offer or the highest bid, whereas on parallel markets he deals merely with the most favourable counterparty on a sub-market, which often implies access to only the second or third bid or offer. Trading in a system with parallel markets therefore necessarily causes an investor price disadvantages in many cases compared with the situation obtaining where all trading is centralized on a single market, for example the execution of a selling order against a bid at 130 at a time when there is sufficient demand at 132 on a second market. This entails other investors not receiving execution, for example an investor or investors who have placed orders to buy at 132; where there was centralized dealing, orders to buy with a limit of 132 would be executed before those limited at 130. These investors must watch transactions being done on a parallel market without themselves receiving execution, despite their higher buying limit.

Now it is often objected that this distinct disadvantage of parallel markets is insignificant because it is removed by arbitrage. That is partly correct. Without a doubt arbitrage ensures that prices on parallel markets do not diverge widely and tends to keep prices on all markets in line so that extreme differences between the most favourable bid or offer for a security on a sub-market and that on another market do not arise. Without a doubt, too, arbitrage

reduces the risk of non-execution. Thus it is quite conceivable, in the example we have given, that an arbitrageur on the first market knew about the bid at 132 on the second market and accepted the incoming selling order at 130 in order immediately to effect a complementary bargain on the second market at 132. Without arbitrage neither order would have been executed. To put it another way, orders are basically always passed on to the sub-market with the most favourable bid or offer, but for this there arise unit "passing-on costs" amounting to the difference between the two most favourable tenders, the amount of the gross arbitrage profit. This spread is earned by the arbitrageur and not by the selling investor as it were without horizontal segmentation.

To avoid misunderstandings, we emphasize that the comparison being made here is not between parallel markets with arbitrage and parallel markets without arbitrage but between parallel markets (with arbitrage) and a dealing system that is only vertically segmented, i. e. one that is centralized. With centralized dealings there is no way that prices diverge and the problem of non-execution can be much more easily and completely solved than by arbitrage which is of no help if the net arbitrage profit is zero or negative or if the collective prices are established at different points in time. In addition, every investor then has the chance to have his order executed against the most favourable bid or offer on the market, in other words to earn the unit gross arbitrage profit for himself or at least to share it with the investor on the other side of the transaction. If a dealer

with knowledge of the orders were to prevent this by placing himself between the two investors for his own account, his spread earned could be described as the result of risk-free counter-action. The division into sub-markets makes such conduct easier and also facilitates straightforward (non-risk-free) counter-action, because orders will tend to remain unexecuted on the market for longer. Without prompt execution an important protection against counter-action is lost. Arbitrage could therefore appropriately be described as risk-free inter-local counter-action. For the investor, the "chance" of doing a deal with an arbitrageur entails a transaction risk.

From this angle it is natural that the NASD and the London Stock Exchange do regard it as a success that they have removed arbitrage by setting up Nasdaq or by merging the stock exchanges in the United Kingdom and the Republic of Ireland and by introducing the MPDS. To sum up, it can be said that the spread earnings just described clearly represent market-organization-determined costs for the investor and therefore tend to reduce procedural efficiency. Every arbitrage profit of a dealer reduces the yield to the investor from holding securities.

The significance of the gross arbitrage profit for procedural efficiency can be illustrated by an example. In Germany the proportion of arbitrage transactions to volume of sales in stocks is probably at least 5% and the average gross arbitrage profit can be assumed to be 1-2% of the market value. On turnover of DM 10 000 million there is thus an

aggregate gross arbitrage profit of DM 5 - 10 million or 0.05 to 0.1% of volume. That gives an idea of the amounts involved. It would surely be a mistake to suppose that aggregate market-organization-determined costs could be reduced by amounts of this size if parallel markets were dispensed with. Without a doubt additional costs of passing on the orders to the central market would arise if there were to be centralization and there would also be other additional communication costs (i. e. additional costs for finding the best price available and additional costs of consummating bargains) and these costs would arise for all orders not hitherto passed on to the principal market and not merely for those affected by arbitrage. Even if these additional costs are higher than the aggregate gross arbitrage profit, from the point of view of procedural efficiency parallel markets - contrary to first appearance - should not be unreservedly welcomed, since one would also have to assess such disadvantages of parallel markets as for example the risk of non-execution which is present even if there is arbitrage. If, however, the additional communications costs are lower, parallel markets would clearly be disadvantageous here compared with a market segmented only vertically. Progress in communications technology raises the question whether the additional communications costs might not be lower than 0.04 to 0.08% of the transaction value of an order. These rates are derived from the rates mentioned above, bearing in mind that volume equals executed orders from one side of the market only and that for a good third of the orders in Germany no additional communications costs would be incurred. The rates would probably be different in other countries.

If more thorough investigations, which would be beyond the scope of this study, were to produce the rather surprising finding that progress in communications technology does not for the time being suggest that parallel markets should be abolished in some countries, not even where there are markets situated close to each other and with intensive arbitrage connexions, there would still be two other possible ways of increasing procedural efficiency by reducing the gross arbitrage profit. Both ways lead to a market system. The first possibility would be to create a quotation system on the model of Nasdaq and the CQS (see pp. 257 - 262, 290 f.). Additional communications costs would then be incurred for fewer orders than under spatial concentration; these costs and the costs of the system would possibly be lower per period than aggregate gross arbitrage profits, thus increasing procedural efficiency. The second possibility would be for the arbitrageurs to offer for a member commission a special service similar to that provided on the Japanese regional exchanges by special securities companies (see pp. 176 f., 189) and to execute orders on behalf of investors on the sub-market with the most favourable bids or offers, so that at least a part of the possible net arbitrage profit remained to the investor.

To sum up, it appears at first sight, under the aspect of the cost of guarding against transaction risks, that there are distinct disadvantages of parallel markets on account of the risk of counter-action both straight and inter-local and on account of the additional risk of non-execution. So far, only the effect of the additional risk of inter-local

counter-action (arbitrage) has been weighed against the advantages of parallel markets in connexion with the cost of finding the "best" price available and the cost of consummating a bargain.

Parallel markets increase at least one further transaction risk, the risk of price frauds. Admittedly, price frauds are realization risks which are attributable to the settlement sphere, since in case of a price fraud the investor is credited with a selling price lower than that actually obtained or is charged a purchase price higher than that actually dealt at. But it is the execution sphere which provides the basis for price frauds; these can occur if several prices are reported for one security in the course of a day, particularly on different markets.

Inter-local price frauds, that is to say the crediting or charging of prices of a sub-market other than that on which the bargain was actually done, are more harmful to the investor than simple inter-temporal price frauds, which can also occur under a centralized dealing system, for the following reason. Because of the counter-action character of arbitrage, explained above, the prices at which bargains are done will more often lie at the limits of the orders and less often between the limits of immediately executable orders than will be the case with a centralized dealing system. Expressed in another way, and related to a particular security, this means that under a system of parallel markets viewed as a whole a higher daily "high" and a lower daily "low" can

be expected in any security than under a centralized system. Parallel markets thus increase the potential spreads obtainable from price frauds and hence increase the incentive to commit price frauds. There was information available neither on the importance of the additional price-fraud risk occasioned by the existence of parallel markets nor on the reduction of the risk of fellow-travelling. As mentioned earlier, where there is decentralized execution of orders fewer people will get to know about an order; in this case the dealer's closeness to his clients may well affect his conduct. Moreover, the opportunities open to a "fellow-traveller" may be concealed owing to the fact that a large order is spread over several sub-markets. Since a dealer who learns of a part-order only will have to assume that additional bids or offers will facilitate execution as a result of arbitrage, he will have less incentive to "fellow-travel" than a dealer who has knowledge of the large order on a central market.

From the point of view of the investor's transaction-related information costs there first arises the problem of adequate publicity for turnover, particularly if some sub-markets publish no daily turnover statistics for individual securities. We may dispense with a detailed discussion of this point as a similar situation was analysed in the section on in-house crossing. Prompt reporting of prices on all markets is also less easy to achieve than under a centralized system. Some problems and opportunities of consolidated price and turnover reporting have been outlined in Part 2, on pages 285 - 287.

It is often claimed that parallel markets reduce the depth of the market and therefore increase the cost of immediacy. The depth of the market has two sources. The opportunity of an instant bargain is offered either by persons placing limited orders or by market makers or other dealers who take positions spontaneously in return for price premiums or discounts (see Annex 3). The first source does not appear to be directly impaired by parallel markets. If one compares all sub-markets in aggregate with one centralized market, there is no reason to expect that the flow of orders should be thinner or that there should be fewer limited orders held on parallel markets. As explained above, owing to decentralization some orders will not be executable at all or will be executable only by arbitrage, with the result that it is likely that there will be more orders held on the parallel markets. The possible stimulating effect of regional stock exchanges on the demand for transaction services points in the same direction. On the other side, indirect effects cannot be excluded, for example the spread between "high" and "low" prices may have repercussions on the placing of limits on orders, and the rates of transaction costs (which are dependent on horizontal segmentation) may have an effect on the inflow of orders. - In contrast, the effect of parallel markets on the second source of market depth, a source which is not accessible everywhere, is likely to be unfavourable. Firstly, market makers and other dealers find conditions on a centralized market more favourable to the liquidating of positions owing to the concentrated flow of orders and secondly they are possibly exposed to keener competition through

limited orders. Under a spatially-decentralized system of dealing, conditions as favourable as on a secondary market that is segmented only vertically can be provided for them only by integrating parallel markets in a single market system.

Thus we find no definite disadvantages from the point of view of the cost of immediacy. Naturally the individual sub-markets are shallower than the market as a whole. Since orders in most cases come into only one sub-market, there will normally be lower net sales proceeds or higher gross purchase expenditures than is the case with centralized bids and offers. Of course, investors often try to obtain the benefit of the full depth of the market by spreading large orders over sub-markets. This procedure is laborious, but if the investor were to go to only one market he would rely on the modesty and self-restraint of the arbitrageurs. Even then the state of the market, particularly the volume of orders on individual sub-markets, will never be anticipated correctly, so that some bargains will have to be done with arbitrageurs. For that reason, e. g. in the case of a substantial sale, the net sales proceeds will be lower, even where orders are spread, than on a central market, but this is due not to narrowness of the market as such but to the difficulty of choosing the right market. What is usually complained of as the narrowness of parallel markets should strictly speaking be laid at the door of a different short-coming: the impossibility, on parallel markets, of regularly and reliably finding the other side offering the best price available on the market as a whole.

An important disadvantage of parallel markets is the cost of duplicative facilities. An indication of the forgone economies of scale may be found by relating the expenses of various stock exchanges to the volume of sales effected on their floors and by comparing the resultant stock exchange costs expressed as a thousandth part of volume for large and small markets. Unfortunately data on the costs of the stock exchanges were available only for American parallel markets. The four largest American regional exchanges, at least, provide comparable dealing facilities and assume similar regulatory functions. In addition, they deal almost exclusively in equities. So the expenses and volumes of these exchanges may be used to provide some idea of the orders of magnitude involved. Admittedly, the four exchanges do not all quote the same securities, but that will hardly have any impact. In 1975 the stock exchange costs expressed as thousandths of volume were 0.70 for the NYSE, 2.27 for the PSE, 2.94 for the MSE, and 4.05 for Amex. The volume on these exchanges is shown in Tables K - 3 and K - 4 on pp. 212 and 214; the tables show that the NYSE with over 80% of overall volume is the largest exchange, the PSE with a little over 3% is the smallest, with the MSE and Amex having slightly higher shares of volume than the PSE. On average for the years 1972 - 1975 stock exchange costs as a thousandth part of volume amounted to 0.64 for the NYSE, 2.10 for Amex, 2.66 for the MSE, and 1.86 for the PSE.

From what we have said so far the reader may have gained the impression that on the whole the disadvantages of parallel markets, when judged from the

static point of view, outweigh their advantages as compared with a secondary market that is segmented only vertically. In many cases this first impression will be correct, but the decisive point is the relative weight of the advantages and disadvantages. In the case of dealings in foreign securities, in particular, the disadvantages probably do not outweigh the advantages, since orders of domestic investors in respect of such securities, as stated on page 315, can be executed with fewer and simpler steps than on markets abroad. In many cases of parallel markets for domestic securities more thorough investigation from the static viewpoint would probably reveal the advisability of greater centralization of dealing, either by merging parallel markets or by changing to a market system.

From the competitive-dynamic point of view, a reduction in the number of market organizers would give cause for concern. What has been said on pages 355 - 358 also applies here by analogy. Here, too, the use of advanced dealing procedures may be better ensured by competition between market organizers than by any other means. It is naturally also a feature of this competition between market organizers that one will lose business to others, just as the NYSE, contrary to its original objectives, has lost its business in governmental bonds almost completely to non-exchange market makers (see p. 272). Market-maker trading of bonds was successful compared with trading bonds on the NYSE mainly because limited orders are very much less common in bond transactions than in the trading of equities and the investor in bonds is generally interested in immediate execution.

Other aspects are the lower risk of holding a market maker's position compared with the situation with shares, which keeps the cost of immediacy down, the competition between off-floor market makers, and their remarkable capabilities of assuming position risks. In bond dealings in some other countries, especially in Germany, a similar development seems to have started or even to be well under way.

The misgivings that many people entertain about dealings off the floor of a stock exchange probably result largely from the fact that they take "off-the-floor" to mean unregulated, unorganized and obscure. But the connexion is not fundamental. Certainly the parallel markets organized by the NASD or Ariel, to name but two examples, are at least as strictly regulated and transparent as many traditional stock exchanges. For that reason we have not distinguished between exchange and non-exchange parallel markets in this section. The success of a non-exchange market at the expense of a stock exchange is thus thoroughly to be welcomed, if both markets employ convincing dealing procedures.

The same is true of parallel stock exchanges. In contrast to the situation in the past, when problems of communications justified these exchanges, today the existence of parallel markets is based more and more on successful competition. Parallel markets are thus increasingly becoming competing markets with greater or lesser differences in their transaction services, their dealing procedures and their commissions. This produces a situation in

which regulations and practices that restrict competition must be avoided. On the one hand it must be possible that one market can lose all its business to another if the quality and price of its transaction services are not competitive. On the other hand an existing or even a new and innovative competing market must have the chance of attracting all the business there is. Accordingly, making it mandatory to deal through a stock exchange, commission-fixing arrangements (cf. pp. 313 - 315) and exchange territories must increasingly be regarded as obstacles to the further development of the secondary market. Where progress is not possible through quality and price competition, regulations or arrangements of this sort prop up parallel markets which, had there been competitive access to all markets, would have long since had to cease business, in other words these restrictions prevent the centralization of dealing. If, however, as a result of new developments, progress is possible in the production of transaction services, such restrictions may impede or delay the growth and success of competing markets - regrettably, as competition in the first place could answer the question what degree of horizontal segmentation is desirable.

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3. Evaluation of other forms of horizontal segmentation

Some forms of horizontal segmentation can be interpreted partly as in-house crossing and partly as parallel markets, so that in this way their essential advantages and disadvantages as compared with a market that is segmented only vertically can be brought out indirectly. In-house crossing has been defined as in-house matching and non-autonomic pricing of orders. "Out-of-house" off-floor crossing or external crossing would at first sight seem illogical, since the orders might just as well be passed directly to the floor. Nevertheless some practices can quite well be described as external crossing. Where a security-dealing firm is not a member of the principal market and therefore has to pay a non-member's rate of commission - fixed on a cartel basis - for the execution of orders on the principal market, the crossing facilities already mentioned in Section 1 grow up, in the form of regional stock exchanges. So long as such regional stock exchanges abstain from establishing prices autonomically, the disadvantages of parallel markets will not arise. It is therefore quite understandable that the SEC after a few months abandoned its decision, taken in its early years, to compel the regional stock exchanges to establish prices based on orders held instead of relying solely on New York prices. The American third market, too, can be interpreted in this way to a certain extent. Because of its qualitative aspects, however, it also has definite competing market characteristics.

Special segments must also largely be regarded as means of crossing and hence under the aspects of

procedural efficiency the judgement on them must often be favourable. In the special stock exchange segments for odd lots in the United States and in France (dealing "par opposition") the dependence on the prices established on the principal market is evident. In Germany this dependence results from the fact that the collective price for small orders is established while the continuous trading takes place. Thus, in a similar way as in "par opposition" trading or in American odd-lot dealing, any excess orders that cannot be crossed at the prevailing price on the principal market are absorbed by the principal market.

Some special segments for block transactions also display distinct characteristics of in-house crossing. In addition to commission advantages the crossing of blocks may yield substantial savings of cost of immediacy and it frequently reduces the high imputed cost of guarding against "fellow-travelling". It is often worth-while to wait patiently for orders on the other side (fourth-market houses in the U.S.) or at least to precede the planned execution on the principal market with what might be described as an attempt at offsetting, by briefly announcing one's interest to potential counterparties before proceeding to the principal market if no matching interest is found in this preliminary approach (Instinet, AutEx, Ariel, Comstock). Systems such as AutEx and Comstock, in addition to the advantages of offsetting which they provide, also have the effect of sharpening the commission competition for block orders as they offer a good chance of arranging crosses to smaller security-dealing firms which, unlike the large broking

firms, have not been able to establish contacts with institutional investors and thus cannot as well assemble the other side to a block transaction on their own. Furthermore, the first three systems initially displayed the characteristics of competing markets: they, or at least some of their participants, in contrast to the members of the exchanges, offered the mere execution service without any investment advice and were thus pioneers of the "unbundling" of transaction services. In the United States a fair number of exchange members has adopted this practice. Ariel in London, on the other hand, has retained its character as a competing market, particularly since dealing without jobbers is a special feature there.

The disadvantage of these systems is the fact that prices are usually determined autonomically within the special segments resulting in price differences compared with the principal market. As in the case of parallel markets, this raises problems of non-execution and in many cases also problems of arbitrage. A well-devised solution of this problem is that found by the NYSE. The crossing of blocks on this exchange at the clean-up price (see p. 231) combines major advantages of crossing, obviates non-execution and arbitrage between block segment and principal market, and in addition ensures reporting of the transaction. Because of the growing turnover in the block segments one may feel inclined to ask which segment should be called the principal market and which the special segment. Despite high volume, the number of orders in the block segments is generally much smaller than on the principal market

and prices thus cannot be readily established, neither by auction nor by market-maker principle (see Annex 2). Not least for this reason it is unlikely that the block markets will relegate the present principal markets to the status of special segments for "small" orders, a process to which there would in principle be no objection. There is another conceivable disadvantage of block segments that seems unimportant: the block segments' increasing share in volume could mean that some securities would have to be relegated to Segment 3. This danger is small because institutional investors are interested principally in the top securities, so that despite the effects of institutionalization the principal markets would still be left with orders sufficient to establish individual or even collective prices.

Finally, let us mention briefly the most important advantages and disadvantages of before and after-hours dealing:

1. The total cost of finding the best price available and the cost of consummating the bargain are lower under this procedure than if stock exchange hours were to be extended. Not all the participants in a regular trading session need to stand by for occasional transactions among a readily discernible group of participants.
2. The investor unwilling to wait for execution tends to face increased transaction risks (see p. 332).
3. Price and volume reporting may be insufficient.

4. For the investor there is the chance of transacting immediately, in line with the rationale of "modified Basic Structure A" (see p. 331 f.).

If, on the other hand, as is frequently the case, no investors take part in the dealings at all and the security-dealing firms trade among themselves without publicity, this by definition does not affect procedural efficiency.

Two special cases of before and after-hours dealing call for additional appraisal. Firstly, before-hours dealing gives the dealer an opportunity to base his operations on the price trend expected on the basis of clients' orders received, e. g. where there is a surplus of buying orders he will try to acquire stock at prices as near as possible to the previous day's prices. As there is a danger that stock will be taken up which would otherwise have been directly available on the principal market, e. g. on the stock exchange, this practice is to be qualified as a special kind of "fellow-travelling". A certain degree of protection against this transaction risk is provided by regulations which stipulate that no security-dealing firm may buy or sell for own account at prices at which clients' buying or selling orders which the traders of that firm hold or know about could be executed. Secondly, the trading of foreign securities before or after domestic exchange hours, but during dealing hours on the principal overseas market for such securities shows characteristics of both offsetting and parallel markets. It does not matter whether one interprets this trading as a parallel market or

a kind of crossing facility for ascertaining the excess supply or demand to be absorbed by the principal market. In either case this trading still contributes to increasing the procedural efficiency of the secondary market.

C. THE POTENTIAL IMPACT OF AUTOMATED TRADING
ON SEGMENTATION

Although the effects of electronic data processing on securities trading relevant to this study have been described in some detail, particularly in Part 2, we have not yet systematically discussed their effects on procedural efficiency. The programme for the study requires to point out the advantages and disadvantages of a market system providing for automated trading compared with markets working with traditional methods from the point of view of the interests of the investor (see Annex 4). Thus, it seemed appropriate to discuss questions related to automated trading at this point separately although they could equally well have been incorporated in Section B.

An obvious question at this point is whether it might not be possible to reduce the degree of horizontal segmentation by linking sub-markets electronically in order to reduce the disadvantages of parallel markets without losing their advantages. Before taking up that question, we must first make clear how the transition to an automated system of dealing is to be judged. No detailed comparison of methods is possible within the framework of this study, of course. Our analysis will therefore be confined to a few fundamental considerations and will be based on the relevant passages in, especially, Part 2 (see pp. 69 - 73, 90 - 92, 108 f., 121 f., 134 - 139, 233, 235, 257 - 262, 268 f., 281 - 302). Because of their different characteristics, automated trading in Segments 1 and 2 will be discussed separately from

that in Segments 3 and 4.

In most of the countries examined electronic order-switching systems are increasingly being used to reduce the cost of processing the orders. These facilities have partly been created by large security-dealing firms for own use and are partly a service provided by the stock exchange available to all members. These systems pass all or some of the orders automatically to the floor offices of individual member firms or direct to the market for the security, e. g. to the specialist on the NYSE. In addition, the work necessary for the clearing and settlement of stock exchange transactions is either already carried out by means of electronic data processing systems or attempts are being made to work towards this solution. With a linking of the order-switching system and the clearing system on a stock exchange by means of automated trading, the order data, once fed into the system, would be locked in the system from the placing of the order right up to settlement. This result would be very interesting from the point of view of the total cost of execution of the order. From the point of view of supervision and transaction risks, too, such a solution would have substantial advantages. In the first place, the progress of the transaction could easily be recorded chronologically - as is not the case with the traditional procedure - and could if necessary be traced in detail, for example for the purposes of investigating complaints from investors. Secondly, the system would be programmed to take account of investor protection regulations in the execution sphere and would provide a more reliable guarantee

of their application than is possible with vocal communications.

Nevertheless, anyone who has ever experienced a day of lively business on the floor of a major stock exchange will doubt whether the results of this breath-taking activity can ever be achieved by the sober methods of electronic data processing. Many exchange members regard the information which they gain from the behaviour, the appearance and the voice of other dealers as very important and can barely imagine working successfully under different conditions. They point out that a proper view of lively or even hectic dealings in a particular group of securities can be gained only by a trader who is actually present on the floor of the exchange.

These arguments against the automation of dealing seem to have become less substantial in recent years. It is recognized that a quotation system if properly planned can provide an excellent view of the state of the market provided that the bids and offers displayed are firm. No doubt systems of this kind are unable to provide information on a par with that gained by direct observation of other traders. But in the future the cost advantages of automated trading will emerge more clearly and will probably make traders more ready to do without information to be gained by direct observation on the floor. It should be noted that dealing over the telephone has greatly reduced the degree of personal contact. Trading systems like Instinet and Ariel do not even provide for voice contact. The members of the Cincinnati Stock Exchange started trading by a similar method

recently and on the NYSE thousands of orders for less than 300 shares each are executed each day by specialists without any personal contact with other dealers. In the trading at calculated collective prices there has for a long time been no personal contact at all in many cases; the purely arithmetical operation can be taken over completely by the computer, as the example of the Brussels Bourse demonstrates (see pp. 121 f.).

Nevertheless, there is still no major stock exchange with a trading system that is largely automated. This is not surprising when one considers the demands that are placed on such a system. The task of automatically executing small incoming orders at predetermined prices as in odd-lot dealing, recording the execution, and storing the relevant data for clearing purposes is relatively simple and hence was solved at an early stage, as was the problem of developing a computer-assisted system of trading whereby bids and offers are communicated by electronic means to the specialist or, as in the case of Ariel, to a relatively small group of participants and accepted by feeding in instructions, if desired after negotiation through the system. But where there is a large number of participants and a rapid succession of bids and offers of differing sizes from both sides of the market, computer-assisted dealing at prices directly determined by the traders themselves is impracticable. However, this situation is typical of the principal markets of Segments 1 and 2. In this case the computer itself must take over the job of finding the most favourable existing bids or offers on the other side and then doing

bargains if the limited orders on file or other bids and offers are reasonably related. As Merrill Lynch's proposal states (see pp. 292 f.), the system should be able to recognize unfavourable spreads. It would have to be programmed in a way that it would first make a bid or offer within the current spread. If this bid or offer was unsuccessful, a bid (for example) would have to be repeated at a lower price after a few minutes. In addition, the program would also have to contain safeguards protecting investors if there is an insufficient number of competing bids and offers.

Finally, the system must at least be able to manage an orderly opening at collective prices which, at any rate in Segments 1 and 2, precedes trading at individual prices. Contrary to trading by traditional methods, the problem here, even with extremely active securities, does not seem to be the calculation of the collective price, and therefore different techniques for Segment 1 and Segment 2 no longer seem necessary neither for the opening nor for subsequent transactions as the system could even cope with individual bargains coming in very rapid succession. It is quite conceivable that at the opening the system might transmit a provisional collective price for each security on the basis of the orders on file at that particular moment for a certain period before dealing commenced, say for 30 minutes, either continuously or at short intervals. On the basis of this information additional orders could be continuously fed in by dealers and by investors via their brokers if they thought the provisional opening price was favourable. Trading would then be opened

at the collective price which had been reached by the time dealings were due to commence.

What we have said should be enough to give an indication of the complexity of complete automation of the execution sphere. It will also have made clear that - as was to be expected - none of the principles of auction trading becomes obsolete and that hence the problem of an insufficient number of competing bids and offers still remains - the main problem of investor protection in the execution sphere. The goal of a system of automated trading is primarily to reduce the cost of processing orders in the execution sphere, particularly by doing away with the physical assembly of dealers and doing without the intervention of member-commission-oriented market participants, who for that reason are the strongest opponents of the developments that are taking place, whereas the investor-commission-oriented houses see advantages in them. Apart from the reduction of these costs there may be additional advantages as the strictly non-arbitrary way in which business is conducted may convince investors that their orders are being executed fairly. The speeding up of the transactions is another factor contributing to this. As in Nasdaq trading, the execution of an order could be confirmed within a very short time, while the client is still with the representative advising him, and this would frequently facilitate additional transactions.

Because of the different interests of the participants in the market and the difficulties of automation, it is not surprising that developments in this field

are slow and that the strongest impulses towards the further development of security-dealing techniques in the United States emanate from the legislature and the regulatory agencies and are directed not towards individual stock exchanges but towards a market system. Even a joint quotation system linking all sub-markets reduces the disadvantages of parallel markets described above in detail although the problem of passing the order on to the market with the best bid or offer available remains unresolved, particularly for small firms. Integration of all sub-markets into a system of automated trading removes these disadvantages completely, in particular it would make sure that each investor obtains execution at the most favourable price available within the whole system. Of course, the system has to be so attractive that all market participants will use it. In order to make sure of this attractiveness, it seems necessary to have several market organizers. It is true that the concept of a market system prevents a parallel market from emerging as a competing market. Within the market system competition can take place only through the prices of securities and through the price, range and quality of the financial services offered, assuming that the quality is not fixed by the system. It is, however, quite conceivable that there should also be competition between market organizers of various different vertical segments or part-segments to attract issuers, especially between the market organizer of Segment 1/2 and the market organizer of Segment 3.

For several reasons automation of Segment 3 appears

an easier task. Firstly, the number of transactions is smaller than in the segment above it. Secondly, the roles of the market participants are more clearly defined; only the market makers have to feed in prices and therefore only their bids or offers can be accepted. Thirdly, there are no member-commission-oriented dealers whose resistance has to be overcome. It is thus not surprising that progress is most in evidence in this segment. Although Nasdaq is primarily a joint quotation system for its market makers, a later transition to automated trading was envisaged from the beginning and is expected to be brought into operation as soon as the clearing and settlement system has been perfected for securities authorized for Nasdaq trading. A second example of progress in Segment 3 is Eurex. The positive effects of these systems on procedural efficiency are obvious; thus, the individual aspects are not discussed here.

The fact that Eurex also provides for dealings in securities which have no market maker represents a first step towards automation of trading in Segment 4. For years to come such steps can be expected only as a complement to developments primarily designed to cater for more active titles. Automation of trading can reduce the cost of processing orders, ensure that investor protection regulations are observed, improve the transparency of the market, and sharpen competition between dealers. But the boundaries marked out by the turnover characteristics of a security cannot be overcome by automation of trading any more than by traditional dealing procedures.

D. CONCLUSIONS FOR THE STOCK EXCHANGE POLICY
OF THE EUROPEAN COMMUNITIES

In undertaking this study we were asked to provide an answer to two overlapping questions:

1. Is a similar form of organization for the secondary stock markets of the individual Member States desirable in the interests of a proper functioning of the Common Market?
2. Which is the better form of organization: an integrated market or a fragmented market?

The second question must be answered before the first, since if it is not known which is the superior form of organization there is no way of knowing whether the market structures of the individual Member States should be harmonized.

Our analysis of the execution sphere of the secondary markets in the Member States of the European Communities, Japan and the United States has revealed that in every country there is vertical segmentation, usually to a very marked degree. Horizontal segmentation is also found to exist in every country examined. In addition to horizontal segmentation within national frontiers there is horizontal segmentation internationally as the top securities of almost every country are being traded on foreign markets. The analysis has shown that vertical segmentation improves the efficiency of secondary markets and must be based on the turnover characteristics of the securities traded. Horizontal segmentation, although it has serious disadvantages

in some cases, is necessary at least for ensuring procedural efficiency of dealings in foreign securities. In addition, the existence of parallel markets and different market organizers for vertical segments is very desirable from a longer-term point of view. Competition between market organizers generally means that technical and economic progress is translated swiftly into more efficient trading procedures. In contrast, there is little incentive to develop advanced procedures within a national centralized stock exchange officially supported by exclusive trading privileges. This aspect is of particular importance today, given the prospects opened up by advances in communications technology.

The superior form of organization of a secondary market is thus not a central exchange with a uniform method of trading for all the securities circulating in a given country. Instead, there should be several competing market organizers offering different dealing techniques for different securities or even for the same securities. A market more or less segmented in this way does exist in all countries of the Community. The answer to the question what degree of segmentation is desirable will essentially depend on:

1. the turnover characteristics of the securities traded in a country;
2. the dealing procedures actually in use in the country and the dealing procedures capable of being introduced;
3. the state of communications technology and the cost of data transmission;

4. the nature and extent of the demand from various groups of investors for transaction services;
5. the number and structure of business and financial centres in a country.

Now we may turn to the question of whether a similar form of organization for the secondary markets of the individual Member States is desirable in the interests of a proper functioning of the Common Market. The five factors determining the appropriate degree of segmentation of a secondary market, listed above, vary from country to country. Therefore differing organizational structures may well be necessary for the secondary markets of different countries as a result of the particular environment of the national markets. Thus four fully developed vertical segments (cf. pp. 321 - 333) will be advisable for a few countries only. In some countries the secondary stock market may at times be perfectly organized that no scope is left for competing markets. Moreover, it is to be expected that the importance of individual vertical segments and of special segments for small orders or blocks will be different. The overall appearance of properly segmented secondary stock markets will in principle differ substantially from country to country, even if certain individual segments, particularly the principal markets for active stocks, display a largely uniform basic structure.

One might be tempted, on the one hand, to develop certain market structures on the basis of the five factors that appear to represent the optimal solution

attainable at the time the analysis is made and to try to introduce these structures by means of stock market policy measures. On the other hand one could leave it to actual and potential market organizers to carry out such analyses and to deduce from these the best way to conduct their competitive operations.

In principle, the second alternative is to be preferred. Contrary to policy makers and regulators the market organizers have first-hand knowledge of how the four factors listed first have altered with the course of time and what trends of development are to be expected. Besides, it is the market organizers who will have to implement the impending structural alterations and they will be better motivated to do so by pressure of competition than by plans for reform. What has been said in Part 2 and in the last sections in particular has shown that competition between market organizers, where it is allowed and encouraged, can be very effective.

From this emerges the requirement that stock exchange policy should not prescribe the direction and the extent of changes in the market structure but should lay down the basic rules for competition on stock markets, particularly for competition between market organizers. These basic rules should firstly provide for protection of the market user, primarily of the investor, through rules tailored to the particular segment and secondly - and this is the important point for our present purposes - they should give adequate scope for appropriate segmentation.

Adequate scope for appropriate vertical segmentation implies a number of specific requirements. Firstly, it must be possible for security-dealing firms to form or to join a stock exchange in order to trade active securities by the auction method at collective prices. Secondly, market makers must be allowed to operate. Thirdly, security-dealing firms wishing to offer transaction services in inactive securities must not be restricted to any one type of procedure and in particular must not be compelled to deal exclusively on the floor of a stock exchange. Allocation of securities to a vertical segment should preferably be left to competition for issuers between the market organizers; this requirement implies that more than one market organizer must be permitted to operate.

Adequate scope for appropriate horizontal segmentation means that every group of security-dealing firms that is convinced that it can offer a transaction service that appeals to certain investors must be free to set up a parallel market or a special segment. Every market organizer, e. g. every stock exchange, must be able to squeeze out another market organizer by quality competition or price competition without being restrained, either directly or indirectly through member firms, e. g. by territorial protection, minimum rates of commission or uniform listing fees.

It would be presumptuous to assert that a competitive framework of this kind was sufficient to ensure the highest possible degree of procedural efficiency at all times. In most Member States turnover on secondary stock markets, and hence earnings from

commissions, are modest. Consequently, the funds available to finance further development are strictly limited and in many cases the incentive to competition is small, especially when a keen competitor expects negative repercussions on his other lines of business. Furthermore, the fact that in the smaller countries there are few security-dealing firms and the long tradition of restrictions on competition in security dealing stand in the way of competition between market organizers. Finally, the efficiency of co-operative trading in active securities reduces the chances of success of a new market organizer in Segments 1 and 2.

For these reasons a stock exchange policy which relies mainly on competition for a continual improvement in procedural efficiency may not be adequate in small countries. In larger economic areas, however, and especially within the Common Market, such reservations become less significant, for the following reasons. Firstly, there are in the countries of the Community 33 associations which operate one or more stock exchanges and a substantial number of other market organizers, behind which, however, there are groups of security-dealing firms in a few cases only; in contrast to the situation in the United States, for example, the European stock exchanges tend not to be linked by double or multiple memberships. Secondly, the shares of major European companies are increasingly held and traded in several countries of the Community and the number and importance of parallel markets within the Community have continuously increased. Thirdly, these parallel markets, with the help of elaborate dealing procedures, provide

differentiated financial services and offer them for sale at different prices. Since the Community is expected to continue to develop more in the direction of a uniform economic and monetary area than in the reverse direction, the disadvantages of these parallel markets will increasingly come to outweigh the advantages, but at the same time there will be a gradual transition from parallel markets to competing markets and the market organizers will inevitably find themselves exposed to ever more intensive competition.

The starting situation for a competition-oriented stock exchange policy in the Common Market is therefore exceptionally favourable. Such a policy would certainly not bring about spectacular changes in the market structure overnight, but it could well be expected in the medium term to lead to an appropriate segmentation more reliably than would intervention by the authorities. Competition would reduce the number of parallel markets and force some market organizers to cease business or to specialize. It would in any case seem more appropriate to encourage and await this development than to take immediate action, whether within individual Member States or at Community level, to combat the disadvantages of parallel markets on the basis of existing market structures, e. g. by planning a market system as the Americans have done.

In order that the favourable starting situation for competition between market organizers can produce its desired effects, the barriers restricting the scope for appropriate segmentation in individual

Member States must be removed (cf. p. 403). Moreover, an investor or his broker, in trying to find the best price available must be free to accept - in addition to those on domestic sub-markets - the bids or offers on other parallel markets within the Community without any special difficulties. It should not matter whether the bids or offers are on the book of an exchange formed either by banks or by brokers. All that is needed is for a few basic conditions of dealing to be harmonized; in particular, more strenuous efforts should be made than has so far been the case to standardize delivery conditions so that it will not make any difference to an investor where in the Community he has to deliver or take delivery of securities.

A third prerequisite for competition could be achieved if further efforts to abolish stock exchange contract and transfer taxes and similar taxes were successful (see p. 37). As long as such taxes are levied at different rates and on different bases, a market may lose ground even though it offers the best conditions for the efficient provision of transaction services. On account of the low level of transaction costs in relation to the value of a transaction, even small differences in rates of tax on the value of securities bought or sold can mean that a market has absolutely no chance of competing successfully with markets in another country where there is a lower rate of tax or no such trifling tax at all. Value-added taxes on commissions, charged in some countries in addition to taxes on the value of transactions, have less impact and may be influenced by rationalization measures, but they too hamper competition.

As was said at the beginning, no more can be expected from all efforts to improve the procedural efficiency of secondary stock markets beyond the high standard already reached than a trivial reduction of the cost of capital and a modest increase in the yield from securities. If substantial importance is attached even to such efforts on account of their long-term effects and on account of their repercussions on the relative attractiveness of direct and indirect financing, it must not be overlooked that direct financing can be assisted more easily and effectively in the Member States of the Communities in other ways, whether by removing the trifling taxes just mentioned or by further efforts to reform corporate income taxes, in particular, in such a way that equities are no longer discriminated against as instruments of financing.

Annex 1

THE RELATIONS BETWEEN COST OF CAPITAL, EFFECTIVE
YIELD AND REQUIRED RATE OF INTEREST, TAKING INTO
ACCOUNT MARKET-ORGANIZATION-DETERMINED COSTS

The reasoning on pages 9 to 16 was based on certain relations between the market-organization-determined costs and other variables, which are developed in greater detail in this annex. We used as our starting-point the interests of investors and issuers: investors, we said, desire to obtain the highest possible effective yield, while the issuer wishes to keep the cost of his capital as low as possible. We maintained that the lower the market-organization-determined costs the better the interests of both groups would be served.

The proof is adduced in two stages. After the relevant variables and concepts have been introduced, we first examine the relation between the capital cost rate and the effective yield on the entire issue for all investors who hold parts of the issue. The second stage widens this relationship to include the minimum interest rates required by investors.

We assume that the entire bond issue matures at the same time. Tax aspects are disregarded. The values of risky variables may be interpreted as expected values. But for the sake of simplicity the reader may also assume that there is certainty.

Explanation of symbols used:

- P_O Price which an investor is prepared to pay maximally in competitive bidding at the time of issue of the bond (bid price)
- P_A Price which the investors actually pay
- P_t Price after t periods
- P_m Price after m periods (special case of P_t)
- P_E Issue price of the bond
- n Number of periods after which the bond matures (original time to maturity)
- m Number of periods after which some investors sell the bond
- Z Interest payment for one period on a bond having a face value corresponding to the price basis of the bond (e. g. DM 100 face amount)
- k Investors' required interest rates per period (minimum yield requirement)
- k' Effective yield on total bond issue over its term n (average effective interest rate of all investors holding parts of the issue)
- k'' Effective yield for investment period m
- k^- Effective yield for investment period n (group 1)
- k_E Issuer's cost of capital rate for the funds raised by means of the bond issue
- T Redemption price

- x Aggregation index showing that a total is involved, e. g.:
- P_E^x is the gross proceeds of the issue
- Z^x stands for the total interest payments on the issue per period
- K_E^x Flotation costs
- K_I Investor's information costs per period proportionate to face amount commensurate with price basis
- K_T Investor's proportionate transaction costs on purchase or sale
- K_V Investor's proportionate custody costs per period
- K_W^x Cost to the issuer of servicing the issue per period
- K_{WT}^x The issuer's redemption costs (special case of K_W)
- K_j Market-organization-determined costs
- NVE Net sales proceeds for a bond in the nominal amount of the price basis ($P_m - K_T$)
- a Share of total issue bought by a group of investors
- i Index for a group of investors
- t Time index
- k_{gr} Required interest rate k of the person with the lowest bid price resulting in a transaction (or of the marginal investor in the bond issue)

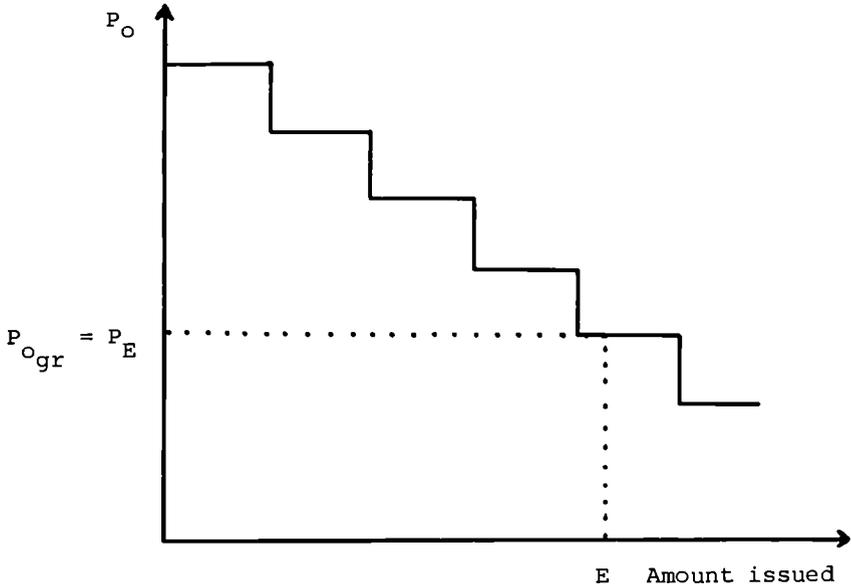
For the marginal investor we can say that: $P_{Ogr} = P_E$

The marginal investor still buys at this issue price but will not buy at a higher price.

The issue price could be determined in three ways:

1. The issuer invites bids from interested parties who indicate their P_O and then offers the issue at the price at which the entire issue can just be placed (Dutch tender method). Allotment is made to all investors whose P_O is higher than or the same as the issue price; the bids of marginal investors are sometimes accepted in part only.
2. The issuer or his investment banker estimates the price which would emerge under 1. The bond is then publicly offered for sale at that price (normal method).
3. The issuer proceeds as under 1. above but instead of selling the entire issue at a uniform price he accepts the tenders in sequence, beginning with the highest bids, at the P_O stated by the bidders until the issue is fully sold (American tender method or bid-price system).

Diagram 4: Dutch tender method



The ensuing analysis is based on the Dutch tender method. For the sake of simplicity K_T and K_I at the time of the issue are not expressly stated, they are implicitly included in K_E and P_O . Below the P_O of the three groups of investors introduced on pp. 10 f. are determined (P_{O1} , P_{O2} and P_{O3}).

Investor group 1

(Investors who are certain that they will hold the bond until maturity)

$$P_{O1} = \sum_{t=1}^n \frac{Z_t}{(1+k)^t} - \sum_{t=1}^n \frac{K_{Vt}}{(1+k)^t} + \frac{T}{(1+k)^n}$$

If Z_t and K_{Vt} (and later also K_I and K_W) are assumed to be constant over time, then we have

$$P_{O1} = (Z - K_V) \frac{(1+k)^n - 1}{(1+k)^n \cdot k} + \frac{T}{(1+k)^n}$$

or

$$P_{O1} = \frac{(Z - K_V) ((1+k)^n - 1) + T \cdot k}{(1+k)^n \cdot k}$$

Investor group 2

(Investors who may be forced to sell their bonds before maturity. The time of sale is dictated by extraneous circumstances)

$$P_{O2} = \frac{(Z - K_V) ((1+k)^m - 1) + NVE \cdot k}{(1+k)^m \cdot k}$$

Investor group 3

(Investors who may wish to sell their bonds before maturity. In this case the time of sale is not dictated by extraneous circumstances. These investors will wait until favourable conditions for sale arise and therefore require continuous information.)

$$P_{O3} = \frac{(Z - K_V - K_I)((1+k)^m - 1) + NVE \cdot k}{(1+k)^m \cdot k}$$

While the above equations for P_O determine the investor's bid price, the following equations for P_{Ai} serve to calculate the effective yields k^- or k'' and finally k' . As our assumptions result in P_A always equalling P_E , there is seemingly no reason to differentiate between P_E and P_A . The reason that we do differentiate is simply that this method of presentation makes it possible to achieve a clear separation between the sphere of the issuer and the sphere of the investors. The formulae for P_{Oi} apply mutatis mutandis to P_{Ai} , instead of the required interest rates k we here have an effective yield, in the case of investor group 1 it is k^- , the net yield to maturity at the time of issue:

$$P_{A1} = \frac{(Z - K_V)((1+k^-)^n - 1) + T \cdot k^-}{(1+k^-)^n \cdot k^-}$$

or we have the net effective yields k'' for investment periods m in the case of P_{A2} and P_{A3} , e. g.

$$P_{A3} = \frac{(Z - K_V - K_I) ((1+k'')^m - 1) + NVE \cdot k''}{(1+k'')^m \cdot k''}$$

Since the exact time of sale is irrelevant for the purposes of this analysis, we shall assume for the sake of simplicity that there is only one investment period m . Strictly speaking, there could be at least as many different periods m as there are investors in groups 2 and 3.

For the issuers the following equation applies; with its help we can calculate the cost of capital rate k_E :

$$P_E^x - K_E^x = (Z^x + K_W^x) \frac{(1+k_E)^{n-1}}{(1+k_E)^n \cdot k_E} + \frac{T^x + K_{WT}^x}{(1+k_E)^n}$$

$$P_E^x - K_E^x = \frac{(Z^x - K_W^x) ((1+k_E)^n - 1) + (T^x + K_{WT}^x) \cdot k_E}{(1+k_E)^n \cdot k_E}$$

1. Relation between effective yield k'
and the cost of capital rate

This section sets forth in detail what has been outlined on pages 12 to 15.

Assumptions:

a) $\sum_{j=E}^W K_j^X = 0$; $j = E, I, T, V, W$ and $K_j^X \geq 0$ for all j

b) $P_E = P_t = T$

c) The whole issue is sold at a single P_E

In addition, the general assumptions and definitions set out on pages 409 to 415 apply.

For investor group 1 we now can say that

$$P_{A1} = \frac{Z ((1+k^-)^n - 1) + T \cdot k^-}{(1+k^-)^n \cdot k^-}$$

and for groups 2 and 3

$$P_{A2,3} = \frac{Z ((1+k'')^m - 1) + P_m \cdot k''}{(1+k'')^m \cdot k''}$$

Since investor groups 2 and 3 do not hold the bonds until maturity, whereas k' is defined for the total term n of the issue, the new investors who take the place of the original investors must also be taken into account. Thus we have to define the effective yield k^+ of investor groups 2 and 3 and

of the new investors who take their place, for the investment period n:

$$P_{A2,3} = \frac{Z_1}{(1+k^+)} + \frac{Z_2}{(1+k^+)^2} + \frac{P_m}{(1+k^+)^m} - \frac{P_m}{(1+k^+)^m} + \frac{Z_3}{(1+k^+)^3} + \dots$$
$$+ \frac{Z_n}{(1+k^+)^n} + \frac{T}{(1+k^+)^n}$$

It is assumed here that m lies between 2 and 3. Every other assumption obviously produces the same result.

In addition, we may say that

$$a_1 P_{A2}^x = \frac{a_1 \cdot Z_1^x ((1+k^-)^n - 1) + a_1 \cdot T_1^x \cdot k^-}{(1+k^-)^n \cdot k^-}$$

and

$$a_2 P_{A2}^x = \frac{a_2 \cdot Z_2^x ((1+k^+)^n - 1) + a_2 \cdot T_2^x \cdot k^+}{(1+k^+)^n \cdot k^+}$$

Because of assumption a),

$$a_3 P_{A3}^x = a_2 P_{A2}^x$$

For P_E^x we have

$$P_E^x = \frac{Z^x ((1+k_E)^n - 1) + T^x \cdot k_E}{(1+k_E)^n \cdot k_E}$$

Finally,

$$a_1 P_{A1}^X + a_2 P_{A2}^X + a_3 P_{A3}^X = P_E^X$$

therefore

$$\frac{Z^X((1+k')^{n-1}) + T^X \cdot k'}{(1+k')^n \cdot k'} = \frac{Z^X((1+k_E)^{n-1}) + T^X \cdot k_E}{(1+k_E)^n \cdot k_E}$$

and thus $k' = k_E$

Because of assumption a), this result was to be expected. The main purpose of deducing it is to show how k' arises. k' is the average yield of all investors who hold parts of the issue, whether for n , m or $n-m$ periods. Here we proceeded on the basis of three groups of investors and therefore we discounted three cash flows. Without assumption a), differences in market-organization-determined costs would mean that as many series of payments would have to be determined and finally aggregated as the issue comprises bonds (the extreme case). The rate of interest at which this aggregated cash flow must be discounted in order to obtain the gross proceeds of the issue is k' . In discounting the non-aggregated or partially aggregated cash flows to P_{Ai} , effective yields of the class k^+ or k^- are arrived at. k' comprises all such effective yields. (It may be noted that on account of assumption a) $k' = k^+ = k^-$ here and on account of assumption b) $k' = k$.)

Let us now drop assumption b). If $P_E \neq P_t \neq T$, we nevertheless still find that

$$k' = k_E ,$$

although it now generally holds that $k'' \neq k'$. The equation for $P_{A2,3}$ makes it clear that it makes no difference to k^+ and hence to k' how high P_m is and how often a bond changes hands provided assumption a) applies.

If assumption a) is dropped, then

$$\sum_{j=E}^W K_j^x \geq 0; \quad j = E, I, T, V, W \text{ and } K_j^x \geq 0 \text{ for all } j.$$

$$\text{In that case} \quad k' \leq k_E$$

In interpreting let us assume that only investors of group 3 are involved. In that case $a_3 = 1$, and:

$$P_{A3}^x = P_E^x$$

$$\begin{aligned} & \frac{(Z^x - K_V^x - K_I^x) ((1+k')^n - 1) + T^x k'}{(1+k')^n k'} - \frac{K_T^x}{(1+k')^m} \\ & = \frac{(Z^x + K_W^x) ((1+k_E)^n - 1) + (T^x + K_{WT}^x) k_E}{(1+k_E)^n k_E} + K_E^x \end{aligned}$$

If the gross proceeds of the issue P_E^x , the interest, the redemption payment and the market-organization-determined costs are known, then k' and k_E can be

calculated. As will be demonstrated below, k' depends on the required rate of interest k . Higher values always occur for k_E than for k' . The higher the market-organization-determined costs, the more k_E will exceed k' . Therefore, with given minimum yield requirements of investors, an increase in procedural efficiency will be in the interests of the issuers. It also becomes clear from the last equation that procedural efficiency should strictly speaking be measured by the sum of the discounted market-organization-determined costs and not simply by the sum of those costs undiscounted.

Now let assumption c) be dropped as well. If the entire issue is not placed at a single P_E but at several (e. g. American tender method), what has been said is not in principle altered, since every portion of the issue sold at a certain P_E can be regarded as a separate issue. The same applies to issues of serial bonds.

2. Relations between the cost of capital rate and the required interest rates

After the relations between k_E and k' have been analysed, the question arises as to the relationship between k_E and k . It may appear that under the Dutch tender method $k' = k_{gr}$. If investors of group 1 only were involved this would be correct. But for investors of the other groups $k'' = k_{gr}$. Therefore k' and k cannot in principle be compared as we do not compare interest rates for securities with different terms. The same basic problem arises if we relate k_E and k .

However, the problem can be circumvented if assumptions a), b) and c) are once again made. Assumption b) ($P_E = P_t = T$) implies that $k'' = k'$. Hence k_E and k are comparable.

Assumption c) in specific terms shall mean the following: the whole issue is placed at a single P_E at which all bids above P_E are met and also all demand of marginal investors (at P_E).

In the above section we found that under these assumptions $k' = k_E$. Since now $k' = k_{gr}$ it follows that

$$k_E = k_{gr}$$

If assumption a) is dropped, then

$$k_E \geq k_{gr} ,$$

since $k' = k_{gr}$ and since $k' \leq k_E$ as shown above for this case. The importance of procedural efficiency for k_E and P_E emerges clearly.

If assumption c) is dropped, but not assumption a), we find under the American tender procedure that

$$k_E = k$$

In this case every investor would be supplied at the P_0 he has quoted. Hence k takes the place of k_{gr} .

If both assumption a) and assumption c) are dropped, then we find, partly for the same reasons, partly by

analogy to the case when we merely dropped assumption a):

$$k_E \geq k$$

If both assumption a) and assumption b) are dropped, required interest rates can no longer be logically compared with k_E . Instead, we may show the effect of k on P_E . From assumption c) it follows that

$$P_E = P_{Ogr}$$

The marginal investor may be an investor of any group. As the formula for P_{O3} is comprehensive, it will be used here.

$$P_{Ogr} = \frac{(Z - K_V - K_I)((1+k_{gr})^m - 1) + (P_m - K_T) \cdot k_{gr}}{(1+k_{gr})^m \cdot k_{gr}}$$

This equation shows that, for a given k_{gr} , the lower the K_I , K_T and K_V are, the higher the issue price will be. If one bears in mind that the lower the K_E^x and K_W^x are, the higher the interest payments Z may be, it becomes clear that the influence of both costs on P_E operates in the same direction as the influence of K_V and K_I and also of K_T . In other words, with a given amount of funds available to cover charges related to a financing instrument, the higher the procedural efficiency the higher the required interest rates which an issuer is able to meet.

To sum up we can say that strictly speaking procedural efficiency would be measured by first aggregating the market-organization-determined costs K_E , K_I , K_T ,

K_V and K_W at the times at which they are incurred using a typical pattern of transactions, then discounting the aggregated flows and finally adding up the discounted amounts. Since the resultant amount is representative only for a certain amount issued, e. g. for the bond issue considered here (or for the securities outstanding on a given secondary stock market), it is advisable to relate it to net sales proceeds ($P_E - K_E$) in the amount of one unit of value, e. g. of one Deutsche Mark (or to measure these costs per Mark of securities outstanding). The higher the procedural efficiency, the closer will the effective yield of all investors investing in a certain financing instrument be to the cost of capital of that instrument k_E and the lower will be the cost of capital given certain required interest rates. An increase in procedural efficiency would usually bring with it adjustments which would benefit the issuers and most likely the investors as well, in short k_E would fall and k' would rise.

Annex 2

THE TWO PRINCIPLES OF ESTABLISHING MARKET PRICES:
THE MARKET-MAKER PRINCIPLE AND THE AUCTION PRINCIPLE

1. Plain prices

The prices of securities may be negotiated between buyer and seller in the same way as any other market price. However, if only two parties are involved there is a considerable danger; owing to insufficient information on the securities traded or on the state of the market, owing to the skill of one party, or for other reasons, a price may be agreed at which other dealers would have definitively been either buyers or sellers only. Such a price thus often fails to clear the market and it is in that case not an equilibrium price.

2. Qualified prices

In order to ensure that buyers and sellers deal at prices that can be regarded as equilibrium prices at the time of the bargain (qualified prices), stock exchanges and other market organizers prefer trading procedures that go beyond the methods of price negotiation commonly found in other lines of business. With the help of these procedures dealers either feel their way towards the price clearing the market or they calculate it. The procedures are based sometimes on the market-maker principle, sometimes on the auction principle. In the next section we briefly

discuss the fundamental ideas behind the two principles in order to make it easier to understand the procedures used on the various stock exchanges as described in Part 2.

a) Individual prices based on the market-maker principle or the auction principle

As outlined on page 255, the basis of the market-maker principle is the judgment of the market maker as to the correct price of a stock or bond. Unlike the judgment of an ordinary buyer or seller, the market maker's judgment is of special quality. No-one can demonstrate more convincingly that he considers a price to be correct, i. e. capable of clearing the market, than by being ready to buy or sell the security in question at that price - in the ideal case in any quantity desired. This is precisely how a market maker is supposed to behave and in so doing he subjects himself to the operation of a regulating mechanism.

If his judgment is correct he will buy and sell securities and his position over the course of time will vary around zero. In other words the market clears itself at this price. If his judgment is incorrect, the market maker's position will tend to build up in one direction; the market will not be cleared at this price and the market maker will have to adjust his quote. If his price is too low, for example, he will continually have to sell more than he buys; his short or bear position builds up. He will therefore raise his offer and usually also

his bid. This regulating mechanism governing market making means that a market maker's prices are very reliable when dealings are brisk but that the less often a security is dealt in the more the prices will lose their special quality.

The only persons involved when a bargain is done with a market maker are, as in agreeing a plain price, the buyer or seller and the market maker. The price arrived at in this way is called an individual price. Unlike the collective price, the individual price applies only to a single deal binding only two parties. If dealing takes place through a market maker, only these two parties are involved in the negotiation (individual negotiation). Therefore this procedure is well suited for dealings that are not spatially concentrated (e. g. telephone dealings).

The situation is different with individual prices based on the auction principle. Although in this case, too, only two parties are involved in the bargain itself, there should be many interested parties taking part in the actual negotiation (collective negotiation). Here the special quality of the individual price does not come about as a result of the market maker and the regulating mechanism to which he is subject but instead is produced by competition between the parties interested. An auctioneer initiates the negotiation by inviting bids or offers. Of all the dealers who react to this the one making the most favourable bid or offer secures the bargain.

There are many procedures and variant procedures for establishing prices based on the auction principle. Unlike the procedure in an ordinary auction, the bidding in stock exchange dealing is not initiated by an auctioneer but by a bidding dealer himself. The initiating dealer adjusts offers successively downwards or bids successively upwards if no counterparty immediately emerges. In contrast, in an ordinary auction outside the stock exchange the adjusting of the bids is usually left either to the reacting interested parties, to the auctioneer or to a price indicator (auction dial) and it is confined to only one side of the market. The modifications used by stock exchanges allow as many auctions to take place simultaneously on the floor of the exchange as desired. They also make it possible for two initiators to move towards each other ("double auction"). Such a double auction for the determination of individual prices, albeit guided by an auctioneer, is found in its purest form and in a particularly distinct version on the Hovedbørs in Denmark (see pp. 80 f).

More often than not the auction character of exchange trading is discernible only with difficulty. But of course what is important is not the appearance but the substance, the principle. To save time, lengthy bidding battles are dispensed with. Since the state of the market is generally fairly well known, a dealer can and will cry out his offer, for instance, just above the market price and will often be successful with his first or second call; he may be compared with an auction dial in the deletion procedure, with the hand starting at a price only a little

higher than the market price. The presence of a fairly large number of experienced dealers ready to trade produces a bargain at a fair market price promptly. Although often only two dealers actually speak up and the remainder appear to be taking no part in the trading, it is nevertheless a case of collective negotiation: the readiness of all present to competitively intervene at any time helps to produce an individual price clearing the market. With intense competition even that individual price has all the characteristics of a qualified price which a dealer would openly negotiate for two clients all by himself (for an example see pp. 226 f., crossing).

b) Collective prices

A collective price is a price at which all (more than two, at least) those parties simultaneously consummate transactions who have orders on the market executable at that price. Thus, in contrast to the individual price, it applies not just to a single deal but to a fairly large number of simultaneous deals. Collective prices are particularly well suited for heavy exchange trading where there is a large-scale inflow of orders. They are generally the outcome of collective negotiation and in every case they are based on the auction principle. This is obvious in the case of the Gekitaku procedure in Japan (pp. 184 f.), in which there are usually several successive auctions, each building upon its predecessor, which lead to the determination of a price. There is first a double auction between initiating dealers which ends with a first provisional price. Then the excess

of demand or supply is ascertained. This excess is auctioned in the immediately following second auction in which an exchange employee calls out - albeit once only a higher or lower price at which the interested parties may come in. If an excess still remains at this price, it too is auctioned. If the market is cleared, the collective price has been established. A one-sided auctioning of surpluses also occurs on the Belgian stock exchanges, e. g. on the forward market of the Brussels Bourse (p. 122).

In other variants of trading at collective prices, total demand and total supply are balanced by means of a single double auction. The best example of this is found in the "criée" procedure on the Paris forward market (p. 152). In this case it is somewhat difficult to recognize that we still look at an auction since usually both supply and demand change as the coteur adjusts the price towards the equilibrium price. Thus, for the sake of clarity, we assume for a moment that we happen to come across the extreme case of a one-sided auction. Here the auction character is apparent. In this case supply may be based only on market orders; therefore it does not diminish if the (provisional) price is called successively lower, exactly as in the case of the auction of an individual offer. If demand initially exceeds supply, buyers withdraw as the provisional price is raised until eventually the supply is just sufficient. If demand initially falls short of supply, additional buyers come in as the price is lowered until the supply is met. Thus the collective price has been established. It is the

highest price at which the supply can be sold. The highest bids have succeeded in the competition among buyers. The reverse case can be envisaged for a given demand based on market orders to buy only. Then we have competition among sellers. What applies for the auction of one side of the market also holds for the simultaneous auctioning of both sides, of supply and demand, for the double auction.

Calculation of the overall or composite price from the bids and offers on the book is simply the simulation of a double auction of the entire demand and the entire supply "à la criée" on paper or in the computer. By matching the aggregate supply and the aggregate demand at each price one arrives in principle at the same result. Of course, there is no longer any feeling of the way towards the equilibrium price; in the normal case the equilibrium price is the straightforward result of a calculation. In the pure or almost pure form these variants of the double auction are found in the "par casier" procedure (p. 154), the "par opposition" procedure (p. 153), in official non-continuous trading in Germany (p. 107) and in stock exchange trading in the Netherlands (p. 92).

These procedures are extremely efficient; they require a minimum of dealers' time per transaction. Their reliability, however, heavily depends on the number of limited orders in hand. A further possible disadvantage compared with other forms of double auction may be thought to be the fact that they do not take account of the latest information about the general state of the market. This can be remedied,

of course, as is done in Germany and the Netherlands, by allowing dealers to supplement supply or demand at the very last moment or, as in Belgium, by subjecting any excess supply or excess demand to an additional auction.

Not only different trading procedures based on the auction principle but also dealing methods founded on the market-maker principle or on both principles may be used side by side on a single stock exchange, as the example of American stock exchanges demonstrates. If there are neither market makers nor competition between buyers or sellers, then even on the floor of a stock exchange the determination of prices has to fall back on elementary negotiation, which often means the straightforward acceptance of an offer or bid. If a price agreed in this way is based on a collective price that has just been established or on other kinds of prices of special quality, one may still regard it as a qualified price. Other stock exchange prices, which are agreed without the help of such guide posts, are in principle no better in quality than any non-exchange price. They are plain prices. In transactions in inactive securities it is often difficult to avoid using them.

Annex 3

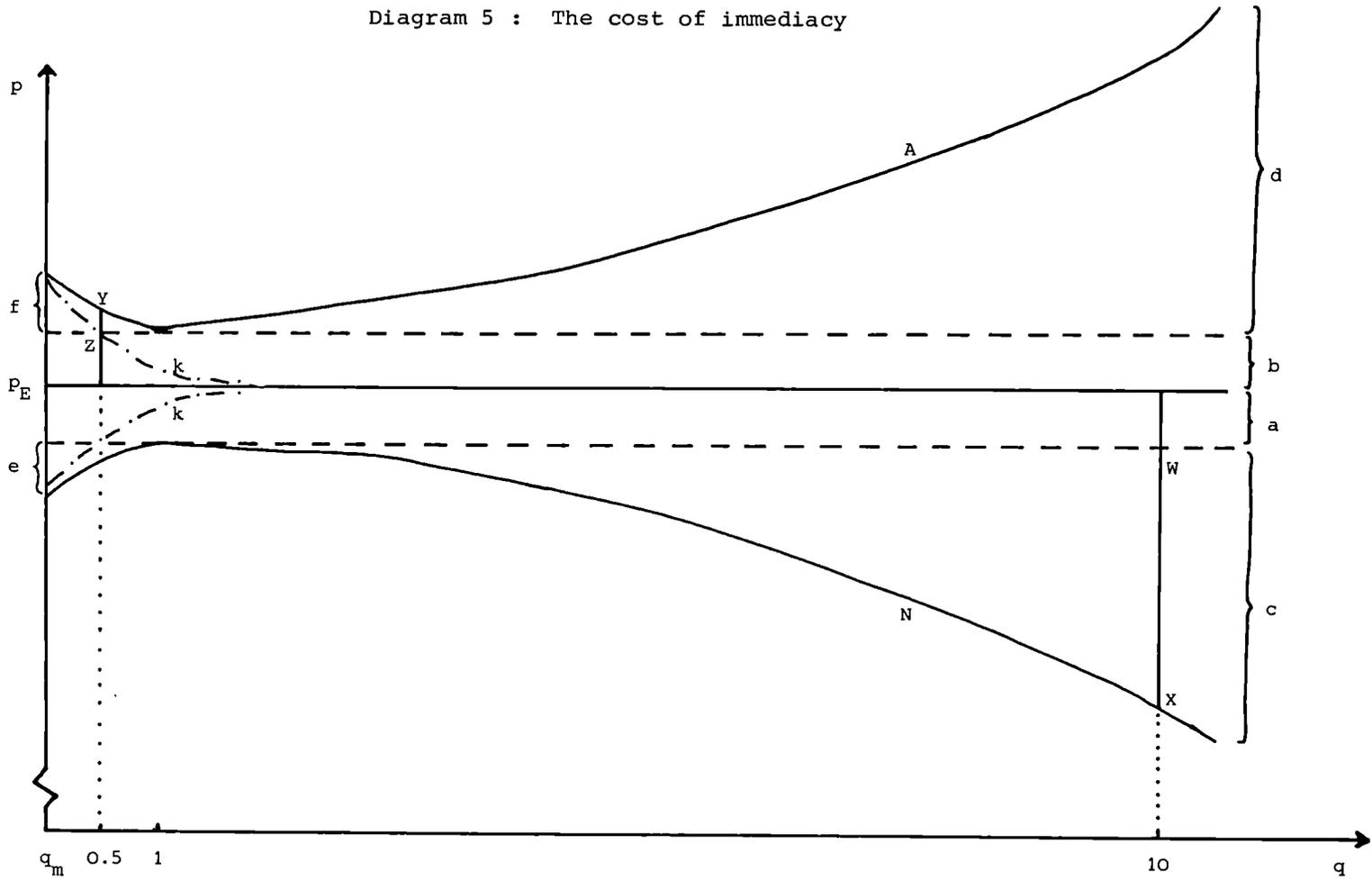
THE COST OF IMMEDIACY, OR MARKET DEPTH
AND MARKET NARROWNESS

We have outlined the substance and the economic significance of the special transaction service "securing an instant bargain" in Part 1, on pages 23 f. and 39 f. The effects of various types and degrees of segmentation on the cost of immediacy are central to many sections of this study, particularly in Part 3 (but see also pp. 58 - 62, 123, 257 - 262, 272 - 274, 297 f., 301). The purpose of this annex is to clarify a few concepts and statements closely related to the cost of immediacy.

This cost of securing an instant bargain will be incurred by anybody wishing to sell or buy securities immediately. Roughly speaking, it is the difference between the agreed price and the equilibrium price, a difference sufficient to immediately attract other dealers or investors on the other side. If an instant purchase is desired, the difference is positive, i. e. it increases the purchase price; if an instant sale is desired, it is negative, i. e. it reduces the selling price. In addition, the difference usually depends on the number of units to be bought or sold; the larger the desired transaction, the greater it is likely to be.

These relations are reflected in Diagram 5 in the curved solid lines for $q \geq 1$. The diagram is based on prices that a seller or buyer could obtain

Diagram 5 : The cost of immediacy



Key to Diagram 5 :

- p price
- q quantity to be traded in round lots
- A market maker's offer
- N market maker's bid
- p_E opening price or equilibrium price in market maker's opinion
- q_m smallest quantity that can be traded, e. g. one share
- a immediacy discount off equilibrium price if one round lot is sold by an investor
- b immediacy premium on equilibrium price if one round lot is bought by an investor
- c quantity discount off p_E on large instant sale by an investor
- d quantity premium on p_E on large instant purchase by an investor
- e small-quantity discount off p_E on instant sale by an investor
- f small-quantity premium on p_E on instant purchase by an investor
- k costs of bargain per unit transacted

Examples: When there is a sale of $q = 10$ the cost of immediacy will comprise the immediacy discount a and the quantity discount $c_{10} = WX$ (for lack of space substantially larger bargains than $q = 10$ cannot be shown); where there is a purchase of $q = 0.5$ the cost of immediacy comprise the immediacy premium b and the small-quantity premium $f_{0.5} = YZ$.

if he came to a market requesting to transact immediately, that is to say we work from the prevailing bids and offers. It is possible that the broker of an investor who was in a hurry would have to feel his way towards these prices, e. g. by repeated calls. But on some markets the broker could simply ask a market maker, i. e. a dealer specializing in immediacy services, for these prices. The curves for bid and offer prices in Diagram 5 may therefore be understood as the prices which a market maker would quote for

Since the cost of holding a plus position is not identical with the cost of holding a minus position and since the additional costs related to a prospective transaction are dependent on the market maker's position at the time, curves A and N will only exceptionally take the same shape. Apart from the factors mentioned - quantity to be traded, cost of processing a transaction, the market maker's cost of capital and his price expectations (see pp. 59 f.) - the following factors also have an influence on the cost of immediacy:

- the turnover characteristics and the extent to which the security to be traded is known on the market, which are closely related to the number of shareholders or bondholders;
- the competition the market maker is exposed to;
- the effect of the desired transaction on the risk of the market maker's portfolio;
- the market maker's ability to meet liabilities, particularly his net worth; and his
- ready sources of additional funds;
- regulatory measures and rules affecting market making;
- the probability that other traders may fail to perform their contracts.

As explained on pages 58 - 60, the cost of immediacy must not be equated with the market maker's spread earnings. Whereas the cost of immediacy will usually

various quantities of a certain security to be bought or sold. Normally he would quote only the bid and offer price for a round lot (his "quote", "quotation", or "spread"). A market maker is a dealer who is ready at all times during business hours to either buy or sell, as requested, certain securities immediately for the account of his firm on the basis of the bid and offer he has quoted.

Whereas for $q \geq 1$ quantity premiums or discounts will arise, for $q \leq 1$ there will be small-quantity premiums and discounts (e. g. odd-lot differentials charged on buy-on-offer or sell-on-bid orders). In order to explain how odd-lot differentials come about, two curves marked k have been drawn in Diagram 5. They represent the market maker's cost of bargain, e. g. the cost of processing and clearing a transaction prorated per unit transacted. The larger the transaction, the less significant such costs become. On the other hand, other costs become more and more significant with the increasing size of the transaction and compel the market maker to widen his spread. The latter costs are dependent on the size of the market maker's long or short positions in securities. The larger the desired transaction, the larger will such positions tend to become; for the larger the deal, the more time will the market maker usually need to liquidate his position.

Such costs consist primarily of the market maker's normal cost of capital and of a forward-cover premium which he considers necessary in a particular situation to protect himself against a fall or rise in prices.

be positive, the corresponding spread earnings may well turn out to be negative (liquidation of position at a loss), particularly since the equilibrium price is never known with certainty.

The question of the cost of immediacy is hardly raised in connexion with transactions of normal size. With smaller transactions, such costs usually are low and go often unnoticed; only in the case of large transactions does it become clear that substantial variations from the equilibrium price occur. Professionals therefore speak of market depth or marketability and mean by this that even fairly large quantities can be sold or bought immediately or at least quickly without substantial price concessions, in other words that only low cost of immediacy are incurred. Accordingly, market depth in a security is characterized by horizontal or gently declining N-curves and by, at the most, gently rising A-curves, whereas market narrowness is represented by a steeply falling N-curve and a steeply rising A-curve. Market depth or market narrowness thus may be expressed in concrete terms by low or high cost of immediacy, respectively, either measured in absolute terms in monetary units per price basis (e. g. in DM per share) as in Diagram 5 or - similarly - as a spread, or as a percentage of the value of the transaction.

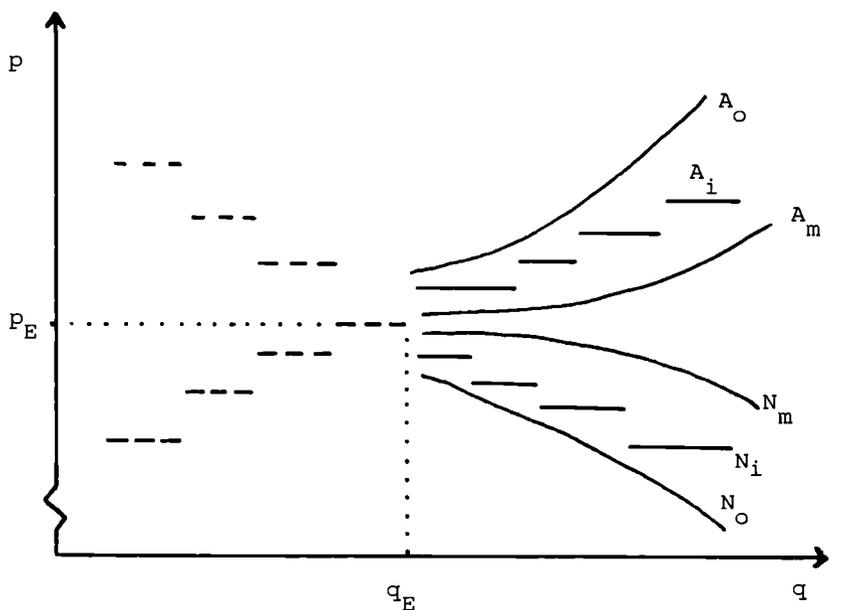
After this exposition of fundamentals, we shall discuss briefly how investors, either alone or in competition with market makers, offer immediacy services. It is assumed that at the beginning of a stock exchange session there is a fairly large

number of limited orders in hand, as shown in Diagram 6.

Orders represented by the broken lines can be executed at the opening price. The orders to buy with limits lower than the opening price and the sell orders with higher limits remain unexecuted. If there were no market makers, these orders would determine the prices at which an instant bargain could be done. On some exchanges this is obvious, for instance at Brussels where these orders are written up on a board for each security and are if necessary supplemented by new orders that have come in (see p. 123). Therefore, on markets on which there are central order books a market maker must compete with the supply from investors A_i and the demand from investors N_i which reflect these orders (see Diagram 6), for instance by being prepared to quote in the way implied by curves N_m and A_m . (For the sake of clarity in Diagram 6, N_m and A_m are shown as curves, although strictly speaking they should be drawn like N_i and A_i .) The same applies when there are no order books, provided the investors' representatives are allowed to deal with each other directly and may thus "circumvent" the market maker, or to be more accurate, may overbid or underoffer him. If, on the other hand, a stock exchange makes it mandatory to deal with a market maker, one can conceive of circumstances such as those represented by N_o and A_o . Competition between market makers tends to prevent unreasonable spreads. But competition will be even keener if every dealer is also allowed to establish and accept bids and offers which result from investors' orders. Finally, it may be noted that transactions may be

Diagram 6

Investors and market makers offering immediacy services



p_E opening price; q_E volume of sales at the opening

effected without incurring the cost of immediacy if parts of A_i and N_i are temporarily identical.

With the help of Diagram 6 it can easily be explained why market makers tend to have low participation rates in very active securities, higher participation rates in fairly active securities, and why they participate very little in the turnover again of inactive securities. In the first instance they are squeezed out by the competition of investors, in

the third instance market-making positions are too risky; only in the second instance are they able to operate with good prospects of success, perhaps even covered by the orders on the book. Their knowledge of orders makes it easier for them to estimate their price risk. Therefore it would seem that competing market makers ought all to be able to consult the order book in the same way or else should not do so at all, for otherwise they will not be competing on an equal footing.

Annex 4

PROGRAMME OF THE STUDY

When this study on "Secondary securities markets: advantages and disadvantages of an integrated market compared with a fragmented market" was commissioned the assignment was clarified as follows:

1. The study must first describe and analyse the organization and functioning of securities markets in the nine Member States of the Community, in the United States and in Japan. The study shall establish whether an integrated secondary stock market exists in the country in question or whether the stock market in that country is fragmented, i. e. in addition to the official stock exchange or exchanges there is at least one other regulated or unregulated securities market, e. g. unofficial exchange trading ("geregelter Freiverkehr"), over-the-counter market, Ariel. In addition, the study must state what were the decisive reasons why the various markets came into being, what relations exist between these markets and what conclusions are to be drawn from the co-existence of such markets.

2. Then the advantages and disadvantages of an integrated stock exchange system compared with a system of fragmented markets must be discussed on an empirical basis and beyond it on the basis of theoretical considerations. Moreover, the advantages and disadvantages to the investor

of a market system must be pointed out which records the transactions with the aid of electronic data processing methods, in contrast to a conventional market with traditional procedures.

3. Finally, under the aspect of the further development of securities markets at the national and international level, the study must answer the question whether a similar form of organization is advisable for the markets of the individual Member States in the interest of the proper functioning of the Common Market and if so whether an integrated or a fragmented market provides the superior solution.

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