

**"EUROPEAN EQUITY MARKETS:
TOWARD 1992 AND BEYOND"**

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N° 90/05/FIN/EP

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Printed at INSEAD,
Fontainebleau, France

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November 1989

We acknowledge the research assistance of Christian AGOSSA, Eric RAJENDRA and Robert WHITELAW. We have benefited from the comments made by Jean Dermine and Théo Vermaelen. We thank Marie-Laure Guérin and Marieke Hilarion for Typing several versions of this manuscript.

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INTRODUCTION

Until the middle 1980s, two discernable factors of change have affected national European equity markets : the world-wide advances in technology and tele-communication applications in most aspects of the securities industry, and competition among key European financial centers in vying for a role as the European "link" in the increasingly global issuance and trading of securities.

Over the last five years, an additional, and indeed equally significant, change factor has emerged in the form of vigorous legislative efforts on the part of the European Commission in creating an integrated European financial sector, one which is expected to serve as the basic thread for weaving together the twelve nations into a single European economy by 1992.

Among the various Commission-issued opinions, recommendations and directives that concern all sub-sectors of the financial services industry, the 1988 directive (an extension of a 1986 Commission directive) concerning the liberalisation of capital movements is noteworthy here in so far as it serves as a necessary backdrop for legislative reforms that are more specific to the securities sub-sector. The fundamental aim of this "core" directive is to remove exchange controls and allow the free movement of capital throughout the EEC without any discrimination between residents and non-residents¹.

In most respects the specific directives relevant to the securities industry are designed around the same basic principles that affect the banking and insurance sub-sectors : minimum harmonisation of essential standards, mutual recognition in the application of these standards, and home country control and supervision. These principles have been filtered by the Commission into a handful of key directives ---see

Appendix I-- the essence of which is examined briefly in the next section.

This paper is structured into three sections, and begins with an examination of the current (albeit rapidly evolving) structure and operations of European equity markets, assesses their informational efficiency, and summarizes the European Commission's key reforms specific to the securities industry. Section II examines various issues in pan-European portfolio diversification and provides empirical evidence to support the argument that large risk-reduction benefits accrue to investors as they diversify their portfolios across European equities. It further argues that any decline in risk-reduction opportunities due to European economic integration should be more than offset by gains from increased informational/operational efficiency, and enhanced market liquidity. Section III presents several hypotheses as to the possible structure and dynamics of European equity markets beyond 1992. It also identifies a number of obstacles on the road to European equity markets integration.

I EUROPEAN EQUITY MARKETS : CURRENT STRUCTURE, OPERATIONS AND REFORMS

Despite significant historic inter-European economic linkages, the single most striking feature of Europe's stock markets, taken as a whole, is their diversity : in size, structure, regulation, taxation, trading practices, and operational efficiency. While the EEC's legislative efforts should remove some of these differences through harmonization of various standards, certain market peculiarities will nevertheless remain.

This diversity, however, can be characterized as both a strength and a weakness. The strength resides in the opportunity for European markets to specialize in the delivery of particular products and services. The weakness lies both in the possible inability of European markets to play a unified and significant role in the global equity market and in the obstacles that this diversity could impose on the very integration process fostered by the EEC.

In this section we examine the range of structures, activities, and organizations represented by the individual equity markets, compare their operational efficiencies, and terminate with an assessment of their informational efficiencies within the perspective of the efficient market hypothesis.

1. Size and international activity

The significant differences in market size and activity among individual European equity markets are summarized in Table 1. The International Stock Exchange of London (ISE), formerly the London Stock Exchange, is clearly the leading market both in terms of market capitalization and number of domestic and foreign stocks listed. ISE's domestic and total market capitalization of approximately \$0.7 and \$2.1 trillion, respectively, at year-end 1987 places it third internationally after Tokyo (\$2.7 trillion) and New York (\$2.1 trillion)².

As far as the number of foreign stocks listed is a fair indicator of the level of "internationalization" of Europe's equity markets, ISE holds again the leading position with over 597 foreign stocks listed. Amsterdam follows closely, trading a relatively large number of foreign equities since 1980 through the Amsterdam Securities Accounting System (ASAS) and now lists over 227 foreign issues. However, in terms of market capitalization, the second ranking market in Europe is Frankfurt (\$218 billion). It is also the first in terms of sheer annual transaction volumes due to its high turnover ratio vis-à-vis London (2.16 as compared to 0.15)

Numerous factors converge in enabling London to have reached, and to continue to maintain and enhance its premier position among European equity markets, including : historical head start in terms of capital accumulation and trading of shares stemming from early industrialization; long-standing technology interchange with New York and Tokyo in the fields of telecommunications, settlement systems, and product innovation; positive linkages with other areas of capital markets in which London maintains a key role --especially debt and foreign exchange; and progressive self-initiated reforms (as recently evidenced by Big Bang in 1986).

2. Market structure and organization

All European equity markets, with the exception of the ISE of London, maintain official floor trading and hours (see Table 2). Strictly speaking, London no longer has an organized equity market due to the fact that independent market making activities by intermediaries, coupled with the rise in the use of electronic quotation systems, have rendered London's trading floor obsolete.

Today, the ISE is essentially an over-the-counter market similar to New York's National Association of Securities Dealers and its automated quotation system (NASDAQ). In comparison, Continental markets are still of the organized type, similar to the New York and Tokyo stock exchanges, where orders are centralized in a single location ("the stock exchange" or "bourse") and executed there. Nevertheless an interesting development should be noted, whereby off-floor trading for large blocks of shares is tending to drive increasingly large amount of trades out of Continental stock exchanges, towards broker/dealer offices, or towards London's ISE where the liquidity of large blocks of foreign shares is often higher than on the local market of origin³.

The lack of liquidity in the Continental exchanges is mostly due to regulation that prevent the intermediaries from trading for their own account and to engage in market-making activities. This prohibition has traditionally been justified on the grounds that it protects investors (since intermediaries act as agent/broker as opposed to principal/dealer) and limits the risks borne by intermediaries. While one can argue that increased competition may force Continental stock exchanges to eventually allow intermediaries to perform market-making activities if they wish to augment the liquidity and flexibility of their markets, the present state of undercapitalization of most Continental intermediaries (with the exception of banks) would indeed lead to precarious financial situations in the event of sharp declines in stock market prices.

3. Price-setting mechanisms

There are different price-setting mechanisms in the European equity markets, with the periodic call system (or batch system) in a dominant position. Under this system, orders coming in over an interval of time are not transacted immediately, but stored and transacted together in a multilateral transaction. Batch systems can function in the verbal, written, or auction forms⁴.

The batch system approach followed by most exchanges is expected to increasingly be replaced by a continuous market system, similar to that which prevails in London, with computer-assisted trading and quotations. In a continuous market system, a transaction occurs whenever two traders' orders cross. Price setting and transactions are automatic and occur continuously. This system, now in place in Paris, is anticipated to be progressively operational on the Belgian, Danish, and Spanish stock exchanges (see Table 2).

Currently, more than one price setting mechanism may operate in the same market. For instance, in Paris, an auction form of the batch system is used to determine the price of some of the stock that trade in the cash market, whereas a continuous system is employed for all other stocks.

4. Price stabilization techniques

Closely related to price setting mechanisms is the issue of price stabilization techniques with the most frequently employed being the imposition of a maximum daily limit on price changes (see Table 2). For instance, in the Paris market, opening equity prices are not allowed to change more than five percent from the previous day's closing in the cash settlement market and more than eight percent in the monthly settlement market. There is no daily limit to price fluctuations in the continuous market but a special commission can halt trading if price fluctuations exceed seven percent. Prices of foreign securities, however, are free to move in accordance with their home market's rule.

Other price stabilization techniques include trading halts with indicative prices, the refusal to accept destabilizing orders (both employed in Brussels), stabilizing speculation by market makers (employed in Amsterdam and Brussels), and the affirmative obligation stabilization method as employed in the U.S.A. and not currently used by any European stock exchange⁵. Furthermore, it is important to note that the majority of European exchanges do not employ any administrative stabilization techniques as "circuit breaking"⁶.

Trading halts with indicative prices are less drastic than maximum price limits since in the former case stabilizing orders can enable trading to resume after a short break. Unfortunately, few exchanges use this technique. Stabilizing speculation by market makers is encouraged in some markets by offering participants a trading advantage through lower trading costs and/or preferred access to some market information. The range of stabilization techniques employed indicates the need for harmonization of standards in this area to enable individual European markets to respond to sharp stock price movements in a coordinated fashion as economic integration proceeds.

5. Clearing and settlement systems

There are as many settlement systems as there are countries within the European Community (see Table 2), and this fact perhaps presents one of the prime obstacles towards an integrated equity market in Europe. While some countries (Belgium, Denmark, Portugal, Spain, and West Germany) still practice physical delivery of securities, with long associated delays and higher costs, and few countries have a centralized system of clearing and settlement as France's SICOVAM⁷ (also Luxembourg and Netherlands), other countries continue to have a network of multiple settlement and clearing systems (Italy and U.K.).

The situation in the U.K. is of particular interest because it illustrates an important aspect of a clearing and settlement system : how to be operational at both the international and national levels. Currently, there are two systems in different stages of operation in the U.K. ; if coordinated, they could give rise to the first instant

settlement system for international equities in the world. London's TAURUS (Transfer and Automated Registration of Uncertificated Stock) system which is to be introduced by 1990, is designed to eliminate the share certificates that change hands after each stock market deal in international equity, and also serves as an automated trade confirmation system. The INS (Institutional Net Settlement) system enables a single payment after the exchange nets out all the business with member firms. Up to now, there has not been a combination of these two systems.

On the international level, the ISE has initiated a centralized clearing system for world stock exchanges called GLOBALCLEAR. Among other reasons, this attempt has not been a success because neither New York nor Tokyo consented to surrender business to London. A similar prior attempt at becoming the international equity settlement center for Europe and Scandinavia had also met with the same lack of enthusiasm from participating national stock exchanges which had their own aspirations in attracting foreign business. It is evident that all European exchanges realize that the exchange with the widest and most efficient international settlement and clearing system will hold the competitive advantage.

The integration process may in part assist in the establishment of bridges between major Continental stock exchanges and the ISE. For instance, links now exist between France's SICOVAM and West Germany's AUSLANDKASSENVEREIN. In a larger context, the on-going IDIS (Interbourse Data Information System) project which attempts to link together Europe's major stock exchanges ought to be mentioned as it is highly favored by the EC Commission itself. The principal point here is that without a reliable pan-European settlement and clearing system, it is hard to imagine a truly integrated European equity market.

6. Exchange membership and the protection of intermediaries and investors

With the exception of Italy, stock exchange membership in Europe does not require the purchase of a "seat" as it is the case in the U.S. or Japan. Membership is usually granted by the ruling stock exchange's

public or private authority. Usually, membership comes with a stockbroking monopoly, except in the U.K. where entry in the market is free, even for foreign firms (see Table 3, Part I). Elsewhere, foreign firms are generally barred from national markets, or, when allowed in, submitted to stricter requirements than national brokerage firms⁸.

All countries have established minimum capital requirement for firms, a few countries have done so for individuals, with only London's ISE having established detailed capital requirements according to the nature and scale of business. Similarly, all countries require an annual financial report for listed companies, but only a few require a more frequent semi-annual (Italy), quarterly or monthly report (Netherlands, and U.K.). In terms of investor protection, half of the EEC countries have investor insurance while the other half do not (see Table 3, part II).

The legislation efforts and reforms of the European Commission that concern the European equity markets directly are three-fold in nature (see Appendix I) and should have a benign effect in terms of establishing uniform standards and greater harmonization of the current diverse set of regulations :

1) offering of securities products/services⁹

- Firms authorized in their home country will be permitted under the Investment Services Directive (under proposal) to offer specified list of investment services throughout the EEC.
- Unit trusts or mutual funds authorized in one member state and meeting basic standards set by the UCITS directive ("Collective investment in transferable securities), can be sold EEC-wide without further approval.

2) company listings on the various exchanges

- The Admissions Directive sets a policy of mutual recognition and minimum standards for company listings on

stock exchanges (individual countries can make their own more stringent conditions to "protect the public").

- The listings Directive sets basic standards for information that companies are required to furnish the exchanges for obtaining a listing.

3) reporting and disclosure requirements

- The Interim reports Directive sets minimum standards for interim reports of listed companies, and the Prospectus Directive aims to harmonise rules for publishing, scrutiny, and distribution of prospectuses for public offers.
- The Large Shareholdings Directive ensures that investors and regulators are informed about major share stakes changes, and the Insider Trading Directive harmonizes existing rules on the subject.

7. Commissions and taxation

Until the recent wave of deregulation that affected European financial markets beginning with London's Big Bang in October 1986, fixed commissions were the common practice in European equity markets. Since that period, commissions have become negotiable in most European exchanges even though a dual system still persists in some markets with the existence of a ceiling on fixed commissions. As indicated in Table 4, only Italy and the Netherlands have continued to maintain fixed commissions. Nevertheless, it appears most likely that commissions will become fully negotiable in most of the EEC stock exchanges by 1993.

Commissions indeed are only one part of the cost of trading, and taxation of capital gains, dividends, and transactions should also be taken into account. Capital gains are normally taxed where the investor resides, regardless of the national origin of the investment (this ensures that domestic and international investments are taxed similarly). Dividend payments are sometimes the subject of a withholding

tax, although in recent years many countries have removed it in order to attract foreign investments. Transactions tax is usually proportional to the amount transacted or to the commission charged by brokers (as is the case of the value-added tax on commissions charged prevalent in most EEC countries). Currently, these taxation practices vary across European countries and lead to distortions in the flow and allocation of capital. The harmonization of these taxes can be expected to remain a thorny issue well beyond January 1993 especially in so far as tax issues are still decided by the unanimity rule among member states as opposed to the qualified majority rule.

8. Derivative markets

There are few active equity-related derivative markets in the EEC, despite their integral need in a well-developed equity market. Currently, there are the London Traded Option Market (LTOM), the London International Financial Futures Exchange (LIFFE), the European Option Exchange (EOE) of Amsterdam, the Marché des Options Négociables de Paris (MONEP), and the Marché à Terme International de France (MATIF). Equity-related derivative securities can be option contracts on individual common stocks as well as option and future contracts on stock market indices. Option contracts are traded on the LTOM, the EOE, and the MONEP, while futures contracts are traded on the LIFFE and MATIF (see Table 5).

Close to 70 equity options and one stock-index option were listed on the LTOM in December 1988, with an average daily trading of 36,319 contracts in the fourth quarter of 1988. There were 19 equity options and two stock-index options traded on the EOE. MONEP had 13 equity options listed in December 1988 and trading in two futures contracts on stock market indices and options on these indices started in the first semester of 1988 (MONEP and MATIF). There is also an over-the-counter stock option market in Frankfurt which, however, is relatively inactive due partly to the fact that Germany only modified its gambling laws in 1988 in order to establish organized markets for derivative instruments. Nevertheless, futures contracts on debt instruments are expected to begin trading in 1990 and there are plans to introduce stock index futures as well.

London's LTOM is the most international of all European option markets, yet there are several problems surrounding this market : an overconcentration of liquidity in a few stocks, high admissions costs, and a lack of incentives for market-makers to perform efficiently. These problems in part may explain the relative failure of new contracts on French equities introduced in this market in 1987. Overall, options on international equities introduced in European markets have not been successful (the EOE has now de-listed all contracts on foreign equities introduced earlier).

9. Informational efficiency

A recent review of the evidence on the informational efficiency of European equity markets¹⁰ concluded that European markets could be considered informationally efficient on the three forms of the efficient market hypothesis (EMH) : weak-form, semi-strong form, and strong-form.

The key findings are as follows :1) European equity markets are weak-form efficient regardless of their size even when price changes are measured over daily time intervals. A weak-form efficient market is a market in which current prices fully and instantaneously reflect all the information implied by the historical sequence of prices. Past prices cannot be employed to earn abnormal profits and the best forecast of tomorrow's price is today's price. 2) Most European equity markets are also efficient in the semi-strong form, implying that prices adjust rapidly and fully to publicly available information, limiting the use of such information to consistently earn above normal profits. 3) Various research efforts revealing the inability of European institutional portfolios to outperform the market also indicates that many European equity markets may be strong-form efficient. The assumption here is that the inability of these institutional investors to earn abnormal returns, even with possible access to relevant information before it is widely disseminated, is consistent with the strong-form of market efficiency.

The above findings should not be interpreted to mean that stock price manipulation and insider trading do not take place in the various European equity markets. In fact, the widely held view is that some

individuals and institutions do manage to earn abnormal profits by trading on privileged information, especially in the smaller European equity markets¹¹. Therefore, the issue is not whether the problem of asymmetric information exists but how European regulators could make their individual markets more efficient and encourage insiders to reveal their superior knowledge.

In a recent study of Belgian legislative efforts aimed at innovating Belgium's capital markets by encouraging information disclosure, Vermaelen (1986) argues that effective responses to this problem could be classified in two categories : regulatory approach, which through regulations forces firms to disclose information, and freemarket approach, which attempts to create market-induced disclosure incentives and information signalling systems which lead to voluntary disclosure by insiders¹². The former is the approach pursued in the U.S. while the latter is embodied in the U.K. model of self-regulation and supervision.

Vermaelen points out that, despite its good intention, the goal of the regulatory approach, in increasing market efficiency by reducing insider trading, is unlikely to be met (as confirmed by the recent Belgian experience) and indeed may reduce market efficiency by slowing down the speed with which information will be reflected in security prices. Nevertheless, on a Europe-wide basis, the effective integration of the individual equity markets may necessitate the adoption of a minimum set of laws and regulations covering insider trading and stock price manipulation, coupled with a strong law enforcement agency in each country. This should build consistency across markets and foster a level playing ground for investors, intermediaries, and exchanges alike.

II POTENTIAL BENEFITS OF PORTFOLIO DIVERSIFICATION ACROSS EUROPEAN EQUITY MARKETS

International portfolio investment has a much longer tradition in Europe than in other major financial centers such as the United States or Japan. Although the benefits of international portfolio investment

have been evidenced for quite some time¹³, little work has been done on the extent of these benefits within a particular subset of the world's stock markets, as for example, European equity markets.

This section examines empirically the major gains which can be achieved from European equity markets diversification¹⁴. We first describe the data and the methodology we employ and then present and discuss our findings.

1. Data and methodology

Monthly stock index returns, market capitalization data, and exchange rate data (with the exception of data on the ECU) were obtained from "Morgan Stanley Capital International Perspective", a monthly publication. The data begin on January 1980 and end on July 1988. All stock returns include gross dividends and each stock index contains the following number of stocks : Belgium (22), Denmark (27), France (83), West Germany (58), Italy (68), the Netherlands (24), Norway (18), Spain (31), Sweden (38) and the United Kingdom (136). The data on the ECU were obtained from "International Financial Statistics", a monthly publication of the International Monetary Fund.

All calculations were done using arithmetic monthly returns, and annualized returns are simply 12 times the relevant monthly figures. Annualized risk measures (standard deviation) are monthly figures multiplied by the square root of 12. Total returns for each month are computed from equity returns and exchange return by the formula :

$$R (\text{total}) = [1 + R (\text{equity})] * [1 + R (\text{exchange rate})] - 1$$

Total risks (standard deviations) are then computed from these time series of total returns. All frontier graphs in the risk-standard deviation space display annualized figures, and no short sales constraints are imposed.

2. Risk diversification and market correlation

The often heard argument about risk diversification is that it lowers risk without necessarily sacrificing return. For this to happen, it is a prerequisite that the various capital markets behave somewhat independently from one another.

The degree of independence of a stock market is directly linked to the independence of a country's economy and government policies and regulations. To some extent, common world and European factors affect the expected cash flows of all European firms and therefore their stock prices. However, purely national as well as firm-specific factors do play an important role in asset returns, leading to sizeable differences among markets.

Table 6 presents the correlation matrix for all European countries from 1980 to 1988, with returns denominated in the local currencies. For example, Table 6 shows that the correlation coefficient between the French and the German markets is .517. The square of this correlation coefficient, usually called R^2 , indicates the percentage of common variance between the two markets. Here, close to 27 percent of stock price movements are common to the French and the German markets.

Few markets exhibit correlation coefficients with other markets that are higher than .500. On Table 6, one can notice the following pairs : France-Belgium (.562), West Germany - Belgium (.500), France - West Germany (.517), West Germany - The Netherlands (.574), The Netherlands - Norway (.589), The United Kingdom and The Netherlands (.660).

The same conclusion holds when returns are measured in a common currency. Table 7 presents the correlation matrix for all European countries from 1980 to 1988. Using the Belgian/German example, this table should be read as follows : the correlation coefficient of Belgian equity returns with German equity returns measured in Belgian Francs is .584. It is obviously the same as the correlation coefficient of Belgian equity returns with German equity returns measured in Deutsche Marks (DM).

Although correlation coefficients appear a little higher in Table 7 than in Table 6, large risk-reduction benefits still seem to exist when investors diversify their portfolios within European equity markets.

3. Portfolio volatility

Foreign equity markets are often perceived as more volatile than the home market, especially if currency risk is taken into consideration.

Supporting evidence of this volatility is found in Tables 8, 9 and 10 for the French, German and British investors, respectively¹⁵. The average annual domestic return for each equity market is given in column 1. Column 2 is the exchange gain component of the return for the German investor (Table 9) investing outside Germany. Column 3 is the total DM denominated return. The total risk, measured by the standard deviation of DM rates, is presented in column 6. Total risk has two components, the domestic equity risk and the exchange risk, which are given in Columns 4 and 5, respectively.

The objective of a risk-diversification policy is to reduce the volatility of a portfolio. The total risk of all stock markets (with the exception of Denmark) is larger than that of the German Market when the DM is used as the base currency, even though the domestic risk of some markets might be lower than the risk of the German market. Because of the exchange rate component, the same conclusion holds true from the French or the British investor's perspective (Tables 8 and 10, respectively).

Nethertheless, the addition of more risky foreign countries to a purely domestic portfolio still reduces its total risk as long as the correlation coefficient of the foreign equity market correlation with the domestic market is not too large as evidenced below.

4. Currency risk

Although the European Monetary System protects any European investor against wide currency fluctuations, currency risk is often put

forward as an argument against European equity diversification. Indeed, currency risk might affect the reduction in security risk achieved by European equity diversification. Currency fluctuations affect both the total return and volatility of any foreign-currency denominated investment. In fact, and that is especially true over short periods of time, the impact of currency fluctuations on investment returns may exceed that of capital gains or dividend income. Over a long period of time, however, currency fluctuations have never been the major component of total return on a diversified portfolio.

Since exchange rates are difficult to forecast, we will focus on the contribution of exchange-rate uncertainty to the total risk of a portfolio rather than its contribution to expected returns. Empirical studies have shown that currency risk, as measured by the standard deviation of exchange rate movement, is smaller than the risk of the corresponding market. This can be shown by comparing Columns 4 (domestic risk) and 5 (exchange risk) of Tables 8,9 and 10. The exchange risk component of total risk is far smaller than the domestic risk component for every country. Furthermore, the comparison of the last three columns shows that market and currency risks are not additive. This would only happen if both were perfectly correlated.

In fact, as evidenced in Table 11, there is very weak, sometimes negative correlation between the two. Table 11 reports the correlation coefficients between stock returns and returns on foreign exchange, from the perspective of each investor's nationality. For example, row 1 indicates the correlation coefficients of the Belgian stock market with each foreign exchange rate displayed on that row. Thus .12 is the correlation between the Belgian equity market and the Italian Lira/Belgian Franc rate. It says that the Belgian equity market tends to go up when the Italian Lira appreciates (the Belgian Franc depreciates). Various economic theories have been proposed to explain the influence of real exchange movements on domestic economies. They lead to opposite conclusions¹⁶, and the empirical evidence is somewhat puzzling. Exchange rate fluctuations seem to have only a small systematic influence on stock prices¹⁷.

But the contribution of currency risk should be measured for a portfolio that is diversified both across markets and currencies, since part of that risk gets diversified away by the cocktail of currencies represented in the portfolio. This is evidenced by looking again at the bottom parts of Tables 8, 9, 10. European portfolios exhibit a total risk which is almost the same as the domestic risk, whichever perspective is taken, be it that of British, French, or German investors.

5. Risk adjusted returns

The risk reduction benefit is the most often used argument in favor of international investment and European diversification. It is not, however, the sole motive for European diversification. If it were, it could be easily achieved by investing part of the assets in Treasury Bills. But while the inclusion of Treasury Bills lowers portfolio risk, it also lowers its expected return. In the framework of the Capital Asset Pricing Model¹⁸, the expected return of a security is equal to the risk-free rate plus a risk premium. In an efficient market, reducing the risk level of a portfolio by adding less risky investments implies reducing the expected return.

It seems that diversification across European equity markets lowers risk without sacrificing return as evidenced on Tables 8, 9 and 10. Whereas the risk of a European portfolio (16.34 percent annualized standard deviation from the French investor's perspective with the index calculated using the capitalization weights as of end of June 1984) is significantly lower than the risk of any specific market (Denmark has the lowest standard deviation -19.78 percent- and Italy the highest with -29.22 percent) the return of a European portfolio, which is a weighted average of the return for individual countries, is comparable to the equity return of the various countries that make up our sample.

It should be stressed that there is no guarantee that the past will repeat itself. Indeed, over any given period, one national equity market is bound to outperform the others - as a specific stock or a specific industry sector is bound to do so within any particular national equity market - and if one had perfect hindsight, one best strategy could be to

invest solely in the top performing market. However, as the markets are fundamentally efficient and since it is a formidable task to forecast markets, it is better to spread risk over several European equity markets. Results, from Tables 8, 9 and 10 show that such a strategy ensures higher expected return.

Of course, the same argument applies to world equity diversification. One should note, however, that during the period 1980-1988, world diversification didn't bring a significantly higher risk-return trade-off than a purely European diversification. For the German investor, world diversification brought a small advantage (20.93 percent compared to 19.74 percent, using end of 1984 capitalization weights) with a somewhat higher risk (17.24 percent versus 16.53 percent).

6. Optimal international asset allocation

In this subsection, we examine the ex-post efficient frontier (with no short selling constraints on any investments) using a mean-variance Markowitz optimization framework.

The risk and return curves for ex-post investment strategies are given in Exhibits 1, 2 and 3 for France, Germany and the United Kingdom, respectively. Computations are performed using each of the three local currencies, respectively, for each of those countries. The set of optimal strategies represents the portfolio of market indexes that could have maximized returns for different levels of risk (standard deviation). On the same exhibit are represented the world indexes using three sets of market capitalization weights, end of June 1980, end of June 1984 and end of June 1988 (note that only the first weighting scheme could have been implemented in practice).

According to modern financial theory, the market portfolio should be efficient in a risk-return sense, that is, the market portfolio should be on the efficient frontier. Internationally, according to Exhibits 1, 2 and 3, market portfolios seem far from efficient, at least judging from historical data. This implies that there is plenty of room for an asset allocation strategy different from market capitalization weights.

Note that the asset allocation strategies applied here are passive in the sense that the market weights are set at the start of the period and remain unchanged thereafter. Tables 12, 13, 14 show the risk and return of various portfolios, including the minimum variance portfolio, with the various portfolio weights representing the equity participation for each country in percentage terms.

7. Concluding remarks

During most of the 1980s, European equity markets have displayed correlation coefficients, between their equity returns measured both without and with exchange rates, of average magnitude. Furthermore, equity returns and exchange rates have exhibited almost no correlation, as evidenced in other empirical studies²⁰. Hence, a dynamic asset allocation strategy across European equity markets would have brought about high risk reduction benefits without a sacrifice in total returns.

One can raise the issue as to the validity of these conclusions as the twelve European countries continue their efforts at economic integration. Will this process place equity returns in these countries more in line with one another? Will increased exchange rate stability among European currencies be a further outcome of on-going monetary integration? In other words, assuming that the response to these two questions is in the affirmative, will the correlation coefficients discussed above increase by any significant measure, and consequently lower portfolio diversification opportunities?

It is quite possible that European integration may result in statistically significant increases, over the next five to ten years, in correlation coefficients between major European equity market returns. Despite this possibility, one could argue that any decline in diversification opportunities from a risk-reduction standpoint will be more than offset by certain key factors such as increased operational and informational efficiency as well as more opportunities for "focused diversification". Increased operational efficiency should lead to greater liquidity ("depth") in each major market as well as greater fluidity ("scope") across markets. In other words, as markets integrate, many of the current operational obstacles, such as clearing and

settlement, should greatly diminish, encouraging more foreign listings and expanding the choice for investors. In addition, focused diversification opportunities should arise as markets integrate. By this we mean that increased opportunities for a "industry sector", "company size", or "economic/geographic pockets" diversification approaches on a Europe-wide basis should present themselves, similar to that available in a fully integrated market as the U.S.

III FUTURE OF EUROPEAN EQUITY MARKETS : 1992 AND BEYOND

A forecast of the future is always a difficult and precarious exercise. In this concluding section we discuss a number of key issues which should affect the evolution of European stock exchanges to 1992 and beyond.

1. Various economic, deregulation, integration, and competitive factors prevalent in the late 1980s should foster equity funding as an efficient financing alternative.

Despite the equity market events of October 1987, the major industrial economic blocks, including Europe, are continuing to experience economic growth and stability. The practical benefits of this in the European context has been lower inflation rates, a narrowing of interest rate differentials, more stable exchange rates within the European Monetary System, and a steady increase in economic productivity. These factors have helped improve overall corporate profits which in turn has favorably affected the overall performances of the various European equity markets.

In addition, Europe has seen an acceleration of the integration process in the late 1980s, especially in the financial sector, in preparation for a unified economic market in 1993. A direct effect of these efforts has often been attributed to the rise in domestic and cross-border mergers and acquisitions partly reflecting a consolidation process²¹. While one may argue that this reduces the number of listed companies on the various exchanges, it should be noted that an ancillary effect of the M&A trend may be a gradual increase in average equity

prices due to the fact that most firms are acquired at a premium from their market value.

In the securities industry, more specifically, the positive benefits clearly lie in the on-going harmonization of the vast panoply of regulations, practices, and attitudes in each of the national markets which in turn should allow firms to access multiple currency equity funding, with less administrative and operational obstacles, assisted by pan-European securities houses in the distribution and trading of their securities (see section I).

In addition to the positive "fall-outs" of the integration process, continuing national equity market reforms have further assisted in pushing the modernization of often archaic Continental trading arrangements (see section I). The national reforms, especially in major Continental markets (West Germany, France, and Netherlands) could in many ways be termed a competitive reaction to the rapid liberalization and modernization efforts of London, New York, and Tokyo and a realisation that once an "intangible" market consolidates itself in one location, the competitive lead-time of that location will be hard to recapture in a market characterized by rapid technological evolution.

A related factor driving the positive growth predictions for European equity markets is the continued trend of privatizations of hitherto government-owned corporations. This has a three-fold effect on European equity markets : they create new supplies of stock, they raise awareness of equity markets among local investors, and they force governments into assuming a more constructive view of their national equity markets²² .

2. "Piggy-backed" to the development of equity financing, equity-linked derivative products should also demonstrate strong evolution.

The market for equity-linked options and futures contracts in Europe should develop more rapidly over the next decade stimulated by the need for more sophisticated risk/return management tools of institutional fund managers (see item below) and European multinational corporate finance managers and treasurers. In the past, the derivatives

market was hindered by various factors such as the lack of investor sophistication, poor liquidity in the underlying equity markets, as well as outright mistrust on the part of certain public and regulatory authorities (we saw in Section I that West Germany banned public trading in futures and options until 1989 under the argument that they violated gambling laws).

The key European financial centers will continue the current competition for leadership in developing and maintaining an edge in the European derivatives market. While France and the U.K. are for the moment the only two EC countries with futures and option contracts on their respective stock market indices, others (as West Germany and the Netherlands) are expected to follow suit.

The competitive advantage in this market will be the existence and capturing of the linkage between derivatives and the underlying equities. Up to now, London seems to have the lead and this can be illustrated with the case of the futures contract on the French stock market index. In order to arbitrage between the cash market, (representing the underlying asset) and the futures market, investors must be able to rapidly buy and sell a portfolio of stocks whose composition is the same as the stock index on which the futures contract is written. At the time of this writing such ready-made portfolios were not available to be traded in Paris as the investor currently has to acquire separately each of the stocks that make up the index. In London, however, a quote for the portfolio as a basket can be obtained. This existing capability may give London an opportunity to also quote futures contracts on the Continental stock market indices.

3. The importance of institutional investors in European equity markets should develop, necessitating new skills and capabilities on the part of intermediaries.

In most of the major European equity markets, institutional investors will begin to play a key role²³. The main impetus for this trend is derived from the continued growth of mutual and pension funds. Pension funds are increasingly shifting towards a capitalization system and away from a redistribution system. In the former, funds collected from individuals are invested for future distribution according to

certain investment criteria, whereas in the latter, contributions made by individuals currently working are immediately redistributed to current pensioners. These government reforms are partly based on the fact that rapidly aging populations are increasingly exerting pressures on limited public retirement funds coupled with the fact that government liberalisation in many European countries now permits an increased percentage of equity holdings in those funds²³.

Equity mutual funds, moreover, are ideal vehicles for individual investors seeking to capture the potential gains from diversification which we discussed in Section II. Furthermore, there has also been a growing interest from individuals to invest part of their savings in the stock market through mutual funds to supplement their compulsory pension plans. Recent government liberalisation efforts in this area have even enabled individual investors to deduct from their taxable income a set level of the funds invested (as the British Personal Equity Plans, the French Plan d'Epargne Retraite, and the Belgian Pension Savings Plan)²⁴.

The above institutionalization trend in European equity markets will go hand-in-hand with the rising need for equity market intermediaries (brokers/dealers) to have an "own-book" positioning and market-making capability. The importance of building this capability, across European markets, cannot be stressed sufficiently. Unlike individual investors, institutional investors buy, hold, and trade in enormous blocks and utilize extremely sophisticated portfolio management techniques. Successful intermediaries will be called upon, not only for their execution capability, but also for their "informational" capability, that is, their knowledge of who the buyers and sellers are.

4. A continuation of current European equity market dynamics should result in a two-tiered market structure.

As reviewed in earlier sections, numerous factors indicate that the continuation of current developments in European equity markets should lead to the formation of a two-tiered market, with London as the key European "hub" center and the various Continental exchanges as satellite centers of differing importance.

Of the prime factors that will enable London to be the European link in the global equity market, four clearly need to be cited : (1) sheer size and the level of concentration of activity (number of listings, amounts of new issuance/distribution/trading, and the number of major well-capitalized intermediaries), (2) existence and importance of cross-linkages to other major capital markets (bonds, bank debt syndication, and foreign exchange) in which London has maintained a lead position, (3) heavy investment made over the past decade in data processing and tele-communications equipment that enable rapid execution and effective settlement of equity trades (London has been the traditional absorbing center for most of the technological innovations that have emanated from New York and Tokyo), and (4) the very fact that points (1), (2), and (3) exist leads to London's competitive advantage in developing an equity-linked derivatives market and to be capable of supporting block-trading and other market-making activities which in the post-1992 period will be vital competitive factors (see earlier discussion of the institutionalization trend and the trans-European equity issuance practices of major European corporations).

If major corporations in the next decade, having "outgrown" their home markets tend to issue (with subsequent trading of) their equities in London, what role can be foreseen for Continental exchanges and intermediaries, that up to the present have been hampered by a veritable lack of each of the above four factors ? The answer, most probably, lies in the path followed by certain smaller U.S. exchanges and regional intermediaries that have tended to focus on "middle market" companies and floatations of regional start-ups, and serve as satellite exchanges for smaller trades and occasional "packaged trades" (similar to the role Frankfurt plays vis-a-vis other local West German exchanges).

As mentioned above, even among these Continental "satellite" exchanges there will be significant differences in importance, with Paris and Frankfurt holding the competitive edge (despite the strong efforts of Amsterdam), due partly to the scale and scope of their operation. Between these two centers, Paris appears to have a slight advantage as a result of its rapid modernization and its attempts at developing equity-linked derivative markets. Frankfurt, on the other hand, is hindered by archaic regulations, a traditional official distaste for most forms of derivative products, and a stifling dominance

of the universal banks that have little incentive to change the current relatively protected situation. If they do plan any move, it is more likely that German universal banks, supported by their vast capitalization, will transfer their equity trading skills and undertake equity market activities in London.

5. Several impeding factors may limit the favorable outlook for the development of European equity markets.

The above favorable outlook for the continued growth and development of European equity markets presupposes limited obstacles in its path, be they market-initiated or operational/structural. Two key potential obstacles need to be highlighted and serve to temper our positive views : the strong "crowding-out" effect that may arise from the traditionally vibrant debt markets, and the high possibility that, despite the integration process, an interconnected clearing and settlement system on a pan-European basis may be an extremely long-term prospect.

Debt markets (broadly defined to include private and government bonds, syndicated loans, note issuance facilities, etc.) in European countries, as elsewhere, are generally larger and more developed than equity markets and are growing at faster rates²⁵.

Over the past two decades, global equity financing has steadily declined as a percent of all financing forms. Key reasons for this relative decline are the faster growth rate of debt financing, the steadily increasing levels of government debt financing, increasingly shorter term perspectives of institutional and individual investors and the rapid level of technological innovations associated with the bond market. The last reason has enabled enormous advance in "financing flexibility" for corporate issuers and "investment portfolio flexibility" for investors. A continuation of this trend may result in a "crowding-out" of financing in the equity form, with relative market pricing of the two forms adjusting to reflect the evolution supply and demand conditions.

Besides the competition from debt markets, the future of integrated European equity markets depends greatly on effective interconnected

clearing and settlement systems (this is not the case with unsecuritized debt, where the "suppliers" of funds are financial intermediaries). While EEC "harmonization" and "mutual recognition" legislative efforts will enable investors to capture diversification opportunities and intermediaries to expand their area of operations, a pan-European interlinked clearing/settlement system will require both private market efforts (of the various exchanges working jointly) as well as supranational support from EEC and non-EEC European states. It is most likely that the final functioning (the efforts have begun as seen in Section II, point 5) of these telecommunications and operations interlinkages will be forthcoming only when the various national equity markets feel a status quo in market structure and "roles" for exchanges has been established (see point 4 above). Until that point, the changing dynamics and the aspirations, however farfetched, of certain national exchanges may preclude such mutual efforts.

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NOTES

1. A safeguard clause allows exchange controls to be imposed where "exceptional" short-term capital movements would seriously disrupt monetary and exchange rate policies.

2. See "Activites et Statistiques", Rapport 1987, Fédération Internationale des Bourses de Valeurs, Paris ; p.16

3. These and other factors have permitted London to further consolidate its key position among European equity markets. For instance, approximately 25 percent of the capitalization of the most active French shares are traded in London instead of Paris. This appears to hold true in the case of large block trading of other Continental shares as well. See Hawawini (1984), p. 155.

4. The auction form of batch system is utilized to establish the opening price in some continuous markets as Amsterdam and Frankfurt. See also Cohen, Maier, et. al. (1986), p. 17.

5. The affirmative obligation stabilization gives the U.S. specialist the responsibility to stabilize prices if transaction-to-transaction price changes or price changes over each thousand shares trades exceed certain limits set up for each stock according to its size. The size is measured by the stock's price and transaction volume.

6. "Circuit breaking" refers to the halting of transactions if the stock market index rises over a specified limit during the trading session. It is an example of an administrative stabilization technique.

7. SICOVAM : Société Interprofessionnelle de Compensation des Valeurs Mobilières.

8. Recent reforms in France now enable foreigners to hold a majority interest in local brokerage houses ; similar reforms are under way in Belgium and Spain as well. These trends are significant in that the emergence of broker/dealer houses with majority interest in several

European domestic firms, providing an effective linkage among European markets, should hasten the movement toward integration.

9. The securities transaction tax is a part of the overall tax reform program and aims to abolish indirect taxes on securities transactions.

10. See Hawawini (1984).

11. Op. cit. p. 148.

12. See Vermaelen (1986), p. 436.

13. See Levy and Sarnat (1970) and B. Jacquillat and B. Solnik (1978).

14. In so doing, we perform an analysis using a format which is similar to the one utilized by Jacquillat and Solnik (1989) and Solnik (1988).

15. Due to space shortage, we have presented results on portfolio volatility for these three countries only. However, they represent 66 percent of total European equity capitalization. Similar tables for the other European countries are available from the authors upon request.

16. See Dornbusch (1980) and Lucas (1982).

17. The low correlation between stock returns and exchange rate movements has been documented in various studies. See for example, Adler and Simon (1986) and Solnik (1988)

18. This model was developed by Sharpe (1964). See also Alexander and Francis (1986).

19. See Markowitz (1959).

20. See Solnik (1988), p. 47-48.

21. See also a previous chapter in this book entitled "Investment Banking in Europe After 1992" by Walter and Smith.

22. See "International Equity Analysis", New York : Salomon Brothers Inc., June 1987 ; p.7.

23. See Salomon Brothers Inc., *op. cit.* ; p.17.

24. See *op. cit.* ; p.16.

25. See "Financial Market Trends", (Special Feature #41) Paris : OECD Publications, November 1988 ; p.5.

Appendix I

KEY DIRECTIVES CONCERNING EUROPEAN SECURITIES INDUSTRY

<u>Name/Subject</u>	<u>Aim</u>	<u>Status/Comments</u>
.Directive on admissions to EEC stock exchanges (1979, amended 1982)	.Sets a policy of mutual recognition and minimum standards for company on stock exchanges with the goal of making it easier for companies to raise capital on a pan-European basis.	.In-force except in Belgium, Portugal and Spain. Countries cannot refuse a listing on the grounds that the company has not been listed on another exchange first but they can turn it down. for investor "protection" reasons.
.Directive on listing particulars for equity issuance on exchange (1980, amended 1982,1987)	.Sets basic standards for information that companies are required to furnish to the exchanges for obtaining a listing.	.In-force in seven countries.
.Directive on interim reports (1982)	.Sets minimum standards for interim of listed companies ; establishes that interim reports must be published within four months of end of six-month period.	.In-force, except in Belgium and Spain. reports must be comparable to same period in the previous year. Excludes UCITS.
.Directive on UCITS (1985, amended 1988)	.Coordinates laws and rules for UCITS (undertakings in collective investments in transferable securities) ; principle is that a unit trust approved in one state and meeting basic standards set by directive, can be sold anywhere in the EEC without further approval.	.To be in-force by 01/10/89, except except for Greece and Portugal which have until 01/04/92.
.Directive on securities transaction tax (1976)	.Aims to abolish indirect taxes (stamp duties) on securities transactions ; does not apply to VAT on commissions.	.Proposal stage ; anticipated enforcement by 01/10/89. This directive is part of the overall tax program of the EEC.
.Directive on prospectus scrutiny, and distribution of prospectus (1980, amended 1987).	.Aims to harmonize rules for publishing, usage for public offers ; this applied to unlisted securities.	.Proposal stage ; no enforcement date established. Various exceptions included in the proposal.

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Appendix I (continued)

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|---|---|--|
| .Directive on large shareholdings disclosure (1985, amended 1987) | .Ensures that investors/regulators are aware of major changes in ownership ; shareholder must inform company and/or regulator within seven days when holding goes above or below 10 %, 20 %, 33,3 %, 50 %, or 66,6 %. | .Proposal stage ; anticipated enforcement by 01/01/91. Main problem should prove to be enforcement ; for example, the U.K. has a system where shares are registered by a company, while France and Germany have bearer securities cleared electronically through SICOVAM and Kassenverein. |
| .Directive on insider trading (1987) | .Aims to harmonize diverse rules on insider trading ; defines "insider" broadly to include "tippees", i.e. people that information is passed to and without any connection to the company ; defines "information" as that which is unpublished specific, relate to one or more issuers of securities, and be likely to have a material effect on the price of the security. | .Proposal stage ; anticipated enforcement by 31/12/90. Distinguishes between "primary" and "secondary" insiders. |
| .Directive on investment services (in draft form) | .Similar to the second Banking Directive, it allows firms to carry out specified investment services (including selling securities) throughout the EEC if they have authorization in their home country, and may provide a list on conduct of business rules that could be applied by the host state ; expected to be simpler a model than U.K. self-regulating system. | ."Embryo" stage ; anticipated enforcement by 31/12/92. |

Source : Compiled from various sources, including The Banker, 1988 and the European Commission Directorate-General 15.

TABLE 1

**EUROPEAN EQUITY MARKETS : SIZE AND ACTIVITY
DECEMBER 1987**

	MARKET CAP. 12/31/87 local blns	MARKET CAP. 12/31/87 US\$ blns	MKT CAP. /GNP 1987	LISTED STOCKS 12/87	FOREIGN STOCKS 12/87	TRANSACT. VOLUME 1987 US\$ blns	TURNOVER RATIO 12/87	NUMBER OF SECTIONS 12/87
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
BELGIUM	1 380,700	42	30 %	337	145	11	0,25	OM,SM,OTC
DENMARK	124,015	20	20 %	277	8	2	0,09	OM,SM,OTC
FRANCE	929,200	174	20 %	650	202	87	0,50	OM,SM,OTC
GERMANY	345,500	218	20 %	719	212	472	2,16	OM,SM,OTC,TM
ITALY	142,000,000	121	16 %	204	0	32	0,27	OM,SM,TM
LUXEMBOURG	6,370	1	3 %	518	171	1	0,52	OM,OTC
NETHERLANDS	183,492	103	48 %	453	227	39	0,38	OM,SM,TM
U.K.	415,000	700	92 %	2658	597	317	0,15	OM,SM,OTC,TM
PORTUGAL	1 183,000	-	-	143	0	-	NA	OM,OTC
SPAIN	14,989,700	121	24 %	368	0	36	0,30	OM,OTC

1 : Amounts are in billions of local currency ; figures are for domestic market capitalization only.

2 : Translations in U.S. dollars are based on average exchange rates given by the Federation Internationale des Bourses de Valeurs (F.I.B.V.).

3 : Market capitalisation divided by gross national product. Source : FIBV, 1987 REPORT.

4 : Total number of listed stocks (domestic and foreign).

5 : Number of foreign listed stocks.

6 : Annual volume of transaction in billion of U.S. dollars.

7 : Annual volume of transactions (6) divided by total market (SM) ; third market (TM) ;

8 : Markets are : official market (OM) ; second market (SM) ; third market (TM) ; over the counter market (OTC) ; and electronic screen trading.

SOURCE : Fédération Internationale des Bourses de Valeurs ; SPICER & OPPENHEIM ; Société des Bourses Françaises ; OECD.

TABLE 2
EUROPEAN EQUITY MARKETS : STRUCTURE AND ORGANIZATION
DECEMBER 1988

	OFFICIAL TRADING HOURS	FLOOR TRADING	OFF-FLOOR TRADING	OTC MARKET	CONTINUOUS MARKET	SCREEN TRADING	PHYSICAL DELIVERY	CENTRAL. SETTLEMT & CLEAR	MARGIN TRADING	DAILY LIMIT ON PRICE
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
BELGIUM	11h30 - 14h30	YES	YES	YES	YES	YES	YES	NO	NO	YES
DENMARK	10h00 - 16h00	YES	YES	YES*	YES	NO	YES	NO	YES	NO
FRANCE	09h30 - 15h30	YES	YES	YES	YES	YES	NO	YES	YES	YES
GERMANY	11h30 - 13h30	YES	YES	YES*	YES	NO	YES	NO	NO	YES
ITALY	10h00 - 13h45	YES	YES	NO	NO	NO	NO	NO	NO	NO
LUXEMBOURG	10h45 - 13h15	YES	YES	YES	NO	NO	NO	YES	NO	NO
NETHERLANDS	10h00 - 22h30	YES	YES	NO	NO	NO	NO	YES	NO	YES
U.K.	09h00 - 17h00	YES	YES	YES*	YES	YES	NO	NO	NO	NO
PORTUGAL	10h00 - 13h00	YES	YES	NO	NO	NO	YES	NO	NO	YES
SPAIN	09h30 - 12h30	YES	NO	NO	NO	NO	YES/NO	YES/NO	NO	YES

- 1 : NETHERLANDS : There is a 16h30 - 22h30 session for the most active domestic securities to coincide with NYSE trading.
SPAIN : There is a late session to coincide with other European markets and the NYSE.
- 2 : Introduction of continuous markets usually makes the floor less active ; floor trading continues to exist for small trades in Denmark and France.
- 3 : Off-floor trading hours for selective markets.
FRANCE : 10h00 - 17h00 ; DENMARK : 8h15 - 17h00 ; GERMANY : 9h00 - 11h00 and 14h30 - 16h30.
- 4 : Unofficial and non-regulated over-the-counter markets unless indicated by an asterisk.
Asterik indicates a regulated OTC market.
- 5 : Off-floor computerized centralized market.
- 6 : Off-floor decentralized electronic market. For example the London's SEAQ market.
- 7 : Securities are hand delivered to settle the deal (as opposed to "dematerialized" book-entry transfer systems that are generally operated by a central clearing authority ; see note 8).
- 8 : The book-entry system is operated by a central authority in France, Luxembourg, the Netherlands, and Spain.
However, settlement and delivery delays vary between countries and depend on whether the transaction occurs in the cash or the forward delivery market.
- 9 : Margin trading is the process of buying securities with money borrowed from brokers.
This is forbidden in most countries or regulated as in Denmark, in France, a 40% coverage is required for equity margin trading. Where margin trading is allowed, foreigners can also deal on margin.
- 10: Limits for selective countries are as follows :
France : + or - 5% from the previous closing in the cash market and 8% in the forward delivery market.
Germany : no limits in principle but a + or - 5% change from the last fixed price should be reported to the Managing Committee of the Stock Exchange before trading resumes.
Portugal : + or - 15% in consecutive sessions.

TABLE 3 : PART I

EUROPEAN EQUITY MARKET : MEMBERSHIP AND REGULATION

DECEMBER 1988

STOCK	NUMBER OF BROKERS 12/87	BROKER'S MONOPOLY	SEAT HOLDING	MINIMUM COMMISSION	NUMBER OF EXCHANGES 12/87
	(1)	(2)	(3)	(4)	(5)
BELGIUM	314	YES	NO	FIXED	1
DENMARK	46	YES	NO	NEGOTIABLE	1
FRANCE	61	YES	NO	FIXED & NEGOTIABLE	7 (PARIS)
GERMANY	680	YES	NO	NEGOTIABLE	8 (FRANKFURT)
ITALY	230	YES	YES (\$ 550.000)	FIXED	10 (MILAN)
LUXEMBOURG	74	YES	NO	FIXED & NEGOTIABLE	1
NETHERLANDS	150	YES	NO	FIXED	1
U.K.	329	NO	NO	NEGOTIABLE	
PORTUGAL	12	YES	NO	FIXED & NEGOTIABLE	2 (LISBON)
SPAIN	87	YES	YES (GRANTED)	FIXED	4 (MADRID)

- 1- Three countries have a "numerus clausus" regulation that limits the number of authorised brokers they are : France, Italy, Spain. This regulation will be removed in July 1989 in Spain and in January 1992 in France.
- 2- Only authorized brokers can engage in the brokerage activity in these countries.
- 3- Brokers can be required to hold a seat on the trading floor to perform their activities. The seat can be granted or be payable.
- 4- For more information, see Table 4.
- 5- Number of stock exchanges in a given country with the location of the principal exchange given in parentheses.

TABLE 3 : PART II

EUROPEAN EQUITY MARKETS : MEMBERSHIP & REGULATION
DECEMBER 1988

	ACCESS TO FOREIGN FIRMS	ADDITIONAL REQUIREMENTS FOR FOREIGNERS	MINIMUM CAPITAL REQUIREMENTS	ANNUAL FINANCIAL STATEMENTS	OTHER FINANCIAL STATEMENTS	INVESTOR INSUR. OR GUARANTEE	REGULATOR BODY
BELGIUM	NO	-	FB 10MLN	YES	QUARTERLY	YES	CB
DENMARK	NO	-	DKK 5MLN	YES	NO	YES	GBI
FRANCE	YES	YES	FFR 4 - 40MLN	YES	NO	YES	COB
GERMANY	NO	-	OM 50.000 OM 100.000	YES	NO	NO	
ITALY	NO	-	LIRE 500 MLN	YES	SEMI-ANNUAL	NO	CONSOB
LUXEMBOURG	NO	-	FLUX 5MLN	YES	NO	NO	LSE
NETHERLANDS	YES	NO	DFL 1.0 MLN DFL 1.25	YES	QUARTERLY	YES	VVDE
U.K.	YES	NO		YES	MONTHLY QUARTERLY	YES	SIB, TSA SRO, RIE
PORTUGAL	NO	-	ESC. 1000 MLN	YES	NO	NO	BANK OF PORTUGAL
SPAIN	NO	-		YES	NO	NO	JUNTA SINDICAL

CB : Commission Bancaire
 GBI : Government Bank Inspectorate
 COB : Commission des Operations de Bourse
 CONSOB : Commissione Nazionale per la Societa e la Borsa
 LSE : Luxembourg Stock Exchange
 VVDE : Vereniging Voor De Effeckenhande
 SIB : Securities and Investments Board
 TSA : The Securities Association
 SRO : Self Regulatory Organization
 RIE : Recognized Investment Exchange

TABLE 4

EUROPEAN EQUITY MARKETS : COMMISSION STRUCTURES
DECEMBER 1988

	COMMISSIONS TYPE		
	NEGOTIABLE (1)	FIXED (2)	TRANSACTION SIZE FOR THE LOWEST RATE (3)
BELGIUM	NO	0.1% - 0.8%	UP TO FB 1 MLN
DENMARK	YES 0.25% - 1.0%		
FRANCE	YES	0.65% - 0.215%	UP TO FFR 2 MLN
GERMANY	YES 0.75% - 0.0075% 0.25% - 0.50%		
ITALY	NO	0.7%	NO CEILING
LUXEMBOURG	NO	0.8%	
NETHERLANDS	NO	0.7% - 1.5%	DFL 1,0 MLN
UNITED KINGDOM	YES 0.0% - 0.2%		
PORTUGAL	NO	0.1% - 0.6%	PESO 50,0 MLN
SPAIN	NO	0.8 PTS per share prices 1.5 PTS under 500 pts 0.25% for share prices above 500 pts	

- 1 : Commissions may be fully negotiable or negotiable within specified ranges.
The data in this column indicate the usual range of observed commission rates.
- 2 : Commissions can either be fixed or fixed within a specified range or up to a certain amount above which they become negotiable.

TABLE 5

DERIVATIVE SECURITIES MARKETS IN EUROPE
DECEMBER 1988

	STOCK OPTION	NUMBER LISTED	STOCK INDEX OPTION	STOCK INDEX FUTURE	OPTION ON STOCK INDEX FUTURE	TRADING MARKET
BELGIUM	NO	0	NO	NO	--	*****
DENMARK	YES		NO	NO	--	*****
FRANCE	YES	13	YES CAC 40 OMF 50	YES CAC 40 OMF 50	YES CAC 40 OMF 50	MATIF OMF
GERMANY	YES	68	NO	NO	--	GERMAN STOCK
ITALY	YES	0	NO	NO	--	*****
LUXEMBOURG	NO	0	NO	NO	--	*****
NETHERLANDS	YES	21	yes XMI	YES FTAA	YES XMI	EOE
U.K.	YES	67	FTSE 100 FTSE 100	YES FTSE 100	FTSE 100	LTOM LIFFE
PORTUGAL	NO	0	NO	NO	--	*****
SPAIN	NO	0	NO	NO	--	*****

MATIF : Marche à Terme International de France
 MONEP : Marche des Options Negociables de Paris
 LTOM : London Traded Option Market
 LIFFE : London International Futures Market
 EOE : European Options Exchange
 OMF : Options Market France (a joint effort of OM Sweden and several French banks)

TABLE 6

CORRELATION MATRIX OF EQUITY RETURNS FOR A SELECTED GROUP OF COUNTRIES
 Without exchange rates 1980 - 1988

	BELGIUM	DENMARK	FRANCE	GERMANY	ITALY	JAPAN	NETHERLA.	NORWAY	SPAIN	SWEDEN	UK	US
BELGIUM	1.000	0.233	0.562	0.500	0.278	0.399	0.486	0.498	0.230	0.281	0.468	0.407
DENMARK	0.233	1.000	0.226	0.238	0.291	0.204	0.352	0.301	0.206	0.212	0.234	0.363
FRANCE	0.562	0.226	1.000	0.517	0.373	0.311	0.453	0.433	0.271	0.237	0.428	0.481
GERMANY	0.500	0.238	0.517	1.000	0.259	0.268	0.574	0.417	0.289	0.283	0.405	0.430
ITALY	0.278	0.291	0.373	0.259	1.000	0.276	0.384	0.139	0.344	0.270	0.298	0.233
JAPAN	0.399	0.204	0.311	0.268	0.276	1.000	0.359	0.261	0.315	0.177	0.415	0.317
NETHERLA	0.486	0.352	0.453	0.574	0.384	0.359	1.000	0.589	0.316	0.400	0.660	0.630
NORWAY	0.498	0.301	0.433	0.417	0.139	0.261	0.589	1.000	0.215	0.387	0.487	0.536
SPAIN	0.230	0.206	0.271	0.289	0.344	0.315	0.316	0.215	1.000	0.271	0.347	0.333
SWEDEN	0.281	0.212	0.237	0.283	0.270	0.177	0.400	0.387	0.271	1.000	0.397	0.410
U. K.	0.468	0.234	0.428	0.405	0.298	0.415	0.660	0.487	0.347	0.397	1.000	0.637
U. S.	0.407	0.363	0.481	0.430	0.233	0.317	0.630	0.536	0.333	0.410	0.637	1.000

TABLE 7

CORRELATION MATRIX OF EQUITY RETURNS FOR A SELECTED GROUP OF COUNTRIES
 With exchange rates 1980-1988

	BELGIUM	DENMARK	FRANCE	GERMANY	ITALY	JAPAN	NETHERLA	NORWAY	SPAIN	SWEDEN	UK	US
BELGIUM	1.000	0.371	0.610	0.584	0.318	0.317	0.569	0.575	0.330	0.338	0.497	0.455
DENMARK	0.371	1.000	0.324	0.366	0.239	0.160	0.453	0.398	0.270	0.270	0.383	0.490
FRANCE	0.610	0.324	1.000	0.587	0.388	0.245	0.519	0.527	0.353	0.287	0.461	0.445
GERMANY	0.584	0.366	0.587	1.000	0.276	0.190	0.647	0.481	0.346	0.352	0.440	0.465
ITALY	0.318	0.239	0.388	0.276	1.000	0.265	0.351	0.201	0.334	0.304	0.360	0.280
JAPAN	0.317	0.160	0.245	0.190	0.265	1.000	0.282	0.207	0.273	0.155	0.272	0.221
NETHERLA	0.569	0.453	0.519	0.647	0.351	0.282	1.000	0.648	0.372	0.450	0.690	0.696
NORWAY	0.575	0.398	0.527	0.481	0.201	0.207	0.648	1.000	0.314	0.477	0.562	0.541
SPAIN	0.330	0.270	0.353	0.346	0.334	0.273	0.372	0.314	1.000	0.315	0.424	0.365
SWEDEN	0.338	0.270	0.287	0.352	0.304	0.155	0.450	0.477	0.315	1.000	0.489	0.496
U.K.	0.497	0.383	0.461	0.440	0.360	0.272	0.690	0.562	0.424	0.489	1.000	0.618
U.S.	0.455	0.490	0.445	0.465	0.280	0.221	0.696	0.541	0.365	0.496	0.618	1.000

TABLE 8

RISK AND RETURN FROM PERSPECTIVE OF FRANCE (1980-1988)

COUNTRY	DOMESTIC RETURN (%)	EXCHANGE GAIN (%)	TOTAL RETURN (%)	DOMESTIC RISK (%)	EXCHANGE RISK (%)	TOTAL RISK (%)
	(1)	(2)	(3)	(4)	(5)	(6)
BELGIUM	27.34	1.89	29.27	21.49	6.56	22.60
DENMARK	20.08	2.03	22.21	19.04	3.34	19.78
FRANCE	21.54	0.00	21.54	23.01	0.00	23.01
GERMANY	15.16	4.43	19.67	20.30	4.01	20.95
ITALY	30.51	-0.93	29.58	28.90	3.68	29.22
JAPAN	22.37	12.73	35.49	17.51	10.91	21.75
NETHERLANDS	21.38	4.19	25.67	19.89	3.83	20.55
NORWAY	15.47	1.81	17.30	27.92	6.61	28.67
SPAIN	31.03	-1.80	29.18	22.63	6.33	23.56
SWEDEN	33.15	0.59	33.78	23.71	8.01	25.18
U.K.	23.14	2.73	25.82	19.89	10.52	22.12
U.S.	16.34	6.05	22.44	16.88	12.32	20.67
WORLD (1)	18.32	6.15	24.61	14.33	8.85	16.83
EUROPE (1)	20.88	2.70	23.58	15.38	4.92	16.09
WORLD (2)	18.43	6.70	25.28	14.18	9.12	16.86
EUROPE (2)	21.40	2.73	24.12	15.42	5.34	16.34
WORLD (3)	20.08	7.98	28.27	13.57	8.24	16.10
EUROPE (3)	22.06	2.63	24.41	15.32	5.18	16.21

(1) Index calculated using capitalization weights as of 6/30/80

(2) Index calculated using capitalization weights as of 6/29/84

(3) Index calculated using capitalization weights as of 6/30/88

TABLE 9

RISK AND RETURN FROM PERSPECTIVE OF GERMANY (1980-1988)

COUNTRY	DOMESTIC RETURN (%)	EXCHANGE GAIN (%)	TOTAL RETURN (%)	DOMESTIC RISK (%)	EXCHANGE RISK (%)	TOTAL RISK (%)
	(1)	(2)	(3)	(4)	(5)	(6)
BELGIUM	27.24	-2.49	24.74	21.49	5.89	22.04
DENMARK	20.08	-2.34	17.76	19.04	2.42	19.46
FRANCE	21.54	-4.27	17.21	23.01	3.84	23.29
GERMANY	15.16	0.00	15.16	20.30	0.00	20.30
ITALY	30.51	-5.27	25.25	28.90	3.66	29.52
JAPAN	22.37	8.38	31.08	17.51	11.25	21.96
NETHERLANDS	21.38	-0.22	21.16	19.89	1.79	19.97
NORWAY	15.47	-2.54	13.03	27.92	6.53	29.03
SPAIN	31.03	-6.12	24.83	22.63	6.48	23.86
SWEDEN	33.15	-3.75	29.37	23.71	8.02	25.24
U.K.	23.14	-1.58	21.52	19.89	10.87	22.57
U.S.	16.34	1.73	18.10	16.88	12.64	20.93
WORLD (1)	18.32	1.83	20.27	14.33	9.25	17.22
EUROPE (1)	20.88	-1.65	19.20	15.38	4.88	16.26
WORLD (2)	18.43	2.37	20.93	14.18	9.51	17.24
EUROPE (2)	21.40	-1.62	19.74	15.42	5.30	16.53
WORLD (3)	20.08	3.65	23.91	13.57	8.66	16.48
EUROPE (3)	22.06	-1.98	20.04	15.32	5.26	16.46

(1) Index calculated using capitalization weights as of 6/30/80

(2) Index calculated using capitalization weights as of 6/29/84

(3) Index calculated using capitalization weights as of 6/30/88

TABLE 10

RISK AND RETURN FROM PERSPECTIVE OF THE UNITED KINGDOM (1980-1988)

COUNTRY	DOMESTIC RETURN (%)	EXCHANGE GAIN (%)	TOTAL RETURN (%)	DOMESTIC RISK (%)	EXCHANGE RISK (%)	TOTAL RISK (%)
	(1)	(2)	(3)	(4)	(5)	(6)
BELGIUM	27.34	0.05	27.45	21.49	10.56	24.31
DENMARK	20.08	0.34	20.10	19.04	10.44	20.35
FRANCE	21.54	-1.64	19.97	23.01	10.45	25.55
GERMANY	15.16	2.75	18.01	20.30	10.87	23.48
ITALY	30.51	-2.59	27.31	28.90	10.85	28.98
JAPAN	22.37	10.60	33.50	17.51	11.72	22.95
NETHERLANDS	21.38	2.43	23.62	19.89	10.08	21.33
NORWAY	15.47	-0.23	15.27	27.92	8.46	29.10
SPAIN	31.03	-3.69	27.29	22.63	9.88	25.00
SWEDEN	33.15	-1.48	31.63	23.71	9.42	25.67
U.K.	23.14	0.00	23.14	19.89	0.00	19.89
U.S.	16.34	3.85	20.32	16.88	12.17	21.11
WORLD (1)	18.32	3.98	22.48	14.33	9.03	17.35
EUROPE (1)	20.88	0.59	21.45	15.38	6.15	16.61
WORLD (2)	18.43	4.52	23.15	14.18	9.21	17.41
EUROPE (2)	21.40	0.56	21.93	15.42	5.70	16.47
WORLD (3)	20.08	5.82	26.18	13.57	8.65	16.91
EUROPE (3)	22.06	0.21	22.23	15.32	5.79	16.39

(1) Index calculated using capitalization weights as of 6/30/80

(2) Index calculated using capitalization weights as of 6/29/84

(3) Index calculated using capitalization weights as of 6/30/88

TABLE 11

CORRELATIONS BETWEEN STOCK RETURNS AND RETURNS OF FOREIGN EXCHANGE

STOCK MARKET	BELGIUM	DENMARK	FRANCE	GERMANY	ITALY	JAPAN	NETHERLA	NORWAY	SPAIN	SWEDEN	U.K.	U.S.
BELGIUM		0.02	0.00	0.04	0.12	0.00	0.00	0.10	0.01	0.14	-0.03	0.06
DENMARK	0.14		-0.11	-0.12	-0.16	0.14	-0.01	0.21	-0.11	0.13	0.16	0.21
FRANCE	0.04	-0.01		-0.02	0.08	0.00	0.00	0.16	-0.01	0.04	-0.04	-0.05
GERMANY	0.05	0.07	-0.02		0.13	0.02	-0.06	0.10	-0.12	0.11	-0.03	0.07
ITALY	0.07	-0.08	-0.03	-0.13		0.27	-0.11	0.23	0.00	0.24	0.19	0.18
JAPAN	-0.09	-0.07	-0.08	-0.09	-0.05		-0.10	-0.10	-0.03	-0.02	-0.16	-0.04
NETHERLA.	0.12	0.12	-0.03	-0.01	0.03	0.11		0.19	-0.04	0.19	0.12	0.25
NORWAY	0.06	-0.05	0.00	-0.08	-0.02	-0.06	-0.04		-0.04	0.04	-0.02	-0.01
SPAIN	0.06	0.02	0.00	-0.05	0.00	0.09	-0.04	0.10		0.05	-0.01	0.05
SWEDEN	-0.03	-0.02	0.00	-0.02	0.01	0.11	-0.03	0.13	-0.01		0.02	0.19
U.K.	0.04	0.05	0.05	0.00	0.06	-0.07	0.01	0.15	0.07	0.17		0.07
U.S.	0.07	0.02	0.01	-0.01	-0.02	-0.03	0.00	0.03	-0.10	-0.04	-0.04	

Efficient Frontier (F)

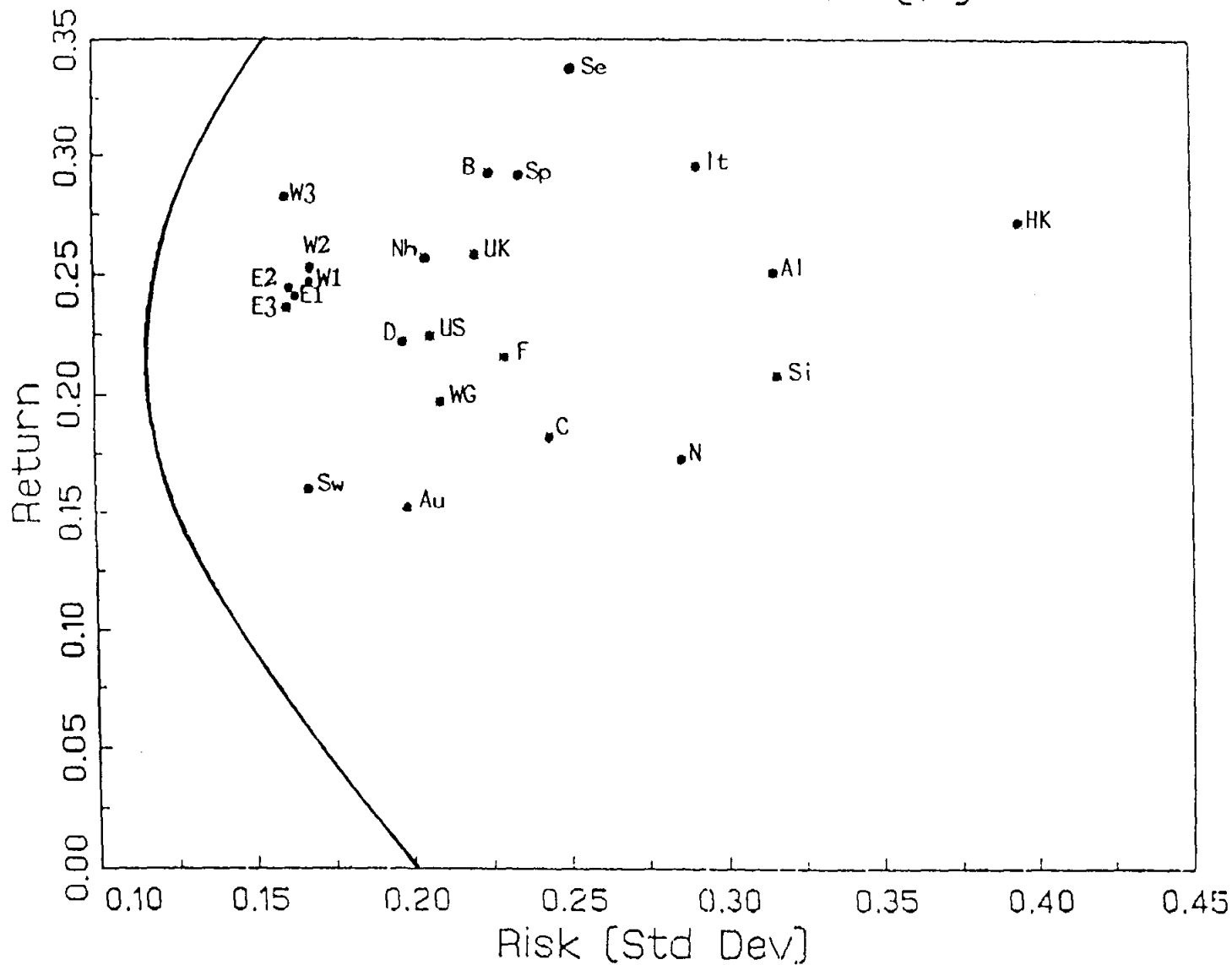
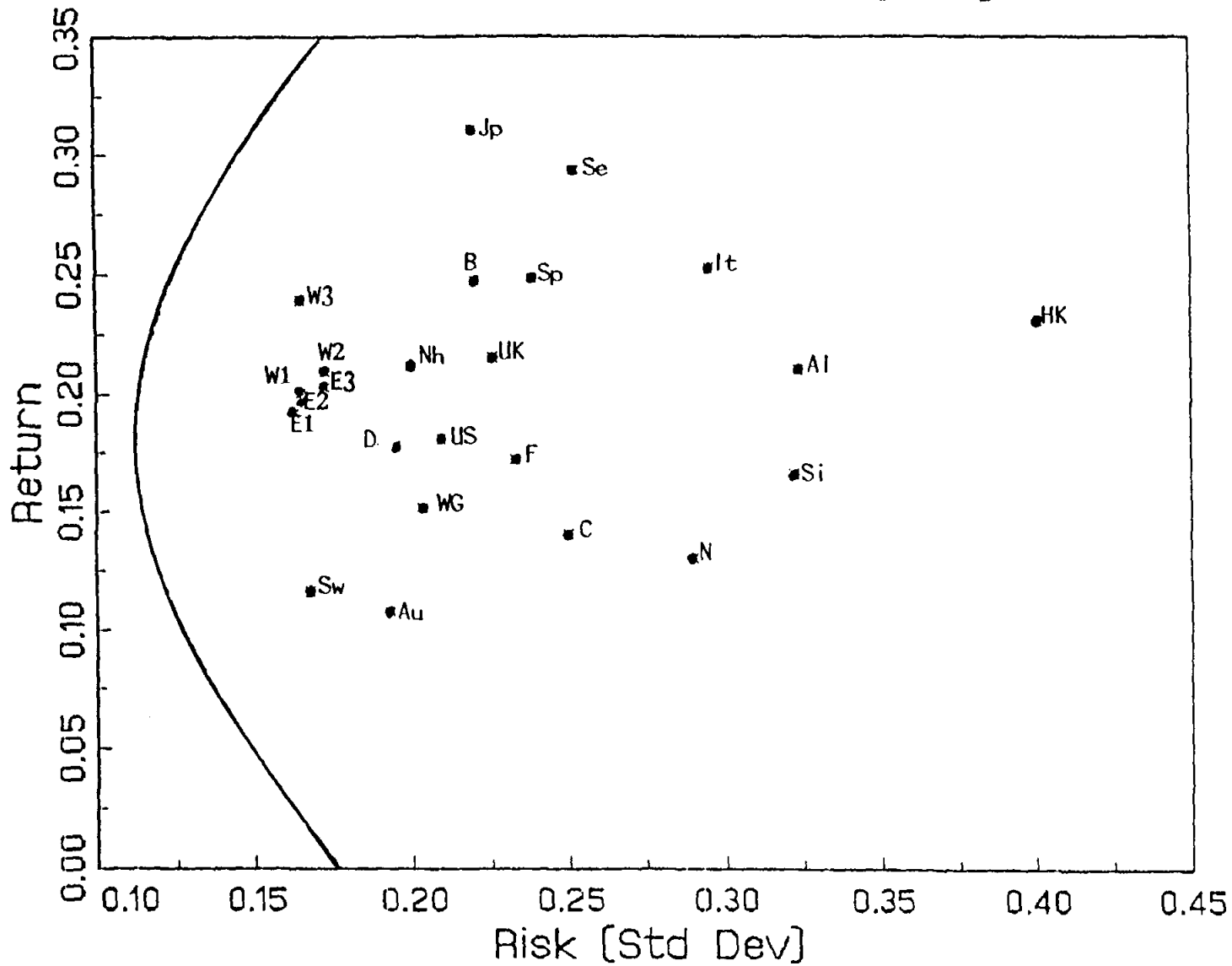


EXHIBIT 1
FRANCE

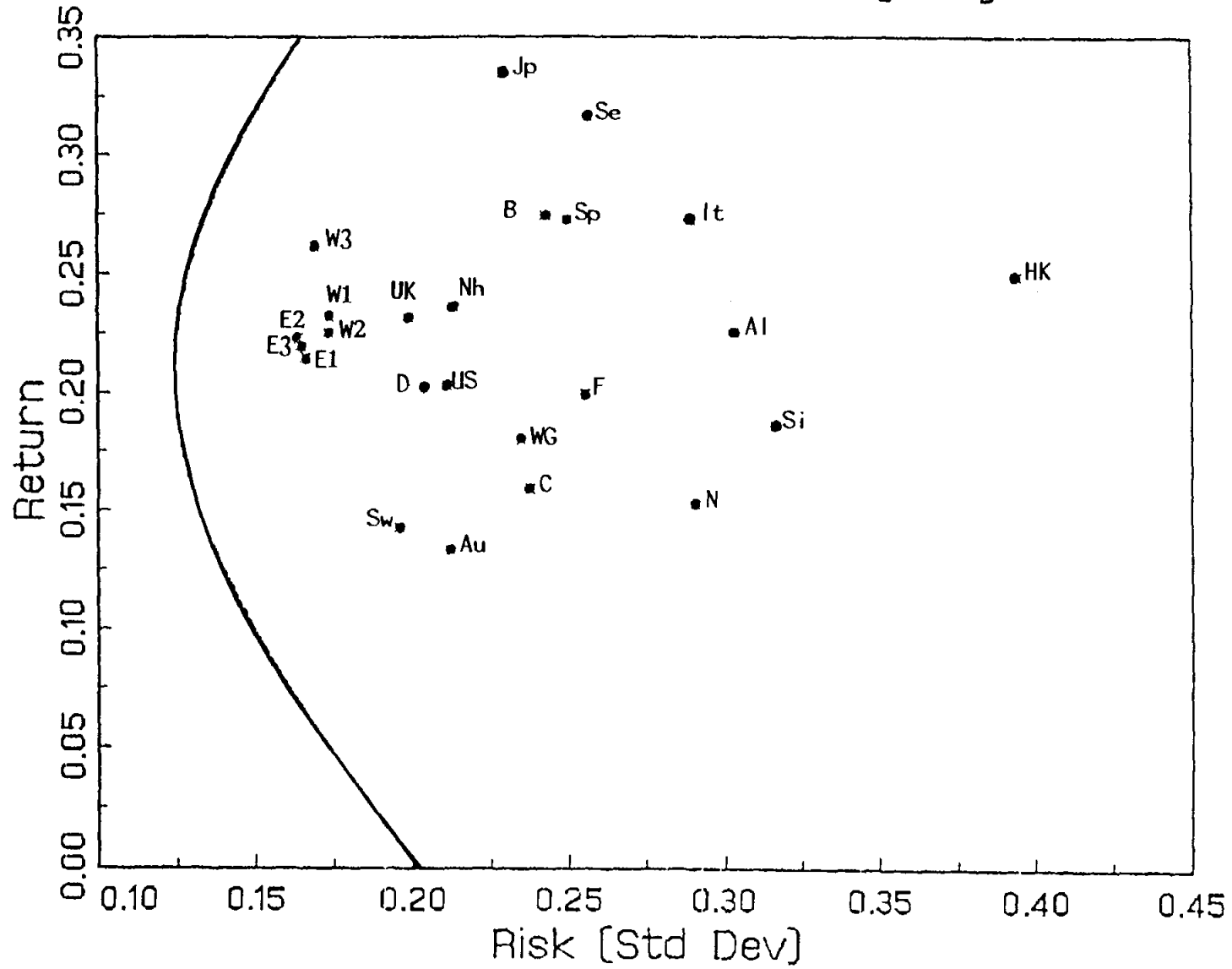
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