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**Recent Dynamics in Interlocking Directorates in The European Union's
Largest Corporations: 1986 and 1992**

by

Mark Stewart Laver

BA, University of Lethbridge, 1992

THESIS

**Submitted to the Department/Faculty of Geography
in partial fulfilment of the requirements
for Master of Arts
Wilfrid Laurier University
1995**

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Abstract.

An interlocking directorate is created when an individual sits on the board of directors of two, or more, corporations simultaneously. One of the assumed functions of the interlocking directorate is that it provides the corporation with information on external markets. By analyzing the boards of directors of the European Union's largest corporations for 1986 and 1992 one can test for the assumption that there should be increased interlocking directorates over the same time period. As is well known, in the last decade the European Union moved toward greater economic integration between member countries. It was expected that as member countries integrate more of their activities, corporations will also more clearly link their operations. One of many methods through which increasing corporate integration may occur is with the creation of the interlocking directorate.

By determining the number of interlocking directorates within and between countries it is possible to determine the degree of change between 1986 and 1992. It is also possible to determine what cities are more prominent as centres for interlocking directorate activity. By including other corporate data it is possible to determine if corporations of different size in distinct geographic locations experience similar rates of formation with interlocking directorates. In order to answer these questions the directors of the top 534 corporations, by annual turnover, in 1986 and 1992 were examined, together with their country and city of corporate headquarters, number of employees and industrial group.

It was found that interlocking directorates in the European Union have experienced a substantial increase between 1986 and 1992. However, it was also found that there was a significant spatial variation in interlocking directorate formation within and between member countries of the European Union. The frequency of interlocking directorates was, in part, determined by the number of corporations from each country in the sample. However, per corporation, the average number of interlocking directorates within countries occurred more frequently in corporations that were headquartered in France, Germany and the UK. Conversely, cross-border interlocking directorates were more frequent in those corporations headquartered in Belgium and The Netherlands. When determining interlocking directorates within and between cities a major city emerged in most countries. However, it appears that between 1986 and 1992 a dispersal of activity has occurred from the major cities to the smaller ones. Major cities also evolve for cross-border interlocking directorates in the same time period. Lastly, the size of corporation appears to play a role in the rate of formation of interlocking directorates. However, the incidence varies slightly between countries in the European Union. These findings would lend support to the hypothesis that corporations in the European Union are integrating more of their business activities.

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1.0 Introduction.

1.1 Interlocking Directorates in the European Union.

"men see little, presume a great deal, and so jump to the conclusion"

John Locke, Qtd in Fennema, 1982, pg 199

Dating back to the early 20th century consumers have been concerned with collusive arrangements between large corporations in competition. Interlocking directorates are seen as one form of collusion. An interlocking directorate is created when an individual sits on the board of directors of two, or more, corporations simultaneously. Unfortunately, such a conclusion is often reached without empirical evidence to support its claim. That interlocking directorates can be used as a method to connect corporations in different geographic locations and have a positive impact is frequently overlooked. Corporations can use interlocking directorates to obtain information from distant markets. In addition, the interlocking directorate can also be used to add prestige to a corporation, and link it with suppliers of inputs and receivers of outputs (Green, 1981). Clearly in today's global economy interlocking directorates aid in the implementation of successful business strategies.

1.2 Topic of Research.

The corporate milieu has experienced substantial changes in the last decade. As business has reorganized it has received significant attention in the academic and popular press. One of the best examples of business reorganization within a geographic and political area is the European Union (EU). In 1987, the member countries of the EU (Figure 1.1) signed the Single European Act (SEA). Essentially the SEA provides

Figure 1.1, Member Countries of the European Union (1986 and 1992)



the opportunity for corporations to conduct their activities within the EU with very few barriers. Purvis, 1990, identified six major policy initiatives in the SEA. 1 border controls between EU countries are to be simplified and eventually abolished. 2 the free movement of people and capital within the EU, 3 the removal of all EU non-tariff barriers, 4 public procurement is to be open to all EU corporations, 5. taxation systems within the EU are to become more similar and 6. increased standardization of products is to be aimed for. The SEA is also popularly known as the 1992 EU programme, since the initial projected completion date for the internal market was December 31st, 1992.

A significant amount of literature has reported on corporate activities relating to facility relocation, mergers and acquisitions, production systems and corporate strategy since the signing of the SEA. However, the literature has failed to recognize how management, specifically corporate boards of directors, have adapted to a changing business environment. Studying changes in interlocking directorates between 1986 and 1992 enables one to do a comparison between before the implementation of the SEA and the year of the projected completion date of the internal market.

By examining interlocking directorates in the EU for 1986 and 1992, it will be possible to determine if the EU's most prominent corporations have changed the structure of their board of directors, presumably to gain information on the new opportunities available in the internal market. It would be expected that with increasing cooperation among the member countries increased cooperation between corporations would also occur. Four facets of interlocking directorates will be examined in an attempt to answer the above question. First, the number of interlocking directorates will be determined for 1986 and 1992. Second, the previously mentioned interlocking directorates will be explored for national and international differences. Third, national and international interlocking directorates will be examined to determine if they occur more frequently in large or small corporations or between or within particular industrial groups. Lastly, national and international interlocking directorates also connect cities in which

corporations are headquartered. Those cities that are more predominant will be examined together with the industries that are adjoined.

Although there has been little geographic research on interlocking directorates, what has been done will be thoroughly reviewed. In addition, some related corporate geography research, which has a potential influence on the changing geographic structure of corporate boards of directors will also be discussed.

1.3 Research Procedure Overview.

In an attempt to understand the geographic changes in interlocking directorates in the EU between 1986 and 1992, a considerable amount of corporate data had to be collected. The 500 corporations in 1986 with the highest annual sales were established together with the 34 financial institutions with the highest annual assets. For these corporations, annual sales and the number of employees was recorded. As well, each corporation was classified into an industrial group according to the predominant business activity it conducted. Geographic information was also attributed to each corporation. The country that each corporation operated in was established, together with the city of the corporations headquarter. All of this corporate data was attributed to the directors from every corporation in the study. This process was repeated when collecting the 1992 data.

Therefore it will be possible to determine the number of interlocking directorates within and between countries, as well as, within and between cities. In addition, compiling the number of interlocking directorates by annual sales, number of employees and by industrial groups enables this research to determine what sort of corporations are interlocked within and between categories, and within and between countries.

2.0 European Union History.

In order to establish the current status of the EU it is necessary to review the historical and political processes that have led to the EU's present position especially as it relates to the corporate environment. The concept of a united Europe is not a new one. Dating back to the 14th century a united Christian state was proposed by Pierre Dubois (Swann, 1992). Further suggestions for a united Europe were similar to a proposal in 1919 by French Prime Minister Aristide Briand. Briand suggested a United States of Europe, the primary goal of a united Europe would be to achieve a lasting peace (Swann, 1992). The economic advantages that could be derived from a united Europe became the central focus of ideas toward the middle of the 20th century.

2.1. European Union Beginnings.

Economic integration of some of the European countries began in 1950 with the introduction of the Schuman Plan. The main focus of this plan was to try and help Germany regain its economic power without endangering the future peace of Europe. The plan sought to stabilize the German market by creating a common market for the production of coal, and iron and steel with the removal of custom duties and quotas for these products. The countries that were involved in this agreement were Belgium, The Netherlands, Luxembourg, West Germany, France and Italy. The Paris Treaty of 1951 formally created the European Coal and Steel Community (ECSC) with the same countries as members. The United Kingdom was invited to join the ECSC, but refused. Prime Minister Clement Attlee said

"We on this side are not prepared to accept the principle that the most vital economic forces of this country should be handed over to an authority that is utterly undemocratic and is responsible to nobody"
(Swann, 1992, pg7.)

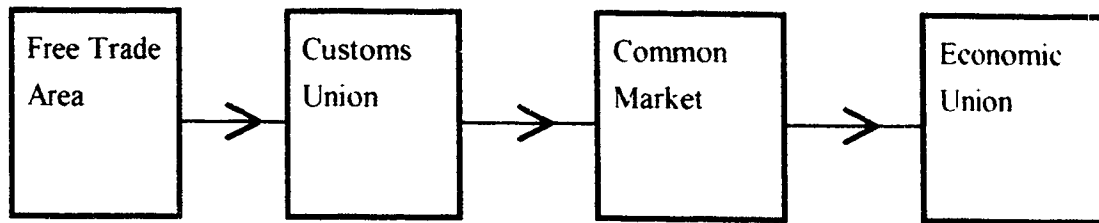
Thus the first experiment in limited economic integration had begun. The quote from the British government is probably the biggest issue that faces any attempt at economic integration, that is, how much sovereignty does one country have to yield in order to be involved in economic integration projects.

The same six countries established the European Defence Community (EDC) in 1952, the purpose of this community was to pool the offensive and defensive capabilities of the members in response to the new threat of the communist Soviet Union. A political arena was needed for the effective control of the EDC. The European Political Community (EPC) was proposed in 1953. A shift of power within the French national political arena resulted in the refusal to accept the EDC which, in turn, resulted in the collapse of both the EDC and EPC.

Belgium, Luxembourg and The Netherlands initiated discussions in 1955 that called for the creation of the European Economic Community (EEC). West Germany, Italy and France were also involved. The six countries would establish a general common market in conjunction with an atomic energy pool (Euratom) (Swann, 1992). The United Kingdom was again invited to join, but differences soon appeared and the United Kingdom withdrew from discussions in late 1955. Treaties establishing the EEC and Euratom were signed in Rome on March 25th, 1957. Subsequent ratification by national parliaments allowed the treaties to take effect January 1st, 1958. The Treaty of Rome provided for the creation of a common market.

Economic integration amongst countries can take various forms, from a Free Trade Agreement to complete Economic Union, as seen in figure 2.1.

Figure 2 1, The Continuum From Free Trade Area to Economic Union.



Source; Dicken, 1986, pg147

The Free Trade Area can be seen as the least demanding in terms of involvement. The countries involved agree to remove all custom duties and quotas on trade between them. Each country is able to determine its own policies towards imports from outside of the area. In a Customs Union, tariffs and quotas on trade between members are removed. Members also apply a common level of duty on goods entering the community from outside areas. A Common Market is characterized by the free movement of goods. In addition, the factors of production, labour, capital and enterprise are free to move around. The final stage along the continuum toward economic integration is the Economic Union. This is very similar to a common market in which there is also a complete unification of monetary and fiscal policy (Dicken, 1986). There would be a common currency and member countries would become regions within the union (Tsoukalis, 1983). While the Paris Treaty of 1951 provided for the creation of a Customs Union, the Rome Treaty allowed the member countries to progress toward a Common Market.

1973 saw the membership of the EEC expand by 50% with Denmark, Ireland and the United Kingdom joining. While the initial United Kingdom rejection of the EEC surrounded issues of sovereignty, subsequent issues, such as a reduction of economic ties with The Commonwealth, it was believed, would be detrimental to the country. The United Kingdoms' application to the EEC was different because it demanded modifications

to the Rome Treaty that would not harm the United Kingdom's commitment to The Commonwealth and the European Free Trade Area. The initial application was made in 1961, and subsequently rejected, further applications were made and refused. Primary objections were made by the French government who argued Britain was not European and was not fully committed to the EEC (Swann, 1992). Eventually concessions were made by both parties and the United Kingdom was admitted in 1973.

The Rome Treaty provided for the creation of four European institutions, 1. a council of ministers, 2. a European commission, 3. a court of justice, and 4. a parliamentary assembly. The European Parliament, previously appointed, first became elected in 1979. The issue of further European integration was proposed shortly thereafter. The reason for this new proposal surrounded the issue that excessive institutional red tape did not allow the EEC to effectively deal with problems such as recession and increasing competitiveness from countries outside of the EEC. The EEC had stagnated to the degree that in some circles had by now begun to call it the uncommon market. The European parliament commissioned the Cockfield Report or "White Paper on Completing the Internal Market" in 1985. The report contained approximately three hundred measures that would have to be introduced for the internal market to be completed. The terms of this report were embodied into the SEA which was approved by all member countries and came into effect in 1987 (Swann, 1992).

The EEC enlarged its membership twice in the 1980's. In 1981, Greece was admitted and in 1986, Portugal and Spain.

2.2 The Single European Act.

The SEA came into effect July 31st, 1987. Proposals outlined in the act stated that the internal market should aim for completion by December 31st, 1992. Consequently the SEA has become known as the 1992 project. The SEA also reformed the name of the EEC. The treaties that created the EEC, Euratom and ECSC were now incorporated

under the umbrella of the SEA. The EEC thus became known as the European Community. The SEA also changed some major decision making processes within the community. The most prominent of these changes was that voting arrangements were realigned so that majority voting plus one would take precedence instead of a two-thirds majority. The significance of this proposal is that more legislation would be passed, while at the same time reducing red tape. The SEA also allowed for the development of political units such as the European parliament (Commission of the European Communities, 1991). In a global marketplace the EU can no longer rely on its economic potential. A political wing is necessary to deal with issues that affect the EU but occur in institutions outside of the community such as GATT. Essentially acting as one unified country, the power of individual countries is enhanced by operating under the umbrella of the EU.

The introduction outlines the six major areas of the SEA. These proposals would allow for the completion of the internal market without internal frontiers. The SEA is considerably widespread covering areas on economic policy that would ensure a convergence of economic and monetary policy amongst member countries. Many provisions were also made concerning social policy, an example is that member countries are encouraged to improve the working environment and that a platform of universal social rights is made available to EU citizens (Swann, 1992). Social and economic cohesion would be improved through programs such as the European Regional Development Fund which would attempt to reduce disparities amongst and within regions. The underdeveloped areas are primarily rural. The main objectives of development funds in rural areas is to preserve the family farm, to create permanent and economically viable jobs outside of agriculture and to protect the rural environment (Commission of the European Communities, 1991).

The economic impacts of the SEA are of greatest significance to this study. The most complete study on the economic impact of the SEA can be found in the Cecchini

Report (1988) The report suggests that the removal of a range of non-tariff barriers would have a downward impact on costs to EU producers. The elimination of barriers and its subsequent boost to competition would have four major consequences on the EU market. First, a reduction in costs for business would occur due to increased exploitation of economies of scale in production and business organization. Second, improved efficiency within corporations and widespread industrial reorganization will occur. Prices for the EU consumer will be lower due to increased competition. Third, comparative advantages between corporations and industries will play an increasing role in determining market success. Lastly, increased competition will lead to increased innovation and new business processes and products generated by the internal market (Cecchini, 1988). The potential gains for industries operating in the internal market range from 1-6% depending on the industry.

While Cecchini (1988) argues that the internal market will lead to increased competition, the large number of mergers and acquisitions may actually suggest that competition has decreased. Thus prices may not be as competitive. In addition, a concentration of decision making between a few corporate directors may also act as a negative stimulant to reduce prices for the EU consumer. Does this concentration differ between industries and geographic regions?

2.3 The European Union.

The EU came into existence with the ratification of the Maastricht Treaty in November, 1993. The EU is an umbrella organization that is built upon the three 'pillars'. The 'pillars' consist of, 1. the European Communities, 2. a common Foreign and Security Policy, and 3. cooperation in the field of Home Affairs and Justice. The most important of the three 'pillars' is the European Community. In this 'pillar' there is a significant role for central institutions such as the European Commission and the European Parliament. The European Commission is responsible for initiating all EU legislation. Members of the

Commission are appointed by national government leaders. Larger EU countries have 2 representatives, while the smaller countries have 1 representative, for a total of seventeen members. The European Parliament is directly elected by the people of each member country. There are currently 567 members of the European Parliament (pre-1995). Representation from each member country is closely representative of population. However, members of the European Parliament rarely vote by country, instead they are aligned according to political ideology (Siebelink, 1994).

The European Union experienced its fourth enlargement while this research was underway. Four countries had the opportunity to join the EU. In national referendums the people of Sweden, Austria and Finland ratified membership, while the people of Norway, again rejected membership. Norway previously rejected membership in 1973. Several countries have had associate membership for a number of years, they include, Turkey, Cyprus and Malta. Their future as full members of the EU remains unclear. In addition, the breakup of communist regimes in eastern Europe has exposed more possible members to the EU. Many of these countries are invited to yearly EU meetings, which is seen as a method of preparing them for eventual full membership (Siebelink, 1994). However, rapid expansion of the EU also creates difficulties. A two speed EU is a possibility as disparity increases between member countries. Incorporating countries with different levels of economic development may weaken the foundations of the EU.

3.0 Literature Review

3.1 Introduction

Interlocking directorate research is spread over numerous academic disciplines with Business and Sociology being the most prominent. Less significant fields include, Anthropology, Economics and Geography. Regardless of the academic focus it is undeniable that all interlocking directorate research contains a geographic component, even if it is not the focal point of the research itself.

In this chapter geographic research focusing primarily on interlocking directorates, industrial restructuring, corporate strategy, the possible economic impacts of the SEA and EU merger and acquisition policy will be reviewed. Research on industrial restructuring is particularly diverse. Corporate strategy studies also have undergone significant changes in the last decade, some of these changes will be discussed. Change in production techniques and location have also garnered significant attention in the geographic and management literature. The potential economic impacts of the '1992' programme also cover a range of issues. Linking the economic impact literature with the industrial restructuring literature corporate responses to the '1992' programme and their potential impact on changes in interlocking directorates are discussed. Each of these areas can be considered to have a potential impact on the spatial variation of interlocking directorates

3.2 Corporate Geography.

McNee (1960) is recognized by numerous authors (Moyes, 1993, Dicken and Thrift, 1992) as developing the field of corporate geography. He suggested that economic geographers consider the implications of ownership with respect to the geography of corporations (Moyes, 1993). Interlocking directorate research is one of many areas that fit under the umbrella of corporate geography.

Recently, however, corporate geography has come under attack, particularly from the work of Walker (1989). Walker suggests that some of the major hypotheses of corporate geography must be rejected. Most notably, Walker focuses on the concepts of, the bias of large corporation location, spatial division of labour within the corporation, and the importance of branch plants. Walker suggests that corporate geography shows a bias toward the location of large corporations. In effect, it is argued that the differences between the location of large and small corporations are minimal. However, Walker suggests that empirical evidence, to date, is far from convincing.

Walker (1989) also argues that the dispersal of corporate activity, and therefore, the creation of a spatial division of labour, has not occurred to the degree suggested by Dicken (1986). Dicken suggests that the close interaction of many small corporations has been replaced by corporate linkages and information flows between large corporations. Walker (1989) argues that the linkages between small corporations are increasing, citing examples of regional industrial agglomerations, such as the Third Italy and Silicon Valley.

Corporate branch plants are seen by some authors (Dicken, 1986, Walker, 1989, and McNaughton, 1992,) as being detrimental to host economies because of their truncated nature. Walker (1989) argues that the only recognizable difference between branch plants and the corporate headquarter location, with respect to the host economy, is a differing degree of use of business services.

In conclusion, Walker (1989) argues that "the case for a distinctive corporate geography has not been made" (Walker, 1989, pg50). In addition, it is suggested that the impact of industrial organization on the landscape "remains to be determined" (Walker, 1989, pg50). Unfortunately, any explanation of corporate activity on the geographic landscape would not last long. Corporations are not static entities, as new techniques and opportunities arise the nature of capitalism would ensure that new models of corporate behavior would become applicable, and old ones rejected. Hagstrom (1990) argues that corporations observed at any given time can only be part of an on going process.

Dicken and Thrift (1992) respond to Walker's criticism's arguing that business organization does matter in where industry locates. They argue that Walker (1989) falls into the trap of making generalizations. Not all corporations follow the same route in the spatial development process and that Walkers conclusions result from the analysis of a limited number of empirical cases. Fundamental to corporate geography, argue Dicken and Thrift, are the power relationships that occur between people and enterprises. Dicken and Thrift, in contrast to Walker, suggest that the large corporation is very important, because its functions directly or indirectly affect other corporations outside of its own statutory boundaries Marshall, et al (1992), also suggest that Walker's pronounced death of corporate geography is premature. They highlight that the usefulness of examining individual corporations is negligible. It is suggested that the influence exerted by large corporations can occur through various relationships including, strategic alliances, joint ventures, subcontracting and, of course, interlocking directorates.

Therefore, perhaps more can be learned from examining the linkages of corporations instead of focusing on the actions of individual corporations or groups of corporations in a particular industrial group.

3.3 Interlocking Directorate Research.

Green (The University of Western Ontario) and Semple (The University of Saskatchewan) have been the principle interlocking directorate researchers in the field of Geography. Green's research is a logical extension from his Ph.D. dissertation.

Green (1981) first analyzed regional preferences for interlocking directorates among the largest American corporations. The purpose of his research was to determine the nature of the spatial linkages created by interlocking directorates. It was assumed they create an information network between corporations. Such interlocking directorates were examined for between and within regions. Interlocking directorates are said to reduce the effects of a negatively changing environment. Interaction with other corporations to obtain

resources makes the corporation sensitive to the actions of those corporations. Attempts to counteract this uncertainty lead to the creation of linkages with important external corporations. Interlocking directorates can either improve the acquisition of raw materials or the sale of products. In simple terms they increase the amount of information available to a corporation. Green's focus was on establishing the extent of such information linkages created between American corporations. Having good information can be considered one of the most important factors determining the survival ability of a corporation.

In his research Green (1981) found that a number of corporate characteristics influenced the number of interlocking directorates held by a corporation. These factors can be seen in Table 3.1.

Table 3.1 Corporate Characteristics That Determine The Occurrence And Degree Of Interlocking Directorates.

1. Size of the Corporation
 2. Financial Connections of the Corporation.
 3. Level of Concentration in that Particular Industry
 4. Profit per Employee.
 5. Capital Expenditures
-

Source: Green, 1981, pg150.

Viewed as an information linkage between corporations an interlocking directorate provides increased access to the awareness of investment opportunities, market volatility, and the general business environment. Corporate board members from different geographic regions increases the amount of information available to the corporation. Green found that the traditional manufacturing belt of the United States had a tendency to select corporate directors from within that region. He went as far as to propose that such narrow geographic selections were contributing to the economic decline of the region. A lack of directors external to the region can result in reduced awareness of new opportunities in other regions. Apart from the traditional manufacturing belt a significant spatial variation in the number of interlocking directorates existed in other regions of the

USA Business and geographic advantages possessed by each region can be passed on through the interlocking directorate

Green and Semple (1981) examined corporate interlocks as an information exchange mechanism. The interurban network of interlocking directorates was examined from two perspectives, the direct and the indirect interlock. Direct interlocks are created when an individual sits on the board of directors of two, or more, corporations simultaneously. An indirect interlock is created when two individuals meet on the board of directors of a third corporation. Again, interlocking directorates are established to stabilize the economic environment of the corporation. Tornqvist (1970) and Pred (1977) noted that corporate headquarters are often located in major urban centres to reduce the cost in the acquisition of information. Although most large corporations have units solely responsible for the collection and analysis of data, information not readily available to these units can be derived from experienced professionals attained through interlocking directorates. Again it was found that the urban centres of the manufacturing belt regularly interlocked within the belt or within the same urban location. This was the case with both direct and indirect interlocks.

Gilad (1989) suggests that corporate intelligence units must be changed due to their ineffectiveness. Gilad uses examples of Japanese corporate intelligence units as effective operations. For example, Mitsubishi employs up to 800 people in New York for the purpose of intelligence gathering, and each Japanese businessman conducting operations abroad must fill out government questionnaires when returning to Japan. The purpose of examining this article is to establish that there is more than one type of information gathering available to the corporation. Informal intelligence gathering, as opposed to formal intelligence, is the independent scanning of the environment which is carried out by individuals in an uncoordinated manner. Informal intelligence would include interlocking directorates. The ability of corporations to acquire and successfully use information can be a source of competitive advantage (Gilad, 1989).

Green (1983) examined the direct and indirect interlocking directorates of large American and Canadian corporations headquartered in metropolitan areas for 1980. Various approaches to interlocking directorate research were examined. Green found that interlocking directorates between Canada and the United States were insignificant. However, connections within countries focused on main urban centers, New York and Chicago in the United States, Toronto and Montreal in Canada. The degree of concentration in an industry or the number of competitors determines the level of uncertainty faced by the corporation. Green suggested that the lowest level of uncertainty occurred in oligopolistic and dispersed sectors. Many EU corporations pre-SEA operated in an oligopolistic manner, often protected by national governments. The expansion of the market has suddenly increased the number of competitors for various industries.

Rice and Semple (1993) investigated the evolution of Canadian decision-making centres using the location of a corporate board members residence and the headquarters of the corporation. The study period of 1971-1989 was analyzed for changes in the distribution of economic power in Canada. The research determined that Toronto has emerged as the dominant centre of economic power for Canada. The authors also analyzed particular industries. It was found that urban centers such as Calgary dominated the oil industry and Montreal transportation. The authors analyze interlocking directorates from a resource dependence perspective. That is, each corporation is constrained by a network of interlocking dependences with other corporations. The corporation does not have complete control over the other actors in the system. In response, interlocking directorates are created so as to influence and gather information on the external market. Rice and Semple's (1993) work acknowledges previous quaternary location theory in that a concentration of headquarter location occurs from a dispersed arena, before dispersal again occurs.

3.4 Other Interlocking Directorate Research.

Interlocking directorate research in other academic fields is diverse and voluminous. However, two research projects have been conducted, outside of geography, that are similar to this research. Fennema (1982) attempted to analyze the impact of the expansion of the EU in 1971, on corporate structures in 1970 and 1976. As part of this study Fennema examined the networks between banks and industry. Fennema (1982) argued that banks were increasing their influence over industry with the creation of interlocking directorates. The sample used by Fennema also included corporations from the United States and Japan. While a more international approach was taken, the purity of an EU corporation sample was breached.

Fennema (1982) sees the emergence of an international network of interlocking directorates as an indicator that corporations were linking with financial institutions in order to underwrite international expansion. Fennema applies the term "finance capitalist" to indicate that a person holds a directorship in at least two financial institutions. He found that the number of finance capitalists among all multiple directors increased during the two study periods from 70 to 82% of all interlocking directorates. The authors' percentage however was drastically increased by the decision to include both the supervisory and management boards of corporations with a two-tiered director system. The sample size was 6,054 people for 1970, a mean of 37 positions per corporation. Of the 6,054 directorships only 372 people held a position on at least two boards, accounting for 601 interlocking directorates. The majority of these persons were only on the boards of two corporations. Fennema (1982) also introduces the concept of 'big linkers'. Big linkers are considered to be those people who hold four, or more, directorships simultaneously. Fennema's sample only included 19 of said people, or 5% of all people who hold multiple directorships. However, big linkers accounted for 25% of all interlocking directorships held in 1970. Fennema (1982) also characterizes some of the relationships between

corporations. If corporations share more than one director then the linkage between the two corporations is considered to be stronger.

By 1976, Fennema determined that less individuals were involved with interlocking directorates. However, these individuals held more interlocking directorates, 723 compared to 601 in 1970. "Big linkers" in 1976 accounted for 32 people or 8.67% of all people that hold interlocking directorships. This resulted in an increase in the total number of interlocking directorates held by "big linkers" from 25% in 1970 to 37.62%. Fennema (1982) used this data to argue that decision making was becoming concentrated in the hands of a few people.

Stokman, Ziegler, and Scott (eds), (1985), attempt a study similar to that of Fennema. However, the structure of interlocking directorates is examined in various European countries and again the United States. In fact, only six EU countries are involved, Belgium, Germany, France, Italy, Holland and the United Kingdom. In a separate chapter, Fennema and Schijf (1985) attempted to show the international linkages of corporations through their directors. This can be seen in table 3.2,

Table 3.2, International Interlocking Directorates of 360 Corporations in 1976 (Selected Countries)

| | Aust. | Belg. | Swit. | Fra. | Ger | UK | Ita. | Neth. | USA |
|---------|-------|-------|-------|------|-----|----|------|-------|-----|
| Austria | 0 | 2 | 10 | 5 | 7 | 2 | 9 | 1 | 0 |
| Belgium | | 0 | 1 | 46 | 1 | 3 | 0 | 6 | 1 |
| Swit. | | | 0 | 9 | 20 | 4 | 16 | 1 | 1 |
| France | | | | 0 | 4 | 14 | 5 | 0 | 0 |
| Germany | | | | | 0 | 1 | 3 | 48 | 0 |
| UK | | | | | | 0 | 2 | 6 | 4 |
| Italy | | | | | | | 0 | 0 | 0 |
| Neth. | | | | | | | | 0 | 0 |
| USA | | | | | | | | | 0 |

Source; Fennema and Schijf, 1985, pg258.

These results will prove to be useful in analyzing the results from the 1985 and 1992 study groups. Generally, Fennema and Schijf (1985) thought that foreign owned corporations

within national networks were poorly interlocked. In addition, it was determined privately owned corporations did not interlock with other corporations on a frequent basis.

A pitfall of interlocking directorate research is that conclusions are easily jumped to about the concentration of economic power (Fennema and Schijf, 1985). The study conducted by Fennema and Schijf (1985) also occurred in 1976. In the countries studied, those persons who held a directorship in more than one corporation ranged from 11-20% of all directorships held. When compared to the study by Fennema (1982) the current sample shows a 100-400% increase in the percentage of directorships held. This difference can be partly attributed to Fennema's sample, that include both boards of two-tiered board corporations

3.5 Approaches to Understanding Interlocking Directorates

Green (1983) identified four approaches to understanding the reasons for interlocking directorates, 1. management control, 2. bank or financial control, 3. class hegemony and 4 cooptation. In the management control approach interlocking directorates are seen as being relatively unimportant to the corporation. Directors from inside the corporation are seen to use their knowledge of corporate operations as a power function to manipulate outside directors.

The bank or financial control directorate is established because of the assumed capital needs of the corporation. The financial institution may thus be able to influence or control corporations through its presence on the board. Some see such a structure as a Marxist approach to understanding. Capital, at the disposition of banks is used by corporations to produce and sell goods. Therefore, it is argued that really banks control the production process and the markets.

The class hegemony or Marxist approach is used primarily by Sociologists. It suggests that an elite upper class exists that is extremely similar in terms of values and

cohesiveness Interlocking directorates have to occur since the class size is small and multiple positions must be filled

Lastly, the cooptation or dependency approach claims that corporations are dependant upon external linkages for a constant analysis of the business environment Appointees to the board of directors from this business environment are made to influence decisions and oversee operations.

This research will attempt to use the cooptation approach as an understanding for the use of interlocking directorates. The cooptation approach allows Geographers to examine the external linkages created by corporations. This phenomena can be further examined as to whether it occurs in certain industrial groups or crosses the boundaries of industrial group. In addition what changes have occurred in the EU, with respect to interlocking directorates, since the introduction of the SEA?

3.6 Corporate Headquarters.

Corporate headquarter location has been of considerable interest to society and researchers over the past three decades. Prominent authors in this field include Tornqvist (1968, 1970), Pred (1977), Semple and Phipps (1982), Wheeler and Mitchelson (1989), Mitchelson and Wheeler (1994), Askoy and Marshall (1992), and Marshall (1994) Board of director meetings are assumed to occur at the corporate headquarters. Therefore, any change in the location of the headquarters may have an impact on the geographical structure of interlocking directorates.

Wheeler and Mitchelson, (1989) and Mitchelson and Wheeler (1994) used Federal Express data to determine what metropolitan areas of the United States are the most prominent by measuring information flows between them. This emphasizes that there are numerous methods of measuring information exchange and the linkages created between cities and regions. Semple and Phipps (1982) work with quaternary location theory suggests that corporate headquarters are in the first phase dispersed across the economic

landscape In the next phase corporate headquarters begin to centralize in a few urban centres Eventually however, dispersal again occurs (Rice and Semple, 1993). Mitchelson and Wheeler (1994) state that uncertainty and centrality are synonymous. In times of uncertainty, for example economic recession, a few corporate headquarter locations become strategically important. Therefore, an increased number of headquarters become centralized in one location. Tornqvist (1970) and Mitchelson and Wheeler (1994) argue that effective communications require face to face contact. Tornqvist (1970) argued that the need for face to face contacts would also lead to a centralizing of corporate headquarter locations Dramatic changes in information technology and transportation efficiency and infrastructure no longer require corporate headquarters to be spatially concentrated However, face to face contacts are still deemed to be essential to the effectiveness of information exchange (Semple and Rice, 1994). According to Mitchelson and Wheeler (1994) information is purchased by producers in pursuit of profit or productiveness. Individuals on corporate boards are considered to be information sources beyond those regularly available in the marketplace.

Wood (1969) argues that when studying linkages between corporations it is difficult to assess their importance. Strong linkages, according to Wood, are assumed to operate only over limited distances. If this theory were applied to interlocking directorates it would be assumed that corporations should have more linkages with other corporations in close proximity Green (1983) has found this to be the case with corporate interlocking directorates in the American North-East. Applied to the EU, it would be expected that linkages within a country would be most prominent followed by connections to the countries that are closest and least with those countries farther away.

Research by Askoy and Marshall (1992) and Marshall (1994) examines how corporate restructuring has impacted upon the spatial concentration of corporate headquarter activities in urban areas. An increasing amount of business reorganization has occurred in the last decade. The large corporation was considered to be too rigid to adapt

to demands from a rapidly changing market (Marshall, 1994). Marshall (1994) examined the changing number of headquarters in the United Kingdom. It was found that in 1987, central London had 18.5% fewer corporate headquarters than in 1971. Corporate headquarters did not move far. Peripheral towns around the city of London benefited greatly from this relocation. At the same time numerous corporations have restructured their business activities. This has led to a hollowing out of the corporation. Some functions such as accounting and marketing have been subcontracted by the corporation.

While early research by authors such as Tornqvist (1970) and Pred (1977) suggested a concentration of headquarter activity in metropolitan areas, recent analysis by Askoy and Marshall (1992) and Marshall (1994) suggests that the restructuring of business activities, together with improved transportation and technology, has led to a decentralizing of headquarter activities. Askoy and Marshall (1992) also indicate that in the case of mergers and acquisitions the headquarter functions of the acquired corporation are frequently moved to the headquarter of the acquiring corporation. Frequently links with suppliers are broken. Due to the number of mergers and acquisitions in the EU during the last decade another question arises. What happens to the board of directors of the acquired corporation? Are they too discarded, or are they incorporated into the acquiring corporations board? Bovasso (1992) indicated how an unnamed multinational corporation acquired three other corporations. While prominent management were still employed, they tended to be excluded from high level decision making. In many cases the members of a corporations board are also the primary shareholders. However, if they are also knowledgeable of corporate operations they could be very helpful to the acquiring corporation.

Nevertheless, Askoy and Marshall (1992) concluded that the restructuring of corporate activities were not having a major impact in transforming the space economy.

Corporate board of directors often meet at the headquarter location. Tornqvist (1970) concludes that the need for face to face contact would lead to a centralization of

business activities. Therefore, directors of corporate boards would have to be situated close to each other in order for effective communication to occur. In contrast, Green (1981) suggested that one reason for industrial decline in the North East United States manufacturing belt was the reluctance of boards of directors in that region to interlock with boards in other regions. They were less aware of opportunities or threats occurring in other regions. Therefore, close proximity does not necessarily lead to improved economic performance.

However, the literature has not documented what has happened to the spatial structure of interlocking directorates in an era of headquarter relocation.

3.7 Industrial Restructuring.

Another area of geographic research that this study will analyze is the field of industrial restructuring. Industrial restructuring has continued to be of prominence to geographers with the recessions of the 1970's and 1980's. The response of industry to these challenges has created numerous debates. Some of these debates will be discussed together with their possible impact on the geographic structure of interlocking directorates.

A historical evaluation of the production systems of contemporary society would probably lead to the conclusion that the last century has been dominated by the Fordist regime of accumulation. Fordism is characterized by the mass production of consumer goods. In order for Fordism to be successful, mass consumption of the mass produced goods had to occur. Scott (1988) identifies that regimes of accumulation do not exist in isolation. Other regimes existed alongside Fordism, however, they were not as prominent. Additionally, all regimes are faced with crisis. By the 1970's Fordism was undergoing a massive crisis. In order to offset high labour costs production centres frequently moved to peripheral regions leaving behind large pools of unemployed labour (Scott, 1988).

These events, according to Scott, (1988) stimulated the creation of a new production process in the late 1970's and early 1980's. Unlike their Fordist predecessor, the new production framework was characterized by an ability to change processes and products quickly. Hence, the new regime was titled flexible accumulation or production. Scott (1988) has suggested that flexible production systems are prominently found in three industrial sectors, 1. design/craft industry, 2. high technology industry, and 3. business services. These industries have generally located within older manufacturing regions. The regime of flexible production is characterized by three tendencies, 1. an encouragement of intercorporate cooperation, that allows for the sharing of information, 2. increased access to capital, and 3. increased access to those goods and skills that are specific to that complex (Christopherson and Redfield, 1992)

Amin (1994) argues that industrial districts that are common to flexible production systems cannot be dealt with in a similar fashion, in terms of policy. Despite common characteristics between industrial districts the needs and wants often differ dramatically. To apply the same policies to Silicon Valley or a large corporation industrial district such as Baden-Wurtemberg in Germany, and suggest that they have the same requirements as the craft based industries of the Third Italy could prove to be disastrous. According to Amin's definition of a Marshallian industrial district there is often a dense collection of linkages between actors. In the case of a large corporation agglomeration such as Baden-Wurtemberg, or Silicon Valley, these linkages could occur through interlocking directorates.

Industrial restructuring and globalization are synonymous with the multinational corporation. Fagan and Le Heron (1994) argue that contemporary literature contains two theoretical perspectives of industrial restructuring., 1. an internationalization thesis, and 2. a national restructuring thesis. The internationalization thesis contends that manufacturing has moved from the core to the periphery in order to reduce production costs. The

national restructuring thesis, conversely, emphasizes the changing relationships between labour and capital within national boundaries.

The internationalization thesis however does not hold up to empirical analysis. Lipietz (1986) and Gordon, (1988) argue that while there has been an increase in the number of multinational corporations operating in peripheral countries, their presence is mainly to serve the host economy. In an analysis of United States corporations operating abroad it was found that if oil product imports were eliminated only 5% of the total production was re-exported to the United States.

Amin and Dietrich (1991) presented three theses which attempted to explain how business, in particular multinational corporations have reorganized when confronted with recession. One thesis explains that business has reorganized with capital becoming increasingly concentrated, but production has become more widespread. A second, and more widely accepted, thesis contends that the multinational corporation has less control over the economy and their functions are becoming vertically disintegrated. That is, the function of the large multi-task corporation are being replaced by flexibility specialized small corporations. The multinational corporation has reduced its direct control through ownership, but increased its indirect control via subcontracting and franchising.

Consumer habits have changed drastically in recent years. This change challenges the viability of the mass production system. The result in industrial organization has been a system of flexible specialization in which tasks are divided between corporations. Changes in consumer demand and taste can thus be rapidly adjusted to. Advocates of flexible specialization have signaled the end of Fordism. Flexible specialization corporations are often found in locally agglomerated production systems such as the Third Italy (Amin and Thrift, 1992) and Silicon Valley (Harrison, 1994). Agglomeration is said to offer a series of advantages upon which production systems within the agglomeration can exploit. Advantages to the corporation include a local pool of expertise and know-how, labour

flexibility and cooperation, lowered transport costs and the development of a regional infrastructure.

Locally based models, such as the Third Italy, do not recognize the emerging global operations of numerous corporations (Amin and Thrift, 1992) Harrison (1994) recognized that corporations in Silicon Valley were becoming increasingly dependant on multinational corporations with global linkages through foreign direct investment and on contracts from the national government. Young, Francis and Young (1993) argue that the flexibility provided by regional agglomerations actually benefit the large corporation. The agglomeration helps the multinational corporation become more efficient and weather unforeseen changes in the economy. Large corporations are not therefore being replaced by small. Young, Francis and Young's (1993) research determined that up to 85% of business conducted by small corporations was linked to large corporations. Lipietz (1993) also criticizes new industrial districts. It is suggested that 1. Fordism is not dead, 2 linkages of multinational corporations are increasingly distributed over geographic space, and 3 the suggested industrial districts are partially dependant on the economy that includes the multinational corporation. Lipietz (1993) also argued that a good transportation and communication network can compensate for any advantages created by an agglomeration. While this is in conflict with Tornqvist's (1970) conclusions it must be remembered that technological advances over the last quarter of a century have been significant. The third thesis suggests that corporate restructuring has occurred through structures such as subcontracting, strategic alliances and joint ventures.

Amin and Malmberg (1994) recognize that the geography of production in the post-Fordist era is both local and global. They recognize the existence of local production systems, but, also suggest that more frequently organizational structures involving foreign direct investment and strategic alliances are global in nature. It is also argued that competition will bring a decentralization of production. This is similar to previous arguments raised about the movement of manufacturing systems from core to periphery

Amin and Malmberg (1994) argue that when production systems become dispersed then linkages between units or corporations thus become global.

Locally based production systems frequently involve smaller corporations. Those corporations may not have the need, or resources, to engage in interlocking directorates. However, these corporations do not exist in isolation. Increases in the subcontracting of production processes may have resulted in an increase in interlocking directorates between large and small corporations. In addition, if production systems are frequently being moved to peripheral regions, particularly within trading blocs, how has the corporation realigned itself in order to obtain information from these areas?

3.8 Corporate Strategy.

The restructuring process that many corporations have undertaken in the last decade, as previously mentioned, has received considerable attention. In order for a better understanding of the restructuring process it has been suggested that more studies should focus upon the strategies of corporations (Clark, 1994). The strategy of the corporation, may have an impact on the degree of occurrence and use of interlocking directorates.

Clark (1994) notes that traditional authors on industrial restructuring have neglected the role of corporate strategy in the restructuring process. The development of a corporation is often constrained by its history. The spatial network of a corporation may be the object of restructuring and a restraint upon the scope of restructuring (Clark, 1994). The corporation has to be aware of potential market opportunities and threats. The network can be restructured to improve the awareness and geographic scope of the corporation. Amin and Malmberg (1994) argue that networking as a form of corporate organization is increasing in importance. The proliferation of literature on subjects such as strategic alliances, joint ventures and subcontracting is used by the authors as evidence. However, two questions have arisen from their research, 1. what is the geographic scope of networking?, and 2. what is the center of control of these networks? Taggart (1992)

discusses two branch plants operated in the EU by non-EU corporations. The international dimension in coordinating the activities of the corporation is now a challenge faced by management. It was discovered that the branch plants had very little input in the decision making process at corporate headquarters. Kriger and Rich (1987) however, found that Japanese and Swedish multinational corporations are more likely to use the subsidiary board in their decision making than their American counterparts. Kriger and Rich (1987) see the subsidiary board as being beneficial to the multinational corporations headquarter in four ways, 1. advising local management, 2. complying with local laws, 3. providing knowledge on changing market conditions, and 4. having a presence with local leaders

International corporate linkages as defined by Auster (1987) have increased dramatically in the last 15 years. International corporate linkages include those measures included in Amin and Dietrich's third thesis, but also include measures such as joint research and development and technological exchanges and transfers. The increase can be attributed to some degree by improved information and communication technology, the globalization of industry, trade barriers and increased competition. Goals of corporations engaged in international corporate linkages may range from shared, mixed or conflicting. The motives for international corporate linkages can be seen in Table 3.3

Table 3.3 Motives For International Corporate Linkages.

1. to circumvent trade and foreign investment restrictions to enter new geographic markets.
2. to develop regional know-how and cultural familiarity and expertise
3. to gain access to better quality or more cost efficient suppliers or raw materials
4. to develop a less costly labour force.
5. to use underutilized equipment.
6. to increase economies of scale.

Source: Auster, 1987, pg4

International corporate linkages are deemed to be necessary in a world of rapid technological change. Due to technological change an increasing number of products have a shorter life cycle, this makes competitive positioning difficult to achieve or sustain.

Another method of inter-corporate linkage is through the ownership of shares in other corporations. In some respects it has become difficult to determine what corporations are what. Clarkson (1994) identifies the EU automobile industry where

"Citroen and Peugeot are the same corporation, Fiat owns Lancia, Maserati, Ferrari and Alfa Romeo. BMW owns Rover which uses Volkswagen parts. Volkswagen owns Seat which is linked to Fiat and Porsche. Porsche builds the Audi RS2. And so it goes on"

(Clarkson, 1994, pgs. 34-35)

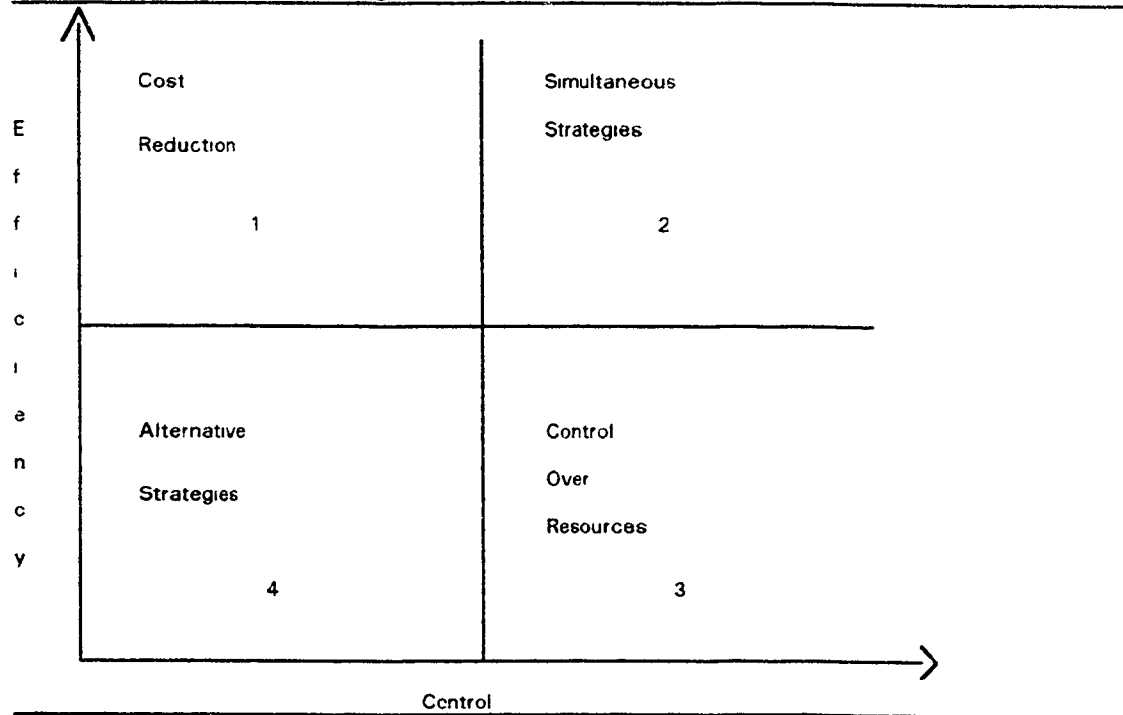
A feature of the Fordist era was the stable relationship between production and markets in the developed world. Wells and Cooke (1991) analyze the strategic alliances of various corporations globally. As previously argued by Auster (1987) functions such as strategic alliances are needed by present day corporations in order to compete and stabilize markets. Contemporary industrial restructuring research has focused on the internal restructuring of labour and management and the spatial reorganization of corporate production, but rarely on the strategies of corporations. If it were possible to determine the strategy of the corporation, it may then be possible to determine the resulting need for interlocking directorates.

Ahern (1994) analyzes the corporate motivations for entering a strategic alliance. The alliance enables the corporation to gain efficiency, while retaining the flexibility needed to quickly respond to changes in market demand. Efficiency is gained through equal access to resources, economies of scale and the joint use of technology and information. These motivations for strategic alliances can be incorporated into two theories. Firstly, the transaction cost theory explains corporate behavior in terms of efficiency, secondly, motivations are explained with a resource dependence theory. In this theory strategic alliances are seen as mechanisms for gaining effectiveness within the

external environment Ahern (1994) suggests that the successful strategic alliance enables the corporation to exert control over its environment by reducing the risk and uncertainty it faces. Similar arguments have already been made as to the motivations for the need for interlocking directorates (Green, 1981).

Neither the transaction cost theory or the resource dependency theory can alone explain the behavior of the corporation. Often corporations pursue strategies of both control and efficiency (Ahern, 1994). Ahern's attempts at a synthesis of the two theories has resulted in the matrix found in Figure 3.1

Figure 3.1. Corporate Strategies of Control and Efficiency



Source, Ahern, 1993, pg.1135.

In boxes 1 and 3 corporations can pursue strategies of controlling cost production or having an increasing control over their resources. However, in box 2, the corporation can pursue a strategy of improved efficiency and increasing control over resources. In box 4, the corporation may follow a strategy that is completely different from previously mentioned operations.

With the evolution of international markets, strategic alliances are also seen to be effective tools for marketing. The experience of the linked corporations in different international markets may be of benefit to both. Many difficulties have been noted when corporations attempt to access new markets. These difficulties include differences in language, culture, business organization and government policy. Strategic alliances with corporations from other countries help alleviate these difficulties (Ahern, 1994). Wells and Cooke (1991) argue that the restructuring of external corporate relations is also a significant factor when analyzing industrial restructuring. Few corporations today operate in isolation, many are part of an elaborate network of intercorporate relations. Networking also occurs within corporations. Barham (1990/91) suggest that networks within international corporations can be exploited for greater efficiency. Some corporations subscribe to the informal network where information flows freely between operations in different countries and departments. Examples of such corporations include ACCOR, the French hotels and restaurant group, Pepsi-Cola and Jacob Suard, the Swiss confectionery manufacturer. Barham (1990/91) has also suggested that the international network can be beneficial to the corporation for four reasons, 1. information creation and sharing, 2. facilitating problem solving, 3 stimulating innovation, and 4. assisting in the management of change. Although these benefits from informal networking are attributable to the international corporation, they could quite easily be attributable to a corporation involved with interlocking directorates. Informal networks are not perfect. The potential exists for exclusivity or bad news to spread quickly.

The French construction corporation Lafarge Coppee has indicated that after human resources, money and technology, information is the fourth strategic resource of the corporation (Barham, 1990/91). When viewed in the context of interlocking directorates this response becomes of increased importance. The director with positions in numerous corporations is privy to some important information. However, the director is also a human resource, and if the director has links to a financial institution they can

improve the corporations ability to secure capital Clark (1993) illustrated the network of relations of an anonymous corporation in the Western Pacific Corporate headquarters were in Australia, the main customers in Europe, and California, transportation functions originated from London, England, and production occurred in South East Asia. The decentralization of the corporation is also known as hollowing out.

Deregulation in national and regional markets over the last two decades has also had an unsettling effect for business and industry. Deregulated markets for the national producer mean a loss of protection together with the introduction of new, and often bigger, competition. National champion corporations in the EU have been faced with the above conditions with the implementation of the 1992 project. Marshall et al, (1992) demonstrate how regulatory change in the financial markets of the United Kingdom has allowed corporations to diversify into new markets. While the financial services sector in the UK has become more diversified, levels of management have become more centralized. Gentle and Marshall (1992) argue that the centralization of management structures will lead to uneven economic development, as the majority of corporate functions occur at the headquarter location. Marshall et al, (1992) and Gentle and Marshall (1992) advocate that a deregulated market has led to financial institutions diversifying their operations. This conclusion is in direct conflict with Buiges and Jacquemin, (1989) Blackwell (1992) and Jacquemin and Wright (1993) who have argued that a deregulation of markets within the EU has led corporations to concentrate on just one product, while dissolving operations in other areas Industrial restructuring in the EU is also evident with numerous merger and acquisitions and large amounts of foreign direct investment from corporations located outside of the EU. As a result many EU corporations could lose their market share to non-EU corporations. Leyshon and Thrift (1992) analyze the restructuring of European financial institutions in light of the 1992 project. Deregulation of financial institutions in the United Kingdom has allowed foreign ownership and foreign banks into the country. Restructuring in the financial sector was

seen as either offensive or defensive in nature. To date though no European "superbanks" have been created.

Deregulated markets enables the corporation to diversify products or concentrate production on a few products. Deregulation also introduces new competitors to the marketplace, thus corporations will have an increased need for information on their competitors in order to devise a competitive corporate strategy.

Dang N'Guyen and Owen (1992) indicated that an industrial policy to promote EU corporations would greatly benefit them. The suggested policy would encourage the coordination of research and development between countries. However, Kay (1991) has found that EU policy in the White Paper on "Completing the Internal Market" conflicts with empirical results. The White Paper makes industrial cooperation amongst corporations in the EU a priority of the 1992 programme.

"the removal of internal boundaries and the establishment of the free movement of goods and capital and the freedom to provide services are clearly fundamental to the creation of the internal market. Nevertheless, Community action must go further and create an environment or conditions likely to favor the development of co-operation between undertakings. As and when the internal market is developed, enterprises incorporated in the form of companies or firms will become more and more involved in all manner of intra-Community operations, resulting in an ever increasing number of links with associated enterprises, creditors and other parties outside the country in which the registered office is located.

(Commission of the European Communities, 1985, Qtd in Kay, 1991 pgs34-36).

The findings of the Commission of the European Communities, in terms of joint ventures is supported by Emerson et al (1988). But, open markets should facilitate trade and exports, not industrial collaboration. Tariff and non-tariff barriers are more likely to encourage partnerships or branch plants (Kay, 1991). Kay (1991) also notes that open markets make potential collaborators, potential competitors. The business community has been the main engine of growth in the integration process in the EU through the internal

and external restructuring of cross border co-operative agreements such as mergers and acquisitions (Jacquemin and Wright, 1993). Tait (1990) suggests that in the last three months of 1989 approximately 700 corporate partnerships were established. According to Tait (1990) corporate partnerships range from strategic cross-shareholdings to the formation of joint ventures, although the author is unclear as to what kinds of partnerships exist in the middle of the spectrum. Non-financial partnerships, for example, were not included in the number of partnerships. However, Tait (1990) did not examine interlocking directorates, although interlocking directorates as with those partnerships mentioned all exist along the continuum from market to hierarchy.

Blackwell (1992) found that British managers are poorly placed to further integration of the EU market, notwithstanding the fact that corporations from the United Kingdom have been the most active in merging and acquiring in the EU. Only 26% of British managers could comprehend another language. Conversely, this number increased to 33% in France, 40% in Germany, and 76% in The Netherlands. Not being able to communicate with disperse corporations could hinder the process of integration. Bovasso (1992) conversely found that in the international expansion of an unnamed multinational corporation language was not considered to be a barrier in the levels of upper management.

As corporations restructure their operations to adjust to the opportunities and threats of the 1992 programme, press reports often appear dealing with moves made. For example, de Jonquires (1989) suggested that British corporations are failing to use 1992 to become leaders in global markets. Conversely, Buxton (1989) suggests that British corporations are ahead of their continental rivals in preparing for 1992. In a poll of two hundred large corporations, 75% had taken some action to prepare for 1992, 52% had identified new customers on the continent, 41% had formed some sort of strategic alliance, although the extent of the alliance was not revealed, and 28% had considered relocation. However, Thompson (1990) announced that British corporations are lagging

behind their European competitors. Again, language to the British is not an issue, 54% of British corporations surveyed regarded language training as unimportant. Approximately 50% of those corporations surveyed have less than 5% of management able to effectively communicate in a language other than English. The language difficulty may have an effect on the rate of formation of cross-border interlocking directorates.

According to Business Europe, 1994, a publication by The Economist, London is still one of the premier four cities in Europe for establishing a regional headquarter. London's detrimental point again being a lack of language skills amongst the population.

International corporate linkages as described by Auster (1987), would enable EU corporations to compete with large multinational corporations with collaborative arrangements. Amin, Charles and Howells (1992) suggest that the restructuring undertaken by multinational corporations through foreign direct investment, merger and acquisitions and joint ventures are probably undermining any EU efforts toward comprehensive regional development. The vagueness of the EU merger and foreign direct investment policy is allowing for a greater concentration of industry in the "big six" countries of the EU (Germany, Italy, France, Belgium, Holland and the United Kingdom). These countries received 86% of all foreign direct investment from outside of the EU and accounted for 98% of foreign direct investment between member countries (Amin et al, 1992). Love (1994) echoed the statements of Amin et al (1992), suggesting that the EU merger policy was exaggerating regional economic imbalance. The EU, therefore, has two contradictory policy objectives, 1. to promote a competitive large corporation sector, and 2. to achieve economic and social cohesion. Franko (1992) analyzes the impact of the 1992 programme on global competition and the strategy of multinational corporations. Franko identifies five possible corporate responses to 1992, these can be seen in table 3.4,

Table 3.4 Possible Corporate Responses to the Single European Act.

1. European corporations choosing offensive strategies, these strategies often exploit scale economies and optimal location.
2. European corporations choosing international defensive strategies, defensive strategies include acquiring or merging with other corporations in order to reduce competition.
3. European corporations choosing national defensive strategies.
4. Strategies of old outsiders, for example, those corporations outside of Europe who already have a presence in the market.
5. the strategies of new outsiders.

Source; Franko, 1992, pgs25, 26.

Franko has also suggested that although many barriers to competition have been reduced by the 1992 programme, they have been substituted with private barriers to trade. Schoenberger (1990) identified that the primary reason for foreign direct investment by United States manufacturing corporations in the EU was to have a local presence. Foreign direct investment is normally undertaken by a corporation so it can retain some oligopolistic or ownership advantage in the foreign market. Foreign direct investment is assumed to be made due to the corporations superior technology, greater capital resources, brand name identification, marketing, distribution and advertising capabilities, or superior managerial knowledge (Schoenberger, 1990). Superior managerial knowledge may be carried by the director with multiple linkages. The local presence of a corporation enables the corporation to quickly respond to local needs. This can also be achieved by increasing the geographic scope of the corporation. For example, having a director on the board of directors who is familiar with local markets and conditions.

Schoenberger (1994) examines industrial restructuring from a management perspective. It is argued that in order to explain why whole groups of industries fail in a particular region corporate strategists must be analyzed to determine why they failed to react to the changing economic environment. Therefore, the decline of manufacturing in the United States can be partly attributed to the fact that corporations were increasingly being run by accountants who were blind to the problems faced by manufacturing and

technology. The social position and power attained by corporate strategists were also attributed to the decline of American manufacturing.

Schoenberger (1994) examines problems encountered by decision makers for successful corporations. The articles by Auster (1987), Wells and Cooke (1991), Clark (1993), Amin and Charles (1992), and Love (1994) discuss industrial restructuring through mechanisms such as strategic alliances, mergers and acquisitions, and joint ventures. However, they fail to discuss the restructuring of corporate boards and the resulting impact this has on interlocking directorates. The interlocking directorate could be beneficial to the corporation expanding into new geographic markets, providing information on consumer tastes and potential competitors.

3.9 European Union Merger and Acquisition Policy.

Before analyzing merger trends it is necessary to discuss EU merger policy. It is necessary to do this, to analyze the parameters within which mergers must operate.

Policy governing merger and acquisitions in the EU is indirectly related to interlocking directorates. Until 1989, the EU's merger and acquisition policy was an outcome of the 1959 Treaty of Rome that established the EU with the European Coal and Steel Community. Prior to 1989, EU merger policy centered on Articles 85 and 86 of the Treaty of Rome. In the past, these articles were used as legislation to determine if a merger was detrimental to competition within EU boundaries.

Merger and acquisition policy is indirectly related to interlocking directorates because the EU does not allow mergers to occur when a corporation would acquire in excess of a certain market share. However, the EU does not have a policy regarding interlocking directors who would combine corporations to exceed a market share above the allowable level.

Article 85 states that agreements between corporations which restrict or distort competition in the whole or a substantial part of the EU are prohibited. Specifically

identified are joint ventures, shareholding acquisitions, consortium bids and cross shareholding bids (Euromoney Publications, 1989). Article 86 prohibits the abuse of a dominant position held by a corporation in the whole, or a substantial part of the EU. Article 86 has three categories 1. relevant product and geographic markets, 2 the assessment of whether a dominant position exists in these markets, and 3 whether transactions involve an abuse of that dominant position. Relevant product markets refers to the fact that there must be some other reasonably suitable product in terms of characteristics, price and use. Dominance is a position of strength enjoyed by a corporation which enables it to prevent effective competition from occurring. This, according to article 86, generally occurs with a market share of 40-45%. Abuse is an act which has the effect of hindering the maintenance of the degree of competition still existing in the market, or the growth of that competition (Euromoney Publications, 1989)

Because of the vague nature of Articles 85 and 86, the EU was not in an advantageous position to regulate mergers and acquisitions. Consequently, in 1989, former EU commissioner Peter Sutherland unveiled a new merger and acquisition policy that would give the EU more control. The EU takes the view that an efficient competition policy is essential to ensure that the full benefits of the internal market can be realized. Effective competition undoubtedly leads to an optimal allocation of resources and creates the best possible climates for fostering innovation and technical progress (van Empel, 1990).

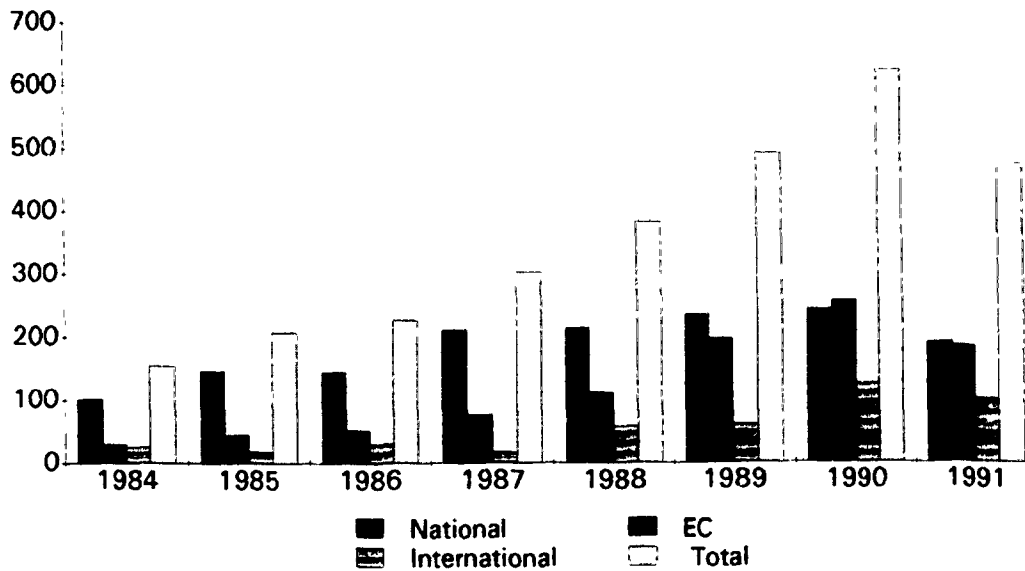
Article 1 of the new policy specifies that mergers have a community dimension, and are thus subject to review when the total worldwide turnover of all corporations exceeds 5 billion European Currency Units (ECU"s) and the total turnover realized in the community by at least two of the corporations involved represents a figure in excess of \$250 million ECU, unless each of the corporations realizes three-quarters of its total community turnover within one member country (Coffey, 1990).

Articles 2 and 3 indicate when a merger may be acceptable. Examples are if the merger contributes to improving technical or economic progress or to improving the competitive structure within the market. The new policy only applies to concentrations with a community dimension, it will only regulate cross border concentrations. The aim of the policy is to prevent both the creation and enlargement of dominant market position (van Empel, 1990)

Corporations that wish to partake in a merger have to provide detailed information about the potential effect on competition, employment, research and development and market share. All mergers would be examined by a commission and responses given within one month. As the EU will only oversee intra-EU mergers national deals will be left for home governments to decide.

In theory, the new rules will make it easier for mergers to take place as corporations will know within one month if a deal has been approved. Therefore arguments will be avoided that used to take place after a merger had been announced (Kapstein, 1988) Several authors Coffey (1990), Horsman (1991), Colchester and Buchan (1990), state that the new merger policy is as vague as Articles 85 and 86 that it replaced. Coffey (1990) noted that the new policy gives the commission or the European Court of Justice considerable discretionary power in determining the scope of a merger. However, the new policy neglects to discuss interlocking directorates. Horsman (1991) noted that it is still possible for small niche corporations to dominate sectors without coming under scrutiny. Horsman also noted that the merger review board of the EU contains 12 members, one from each country. There is a risk of political interference as each member attempts to champion the cause of their own national corporations. In addition, some corporations have expressed confusion over who to notify. To solve this problem most corporations notify both national and EU merger boards thereby increasing time and cost difficulties. Figure 3.2, shows the increase in mergers and acquisitions in the EU manufacturing sector between 1984 and 1991.

Figure 3.2 Mergers and Acquisitions in the European Union: Manufacturing Sector, 1984-1991.



Source: Combined Data, European Commission, 1988, and, Thomsen and Woolcock, 1992

It has been suggested by Woolcock and Thomsen (1992) and Jacquemin (1993) that the dramatic increase in mergers and acquisitions is partly attributable to the SEA. Dicken et al, (1994) note that it would be dangerous to assume that all corporate restructuring can be attributed to the SEA. In the two years between 1990 and 1992 the EU received over 100 applications for the clearance of a merger. Only one of these proposed mergers was blocked by the EU. Merger regulation in the EU can apply even when neither corporation is headquartered in the EU. Regulations also apply when both corporations are in the same member country, therefore superseding national law (Brandenburger, 1992). In the lead-up to the completion of the 1992 programme several prominent business leaders attacked the EU for interfering in business. For example, prominent Italian business owner Carlo De Benedetti who tried to acquire Belgian holding company Societe Generale, has had his takeover bid scrutinized by the EU (Financial Times, January 25th, 1988). Pierre Suard,

chairman of French telecommunications corporation Alcatel, also accuses the EU of discriminating against European corporations. Alcatel's proposed purchase of Fiat's telecommunication business is being reviewed. Alcatel already, in partnership with Spanish telecommunications corporation Telettra, holds 80% of the Spanish market. The EU fears that Alcatel would gain a dominant market position (Dawkins, 1991). However, the EU appears to be nothing more than a rubber stamp for mergers and acquisitions. The majority of corporations would know what percentage of the market they already hold, and the percentage that the proposed acquiree holds. Therefore, corporations should know in advance if the merger was going to be revoked.

Green and Cromley (1984) have suggested that large corporations have a greater tendency to merge and acquire corporations that are closer to their own headquarter location. It is suggested that there are two reasons for this phenomena. First, information about possible targets declines with distance from the headquarter. Second, it is easier to maintain control over those corporations that are in close proximity.

An offshoot of mergers and acquisitions regulation has been the ability of the EU to act against cartels. A cartel is a group of corporations, who in concert, agree to keep their prices at artificially high levels (Dawkins and Marsh, 1988). The EU is aware of the potential for cartels to distort markets in 1992 when trade barriers no longer exist (Dawkins, 1989). Several cartels have recently been fined by the EU. The most notable of these cases is in the chemical sector, where corporations agreed to keep the price of plastics at a certain level except for bulk orders. The EU competition regulators have the authority to raid corporate offices and seize documents. In the case of the chemical sector it was found that 23 corporations had their directors meet at hotels in Switzerland to arrange a price. German chemical corporation Hoescht challenged the right of the EU to raid offices due to the infringement of rights. The EU court however upheld the right of the EU to raid offices it suspected. As a result many legal experts believe the powers of the EU have been enhanced (Dickson, 1989). The EU has also charged a cartel of Wood

Pulp producers that consisted of corporations outside of the EU Hermann (1988) argues that in the case of the Wood Pulp producers, actions taken by the EU had very little to do with law, but more relevance to politics. The case was raised as to why, therefore, has the EU not acted against the largest and most prominent cartel in the world - OPEC?

Ironically, in the case of the 23 chemical producers 11 appear in the data sets for 1986 and 1992 for this study. The chemical sector is considered to be one that has benefited most from the 1992 programme, however, the discretions for which it was fined occurred in the early 1980's when chemical markets were depressed.

While the EU has a policy against corporations merging and acquiring a market share that is deemed to be detrimental to competition it has failed to recognize that corporate directors can also influence market share and product pricing between corporations. The increase in mergers and acquisitions may have given more corporate directors the ability to influence these decisions. The dramatic increase in mergers and acquisitions also identifies one of many increases in corporate collaborations that have been prevalent in the 1980's and 1990's.

3.10 Specific Restructuring Cases of European Union Corporations.

Specific cases of corporate strategy and industrial restructuring of EU corporations have been researched in recent years, some of which will be discussed below

De Smidt and van der Voorn (1989) and Muntendam (1989) both discuss the restructuring of Philips. Philips is a multinational electronics corporation based in The Netherlands. De Smidt and van der Voorn (1989) examine the rationalization of production in the EU. Philips follow the new international division of labour thesis of Hymer (1975) in that they have relocated production to the low wage regions of the world (De Smidt and van der Voorn, 1989). In the past, however, Philips has given a certain degree of autonomy in decision making to branch plants. International linkages have grown significantly within the corporation as centralized planning and strategies have been

implemented Muntendam (1989) examines Philips projects with other corporations. For example, Philips is participating in a joint research project with German corporation Siemens and the French-Italian corporation Thomsen. The author suggests that as corporations become global in their operations the diversity of goods produced is reduced, supporting previous arguments discussed by Buiges and Jacquemin (1989) Blackwell (1992) and Jacquemin and Wright (1993)

Wells and Rawlinson (1992) examine the supplier base of Ford Motor Company. Because of local content requirements the majority of Ford's suppliers are located in the countries that they produce vehicles in. Furthermore, suppliers are often located in close proximity to production facilities. While Ford appears several times in the data set for this study, ie. Ford UK and Ford Motor Werke (Germany), they are not wholly independent operations. According to Wells and Rawlinson (1992) Ford Europe was created in 1967 in order to establish a transnational production structure. Therefore, production would be split between several facilities so as to avoid the potential for a systems failure in the event of a strike.

De Smidt and Meijerink (1990) analyze the internationalization of the Dutch chemical corporation AZKO. Corporations from The Netherlands are often viewed as being more global in focus (Stokman et al, 1985). This arises from two observations, first, the small size of the national market, allows for little growth, and second the large profits made in the mercantilist era needed investment opportunities as the home market was already saturated. AZKO is the fourth largest, according to sales, in The Netherlands (De Smidt and Meijerink, 1990). However, the corporation is only the ninth largest in chemicals in the world. Although headquartered in The Netherlands, sales are higher in Germany, one division headquarter is in Germany. The authors suggest that globalization is essential for those corporations with a limited home base. If this strategy is pursued corporations in large markets will face increasing competition and thus need to globalize in order to retain market share.

While the case study approach to the strategies pursued by corporations is interesting it does little to explain strategies undertaken by whole industrial sectors. To assume that all corporations act alike could prove to be disastrous. Conversely, examining the strategies of all corporations in a particular industrial sector would also be presumptuous to suggest that all corporations act alike.

3.11 A Synthesis Of The Literature.

There is extensive empirical evidence to suggest that intercorporate linkages, of various forms, have increased dramatically in the last decade. Part of this increase can be attributable to the instability of the world's economic systems and part due to new economic opportunities available to many corporations. Walker (1989) is probably correct when he claims that the empirical analysis of individual corporations does very little to explain corporate behavior as a whole. On the other hand, grouping together corporations in an attempt to explain the behavior of industrial sectors is also dangerous because it suggests that all corporations act alike. Corporate geography, however, is important because of the resulting impact that corporate strategies can have on the geographic landscape. Strategies taken by individual corporations may also have an impact on the behavior of competitors.

Green (1981) suggests that interlocking directorates create a corporate information network. Beyond the visible creation of a linkage, there is a lack of empirical evidence that indicates the usefulness of the interlocking directorate. That interlocking directorates act as an information collector on the external environment and connect the corporation with the suppliers of inputs and the receivers of outputs, and that these functions are important to the corporation are assumed to be true. This study of interlocking directorates adds to the previous studies on the EU conducted by Fennema (1982) and Fennema and Schijf (1985). Previous research attempted to find the linkages between a sample of corporations, some of which were headquartered in the EU. This

research attempts to find the linkages between the top 500 EU corporations by sales and the top 34 financial institutions, by assets. In terms of the corporations examined the scope of this research is considerably larger

Corporate headquarter location research is interesting. Major authors, as previously cited, espouse particular perspectives. One perspective recognizes the increasing centralization of headquarter activities in fewer major urban centres. The alternative perspective advocates that headquarter locations are becoming dispersed, but, only to the periphery of major urban centres. The distance involved is often minimal and the majority of towns could still be considered part of the major urban centre. Such a shift in headquarter location would probably have a minimal effect on the spatial structure of interlocking directorates.

However, in the case of merger and acquisitions, when the headquarter functions are relocated to the acquiring corporation's headquarter, the spatial structure of interlocking directorates would probably be effected. Green (1981) suggested that the proximity of interlocking directorates does not necessarily translate into improved economic performance. Therefore, the question arises, does it really matter where a corporation's director is from as long as they are a competent business person? Used as an information source, the interlocking director could provide information on distant markets, which could be used by the corporation to monitor the external environment. With the opening up of EU markets, corporations could monitor new external environments with the creation of interlocking directorates.

Flexible production systems have the ability to change products and processes quickly. They do not, however, exist in isolation. Those corporations operating in such a framework are often linked to multinational corporations and governments through contracts. The advantages of being part of a flexible production system such as the Third Italy, or Silicon Valley are similar to the benefits assumed to occur with the establishment of interlocking directorates. Christopherson and Redfield (1992) suggest that flexible

production systems have three tendencies, that is: 1 they encourage intercorporate cooperation, 2. access to financing is improved, and 3 access to the skills that are specific to the production system are increased. Interlocking directorates also enable intercorporate cooperation. Secondly, by including a person with connections to financial institutions on a board of directors, access to capital may be increased. Lastly, in the flexible production system, increased access to skills that are specific to the production system, generally improves access to skilled labour. In the case of the interlocking director, the corporation also has access to skilled professionals who are assumed to be knowledgeable about the market. The interlocking director can also be easily acquired. Therefore, the large corporation may be just as flexible as those corporations that operate in niche markets when acquiring knowledge.

Intercorporate linkages are seen by many authors (Auster, 1987, Franko, 1992, and Ahern, 1994) as a method used by corporations to remain competitive, or to reduce risk, in a turbulent market. Increasing the geographic scope of the corporation however has been neglected by the literature. Corporations that interlock with subsidiary corporations will improve the geographic scope of the corporation, but, could prove to be limited in range due to the similar goals of both corporations.

In the case of deregulated markets, such as 1992, some authors (Marshall et al, 1992 and Gentle and Marshall, 1992) have suggested that a deregulated market leads to product diversification, while others (Buiges and Jacquemin, 1989, and Jacquemin and Wright, 1993) argue that it will lead to product centralization. Diversification and centralization may be specific to industrial sector. For example, service based industries, have to offer more services than their competitors. Other industries may dissolve peripheral (low profit/growth potential) operations in order to concentrate on specific product lines. In order for both types of corporations to gain information from the external environment two types of interlocking directorate may be created. First, the interlocking directorate with a corporation in the same product sector, but a different geographic

market, and second, a connection with a corporation that operates in a different industrial sector

In conclusion, one of the assumed benefits derived from interlocking directorates is that they can be used as an information gathering mechanism. Therefore, the interlocking directorate could be used as part of a corporate strategy and as a method of industrial restructuring. Headquarter location is important due to a majority of high level corporate decision making occurring at these centres. Thus, a concentration of interlocking directorate activity may be detrimental to an EU regional development policy. The number of cross-border collaborations could also be used as evidence that corporations have an increasing need for information in other markets.

4.0 Methodology

4.1 Introduction.

The purpose of this chapter is to examine previous methodologies used in interlocking directorate research, introduce the data sources and the problems inherent with data in interlocking directorate research. The methods used to evaluate the data in this research will be discussed subsequently

4.2 Previous Methodologies in Interlocking Directorate Research.

An examination of previous methodologies used in the geographic research of interlocking directorates in a sense was easy considering the lack of previous research in Geography.

Green and Semple (1981) examined interlocking directorates within a North American urban information network. Corporations were classified as being either loosely or tightly associated. A tight association involved cities with four or more interlocking directorates, a loose association on the other hand had cities with two or three interlocking directorates. In all they examined the connections of 183 American corporations. The authors found that New York had the most interlocking directorates in the United States. Here corporations also tended to interlock to a high degree with other New York corporations. This behavior, they speculate, may have led to the decline of the region as the economic core of the United States by being too inward looking. To get a good overview of the network all interlocking directorates were graphed between and within urban centres.

In subsequent research Green (1981) researched local preferences for interlocking directorates amongst American corporations. Linkages to other American regions were however also determined. Green's sample of corporations analyzed included the top 150 corporations from the Fortune 500 list of 1978, and the largest 32 corporations from the sectors of insurance, banking, utilities and transportation. Initially regional variations in

interlocking directorates were examined with an analysis of variation. It revealed that a statistically significant portion of the variance of interlocking directorates can be attributed to the location of the corporations headquarters. In addition, multidimensional scaling was used to discover the attributes used in the selection of interlock linkage. Multidimensional scaling aims at developing procedures which will assign sets of numbers to various quantities of attributes among the phenomena being scaled (Golledge and Rushton, 1972). For example, distinctions may be called for between objects which vary with respect to location. These objects form a multidimensional series, the scaling procedure attempts to identify the relevant dimensions of these objects.

Green (1983) analyzes interurban interlocking directorates of the United States and Canada. Again a variety of techniques are used to analyze the data. The sample group included 100 corporations from both countries, covering an assortment of industrial groups. Direct and indirect interlocks are analyzed. An indirect interlock is created when board members from two corporations meet on the board of a third. Direct and indirect interlocks were aggregated into a matrix of headquarter location of each corporation. The findings were then graphed. Green also suggested that distance played a role in the structure of interlocking directorates. This assumption was tested with a gravity model.

Rice and Semple (1993) examined changes in interlocking directorates in the Canadian urban system for 1971-1989. Statistically this study graphed the connections of a corporations board members place of residence and the corporations headquarters. The sample size was 187 corporations. Spatial interlocking directorates are considered to be different than corporate interlocking directorates. Corporate interlocking directorate research analyzes linkages between corporations. Spatial interlocking directorates on the other hand analyzes the linkages made between regions, even though an interlocking directorate, in the traditional sense, is not created.

McNaughton (1990) explained how the software "STRUCTURE" could be used in interlocking directorate research. While a version of this software was obtained, it was

abandoned due to its complexity without a manual and uncertainty in the size of database that it would hold

4.3 Data Sources.

Corporate data is collected in numerous forms and can be obtained from different sources. Information on corporate boards of directors can be obtained either from annual corporate reports or directories containing specific industries or having a particular geographic scope. New appointments to corporate boards are often listed in newspapers. The cost of obtaining annual reports was beyond the realm of this research. In addition, while newspapers provide accounts of new appointments, few Canadian universities subscribe to a European daily newspaper. Such a search would have been extremely lengthy and cumbersome.

Data for this research came from two sources. The names of individuals represented on the board of directors of European Union corporations were obtained from "The Major Companies of Europe" 1986 and 1992, published by Trotman and Graham Limited. The 1986 issue is held by Wilfrid Laurier University, while the 1992 issue was available at The University of Western Ontario. Other corporate information, such as number of employees, sales for the previous year, industry activity conducted and country of origin of each corporation was obtained from "The Times 1000", 1986-1987 and 1991-1992, published by The Times Books.

4.4 Problems With The Data.

Many data sets contain errors. The directory "The Major Companies of Europe", contained some errors, specific to the directory, and others relating to interlocking directorates. For instance, of the 534 corporations in each time period not every corporation had their board of directors listed. Table 4.1 shows the corporations not present in 1986 and 1992.

Table 4 1, Corporations Without Listed Boards of Directors in the Directory.

| 1986 | 1992 |
|---|------------------------|
| The Rover Group (UK) | Engelhard Ltd. (UK) |
| ASDA-MFI Group (UK) | Tengelmann Waren (Ger) |
| Gill and Duffus Group (UK) | H Bahlsens KG (Ger) |
| BET (UK) | |
| Storehouse (UK) | |
| Food Manufacturers (UK) | |
| St Martins Holdings (UK) | |
| Credit Agricole (Fra) | |
| Electricite de France (Fra) | |
| INI (Esp) | |
| INH (Esp) | |
| Telefonica Nacional de Espana (Esp) | |
| Schickedanz (Ger) | |
| Vereinigte Industrie (Ger) | |
| Nedlloyd Groep (Neth) | |
| Wessanen (Neth) | |
| Co-operative Codensfabriek Friesland (Neth) | |
| Volker Stein NV (Neth) | |

These corporations were eliminated from the sample and replaced by the next largest corporation in terms of sales, which had their board of directors listed.

Although the directories were published in 1986 and 1992 respectively, it must be recognized that information of this nature takes time to assemble. For example, some corporate information was listed for 1984 in the 1986 directory. Similar difficulties occurred with the 1992 directory.

Corporations were classified into one of seven industrial groups. Corporations were placed in those areas that were most similar to their product line. "The Times 1000", however often mentioned more than one business activity in which the corporation was involved in. If this was the case the first business activity listed was determined to be the main product of that corporation. Thus some corporations are listed under different industrial groups for the two study periods. This scenario is best exemplified by Holding

Companies who number 52 in 1986, but almost completely disappear from the 1992 sample. Conventional classification of business activity such as the Standard Industrial Classification would have significantly diluted the sample, so that interlocking directorates would have been more common between industrial groups than within them. Therefore, corporations were grouped into one of seven business activities by their primary output. Table 4.2, shows the seven business areas covered.

Table 4.2, Industrial Groups Created for the Study

1. Natural Resources
 2. Transportation
 3. Manufacturing
 4. Retail
 5. Communications
 6. Financial Institutions
 7. Holding Companies.
-

Source: Determined by the Author

A general problem with all interlocking directorate research is that it has to overcome some grand assumptions. The largest of these assumptions can be found in data sets. It is assumed that J. Smith at British Gas, is the same J. Smith at British Petroleum, or for example that J.W. Smith is the same person as J. Smith. This research took first initial and surname of directors. Using annual reports may have helped to alleviate this difficulty. Other methods of solving this problem include the use of directories such as "Who's Who". These books however may not be completely accurate. Essentially, this difficulty exaggerates the number of interlocking directorates. Green, (1981) Fennema (1982) and Stokman et al, (1985) have all identified this assumption.

Another problem is that this data set does not account for subsidiaries of large multinational corporations. For example, IBM, although headquartered in the USA has subsidiaries present in many other countries. Therefore, linkages to countries and corporations outside of the EU are unaccounted for, secondly, linkages within corporations may be more prevalent because one person may reside on the board of each

subsidiary. Such linkages ensure that the controlling interests of the headquarter are represented.

But using corporate data, as described above is the only way to measure the degree to which directors of different corporations sit on numerous boards simultaneously. This method can be used by policy makers to determine if a large number of directors are making business decisions in a particular business area. Policy makers should be concerned about the potential for collusion to occur when a few people are making the business decisions for a large number of corporations.

4.5 National and European Union Directives Against Interlocking Directorates.

One of the barriers to a greater number of interlocking directorates are national laws and EU directives against the formation of interlocking directorates. Previous literature has cited laws against interlocking directorates in the USA.

The USA has a history of anti-trust legislation involving interlocking directorates. In 1887, The Interstate Commerce Act prohibited people from holding the position of officer or director in more than one transport carrier, ie. railroads (Fennema, 1982). Shortly after in 1890, interlocking directorates were attacked in the Sherman Act in an attempt to reduce the abuses of economic power. The Sherman Act was supplemented in 1914 by the Clayton Act (Fennema, 1982). The act prohibited the three types of interlocking directorate found in Table 3

Table 4.3. Interlocking Directorates Prohibited By The Sherman Act.

1. Those between competing banks.
2. Those between competing industrials.
3. Those between railroads and their potential suppliers.

Source, Fennema, 1982, pg. 2

The EU government however has had no previous legislation that would hinder the creation of interlocking directorates. Westerman (1920) outlined a proposal by The

Treasury Committee on Bank Amalgamations in the United Kingdom which would require the approval of government before any interlocking directorate could be created that would alter the banks status regarding its separate entity This proposal however did not lead to legislation (Fennema, 1982).

As part of this study it was necessary to attempt to identify any national or EU laws that would prohibit the formation of interlocking directorates Letters were sent to the nearest embassy of each EU member country and to the European Commission in Ottawa. If a country or the EU had directives prohibiting a person from residing on two, or more, boards simultaneously then this would have to be taken into account when interpreting the results.

Directives and laws at the EU level are designed to supersede or supplement national laws. Company law for the EU is seen as being essential to creating a level playing field for all corporations. The first EU company law directive was established in 1968. However, the only law pertaining to the construction of boards of directors has yet to be approved by all EU members. The EU's proposed company law, Fifth Directive, was initially submitted in 1972 and amendments made in 1983 1990 saw further amendments Essentially, the Fifth Directive attempts to harmonize the structure of publicly limited corporations, the responsibilities of the board and the participation of employees in the management of the corporation. Corporations are allowed the option of having a two tiered board structure or a single board of directors (Crossick, 1990, pg 29, Commission of the European Communities, 1989).

Some countries do have regulations that prevent politicians from holding positions in either public or private enterprises In Spain, the regulations protect high ranking government officials from conflict of interest positions by restricting them from holding board positions for a two year period after their term of office has expired (Parry, 1994) In 1993, Spain's competition commissioner recommended to the EU that all politicians in the EU be ineligible to hold posts in state corporations (crown corporations) While a

junior minister, in Spain, is unable to hold a directors position in a public corporation, they can hold office in a crown corporation. The effect, therefore, is still negative for competition (Parry, 1993, pg. 24).

France also does not allow its politicians to be on the board of directors of state owned or a mixed sector corporation which is partially owned by the state. However, the government does make appointments to crown corporations to oversee the states interest. Any private sector business interest on the other hand is unaffected by law Business owners are also allowed to take seats in the European Parliament (Willan et al, 1993, pg 24)

In Italy, politicians are able to pursue business interests in the private sector, but they are unable to hold positions of responsibility in the public sector. Allowing politicians to pursue business interests in Italy has recently led to accusations of illegal payments to politicians in order to obtain public contracts (Willan et al. 1993, pg 24).

Under German law politicians are allowed to hold positions on the supervisory boards of private and public corporations. There have been calls for reform. It is argued that removing politicians from boards would improve efficiency as they are believed to represent conflicting interests, the shareholder and their own political positions (Willan et al, 1993, pg.24). Outside of the political realm, German law prohibits the interlocking of two boards that involve more than half of their members. If this were to occur it would be seen as sufficient evidence for market collusion (Ziegler et al, 1985, pg. 95) German law also requires publicly traded stock corporations to have two boards. A supervisory board which contains outside directors and a management board. The former is responsible for appointing the later. However, holding a position on both boards is not permitted (Ziegler et al, 1985, pg. 97). Paragraph 100, Section 2 of the "Aktiongesetz" of Germany also contains the following limitations. A person can only be on the board of a maximum 10 corporations, unless that person owns the corporations then this number is increased to

15. In addition, if a person is an executive of a corporation which is wholly dependant upon another corporation, then that person may not sit on the main corporate board

A law in Belgium, from 1934, prohibits bank executives from holding positions on boards of industrial corporations. To circumvent this law many banks split themselves into a banking and a holding company (Cuyvers and Meeusen, 1985, pg 149).

Denmark, Greece, Ireland, Luxembourg, The Netherlands, and the United Kingdom indicated that they do not have any directives against interlocking directorates. The Portuguese government failed to reply to this inquiry.

4.6 Research Procedure.

This thesis will use three procedures to determine if interlocking directorates are increasing amongst EU corporations, and if they are more prominent in particular geographic regions than others. Several variables of corporate data were included in the data sets. The first data set to be examined included the directors name and the corporation they were affiliated with. This data was obtained from The Major Companies of Europe, 1986 and 1992.

The second data set examined included the following variables, corporations name, country of headquarter, city of headquarter, sales for the previous year (in UK pounds), number of employees, and industrial group. The industrial group the corporation belonged to was determined by the author. As stated earlier the most prominent business activity of the corporation, as defined by the directory "The Times 1000", was used to determine the industrial group.

Previous studies of interlocking directorates by Green (1981) Green and Semple (1983) and Rice and Semple (1993) used data sets that contained between 150 and 180 corporations and involved only one or two countries. Because of the large number of countries in the EU it was determined that the number of corporations had to be increased. The number of 500 corporations was decided upon. Because of the assumed prominence

of financial institutions in the interlocking directorate process the top 34 financial institutions in the EU, by assets, were also included. The result was that three countries had approximately 100 corporations in each year studied. According to Fennema (1982) small corporations often require more information on the market than large corporations but they are unable to afford high profile directors to inform them of the changing corporate milieu. This need notwithstanding the top 534 corporations were chosen, mainly for having good information in both time periods.

Because of the two-tiered board system available in Germany, and other countries, a decision had to be taken on which board to include in the data set. The supervisory board was chosen over the management board, because it appoints the management board and therefore is the more powerful one (Ziegler et al, 1985, pg 97).

Interlocking directorate data will be evaluated in the following ways. First, general descriptive statistics will be used to evaluate increase and decreases in the number of interlocking directorates between the two time periods. In addition, the changes in interlocking directorates within and between countries will be determined, these linkages will also be mapped.

Second, cross-tabulations of the data will occur in order to determine if there is any difference in the formation of interlocking directorates between corporations. For example, it will be possible to test for significant change with a two sampled chi-squared test between industrial class and country, number of interlocking directorates and corporation size, a. by sales, b. by the number of employees. This will occur for individual countries and by city.

Third, cross-tabulations will also be performed on the data to determine changes in cross-border interlocking directorates. The variables that will be examined include, corporate size versus international linkages, industrial class versus international linkages, country versus international linkages and linkages between cities. Chi-squared tests will also be performed on this data to determine if there are any significant changes.

It must be remembered that this research will only focus on direct interlocking directorates. That is, the linkage created by one individual between two, or more, corporations.

5.0 The Spatial Component of Interlocking Directorates in The European Union.

5.1: Introduction.

The process of examining interlocking directorates is probably similar to examining a time-space convergence model. That is, initially interlocking directors would have been geographically compact as board members would have been constrained by transportation and communication systems. Advances in these fields have made it possible for people to travel and communicate between distant places with greater speed. Consequently, it would be expected that those persons holding multiple directorships, do so in a geographically disperse arena.

The structure of interlocking directorates in the EU for 1986 and 1992 are expected to reveal a similar pattern, or more specifically, an increase in interlocking directorates across national borders. This chapter will examine these changes. Four aspects of interlocking directorates will be examined in order to determine if interlocking directorates have significantly changed between 1986 and 1992. First, interlocking directorates will be examined in terms of number of positions held so as to differentiate between those persons involved in an interlocking directorate and those holding single positions. Second, interlocking directorates will be examined by individual country and between countries. Third, the number of interlocking directorates have been tabulated by industrial group, annual sales and number of employees. In each instance the number of interlocking directorates will be examined for the three main EU countries, France, Germany, and the United Kingdom as well as a category incorporating all other EU countries. In addition, the interlocking directorates in each group have been distributed into national and international categories, therefore, the differences between the two categories can be examined. Chi squared tests were also performed on these groupings to determine if the change between the two periods was significant. Lastly, the location of

the corporations headquarter was analyzed. It was possible to examine the interlocking directorate in terms of the linkage created between two cities. Corporate data came from "The Times 1000" 1986-87 and 1991-92 and the directors names came from "The Major Companies of Europe" 1986 and 1992.

5.2: Number of Positions Held: 1986 and 1992.

One of the hypothesis of this research is that interlocking directorates have increased between 1986 and 1992. In part, this hypothesis can be tested by examining the number of positions held by individuals in the two years studied as can be seen in table 5.1

Table 5.1, Number of Positions Held 1986 and 1992.

| Positions Held | 1986 | | 1992 | | Interlocks Percent Change |
|----------------|-----------------------|--------------------|-----------------------|--------------------|---------------------------|
| | Number of Occurrences | Interlocks Created | Number of Occurrences | Interlocks Created | |
| 1 | 4342 | 0 | 4391 | 0 | n/a |
| 2 | 366 | 366 | 393 | 393 | 7.38 |
| 3 | 83 | 249 | 113 | 339 | 36.14 |
| 4 | 28 | 168 | 48 | 288 | 71.43 |
| 5 | 5 | 50 | 15 | 150 | 200 |
| 6 | 3 | 45 | 7 | 105 | 133.33 |
| 7 | 2 | 42 | 4 | 84 | 100 |
| 8 | 0 | 0 | 3 | 84 | |
| 9 | 0 | 0 | 1 | 36 | |
| 10 | 0 | 0 | 1 | 45 | |
| Total | 4746 | 920 | 4976 | 1524 | 65.65 |

Source: Calculated by the Author

Only those individuals who hold two or more directorships create an interlocking directorate. The data indicates a 7.55% increase in the number of directorships in the 534 corporations studied in the two time periods. Those directors who only have one position showed a marginal increase of 1.13% between 1986 and 1992. Large increases were found in those directors who held interlocking directorates. The largest increase occurred

with those individuals who held more than 4 directorships simultaneously. These individuals have previously been recognized by Fennema (1982) as being "big linkers". Big linkers, according to Fennema (1982) are considered to hold more power in the decision making process. The individuals holding 4, 5, 6 or 7 directorships show increases of 75, 300, 233 and 100%, respectively in 1992 over 1986.. In addition, 1992 shows some prominent individuals who simultaneously hold 8, 9, and 10 positions. Consequently the number of interlocking directorates in 1992 is 65.65% higher than previously recorded in 1986.

5.3 Interlocking Directorates By Country: 1986 and 1992.

The five hundred most prominent corporations, by sales, and the top thirty four financial institutions, by assets, in each year were categorized according to the country of their headquarter location. Corporations from every country in the EU are included in the study. Table 5.2 indicates the breakdown of the 534 corporations by country for the study years

Table 5.2, National Origin of Corporations in the Sample.

| | 1986 | 1992 |
|----------------|-------------|-------------|
| United Kingdom | 199 | 205 |
| Germany | 127 | 109 |
| France | 95 | 109 |
| Netherlands | 32 | 39 |
| Italy | 29 | 24 |
| Belgium | 20 | 15 |
| Spain | 13 | 18 |
| Denmark | 13 | 9 |
| Luxembourg | 2 | 2 |
| Portugal | 2 | 1 |
| Ireland | 1 | 3 |
| Greece | 1 | 0 |
| Total | 534 | 534 |

Source; Calculated by the Author

The United Kingdom, Germany and France have the largest number of corporations in the study. This is perhaps a reflection of their larger economies. Consequently, they also have the largest number of interlocking directorates. The number of interlocking directorates within and between each country can be seen in table 5.3a and 5.3b for 1986 and 1992.

Table 5.3.a, Interlocking Directorates by Country in the EU, 1986.

| | UK | Neth. | Fra. | Ger. | Den. | Bel | Ita | Lux | Esp | Ire. |
|-------|-----|-------|------|------|------|-----|-----|-----|-----|------|
| UK | 337 | 29 | 29 | 12 | 1 | 8 | 0 | 0 | 1 | 0 |
| Neth. | | 29 | 1 | 7 | 0 | 6 | 0 | 0 | 0 | 0 |
| Fra. | | | 159 | 7 | 1 | 13 | 2 | 3 | 0 | 0 |
| Ger. | | | | 201 | 4 | 1 | 1 | 1 | 0 | 0 |
| Den. | | | | | 5 | 0 | 0 | 0 | 0 | 0 |
| Bel. | | | | | | 30 | 1 | 5 | 1 | 0 |
| Ita. | | | | | | | 19 | 0 | 0 | 0 |
| Lux. | | | | | | | | 0 | 0 | 0 |
| Esp. | | | | | | | | | 6 | 0 |
| Ire. | | | | | | | | | | 0 |

Source; Calculated by the Author

Table 5.3.b, Interlocking Directorates by Country in the EU, 1992.

| | UK | Neth. | Fra. | Ger | Den. | Bel | Ita | Lux. | Esp | Ire. |
|-------|-----|-------|------|-----|------|-----|-----|------|-----|------|
| UK | 408 | 36 | 41 | 40 | 0 | 4 | 3 | 0 | 0 | 6 |
| Neth. | | 100 | 9 | 15 | 0 | 4 | 1 | 0 | 0 | 0 |
| Fra. | | | 338 | 8 | 0 | 27 | 17 | 3 | 0 | 1 |
| Ger. | | | | 369 | 1 | 13 | 0 | 2 | 1 | 0 |
| Den. | | | | | 6 | 0 | 0 | 0 | 0 | 0 |
| Bel. | | | | | | 16 | 3 | 11 | 0 | 0 |
| Ita. | | | | | | | 26 | 1 | 0 | 0 |
| Lux. | | | | | | | | 0 | 0 | 0 |
| Esp | | | | | | | | | 12 | 0 |
| Ire. | | | | | | | | | | 2 |

Source; Calculated by the Author

These interlocking directorates can also be seen, graphically, in Appendix A. However, the tables do not reflect the number of interlocking directorates per corporation in each country. This is shown in table 5.4.

Table 5 4, Average Number of Interlocking Directorates Per Corporation

| | 1986 | | | 1992 | | |
|------|-----------------|---|--|-----------------|---|--|
| | Number of Firms | National Interlocking Directorate Average | International Interlocking Directorate Average | Number of Firms | National Interlocking Directorate Average | International Interlocking Directorate Average |
| UK | 199 | 1.69 | 0.4 | 205 | 1.99 | 0.63 |
| Neth | 32 | 0.91 | 1.31 | 39 | 2.56 | 1.79 |
| Fra | 95 | 2.45 | 0.59 | 109 | 3.1 | 0.97 |
| Ger | 127 | 1.58 | 0.26 | 109 | 3.39 | 0.64 |
| Den | 13 | 0.38 | 0.46 | 9 | 0.67 | 0.11 |
| Bel | 20 | 1.5 | 1.75 | 15 | 1.06 | 4.13 |
| Ita | 29 | 0.66 | 0.1 | 24 | 1.08 | 1.04 |
| Lux | 2 | 0 | 4 | 2 | 0 | 8.5 |
| Esp | 13 | 0.46 | 0.15 | 18 | 0.67 | 0.06 |
| Ire | 1 | 0 | 0 | 3 | 0.67 | 2.33 |
| Port | 1 | 0 | 0 | 1 | 0 | 0 |
| Gre | 1 | 0 | 0 | 0 | 0 | 0 |

Source: Calculated by the Author

Table 5.3a and 5.3b indicate that interlocking directorates are most prominent in the United Kingdom. The matrix also indicates the international linkages created by interlocking directorates between EU countries. This may suggest that interlocking directorates are a characteristic of corporate culture in the UK, more than in other EU countries. Here the UK has the most interlocking directorate linkages with other EU countries, however per corporation national interlocking directorates are most prominent in France and the UK in 1986 and Germany and France in 1992. Due to the fact that approximately 80% of interlocking directorates occur in three of the EU's twelve member countries it becomes difficult to perform chi-squared analysis to test for significant change in some of the member countries. Therefore a Rest of EU category was formed, incorporating each member country other than the UK, France and Germany. Table 5.5 shows the chi-squared results for change in interlocking directorates within and between members of the EU.

Table 5.5, Chi-Squared Results. Interlocking Directorates Within and Between EU Countries, 1986 and 1992.

| | UK | France | Germany | Rest of EU |
|------------|--------------|-------------|--------------|--------------|
| UK | 12.36 | 3.51 | 19.6 | 2.04 |
| France | | 94.8 | 0.13 | 24.02 |
| Germany | | | 76.49 | 10.13 |
| Rest of EU | | | | 35.16 |

Significant at the 0.05 level

Critical Value = 3.84

Significant changes are indicated in bold

Source; Calculated by the Author

The changes that are not significant, 1. UK with France and the Rest of the EU and 2 France with Germany can be partly explained by political philosophy and language barriers. The UK often does not share the same political views as its European counterparts. Authors such as Blackwell (1990) and Thompson (1990) have noted the reluctance of the British to learn foreign languages. The non-significant change between France and Germany can, in part, be attributed to language difficulties and a high degree of government involvement in French industry.

5.4: Interlocking Directorates by Industrial Group: 1986 and 1992.

Previous scrutiny of interlocking directorates suggests that they are used by the corporation to gain a measure of control over their external environment, and that they connect the corporation with the suppliers of inputs and the receivers of outputs (Green, 1981, 1983, Stokman et al, 1985, Fennema, 1982). The question is then raised as to whether interlocking directorates are more prominent within or between particular industrial groups? This would be important depending on the perspective taken. One side, with the support of the Sherman Act, would argue that interlocking directorates are a method that aids in producing unfair markets practices. The other side would argue that interlocking directorates help the corporation achieve greater efficiency. In addition, has

there has been any significant change in the number of interlocking directorates created within and between industrial groups in the two years studied. Therefore, corporations were classified into one of the seven industrial groups, 1. natural resources, 2. transportation, 3. manufacturing, 4. retail, 5. communication, 6. financial institutions and 7. holding companies, this can also be seen in table 4.2. Corporations were classified according to the predominant business activity as determined by The Times 1000. Holding companies create an ambivalent category. By definition, they are corporations that hold a significant number of shares in other corporations (Daems, 1977). While they account for 9.74% of the 1986 sample, a change in definition or re-classification by The Times 1000 sees a marked decline in their numbers to approximately 0.01% of the 1992 sample. The directors names came from The Major Companies of Europe.

Appendix B indicates the number of interlocking directorates within and between industrial groups by country for 1986 and 1992. It is possible to view the UK, France and Germany and the "Rest of EU" category separately.

The number of interlocking directorates within and between each industrial category is partly constrained by the number of corporations in that group. Table 5.6 incorporates the average number of interlocking directorates for each corporation in every industrial group for 1986 and 1992.

Table 5.6, Average Number of Interlocking Directorates in Each Industrial Group, 1986 and 1992

| Industrial Group | 1986 Average Number of Interlocking Directorates Per Firm | 1992 Average Number Interlocking Directorates Per Firm |
|-----------------------|--|---|
| Natural Resources | 2.49 | 3.29 |
| Transportation | 2.64 | 5.3 |
| Manufacturing | 2.59 | 4.24 |
| Retail | 2.3 | 3.12 |
| Communication | 2.34 | 3.84 |
| Financial Institution | 4.12 | 8.18 |
| Holding Companies | 2.69 | 6.5 |

Source: Calculated by the Author

In 1986 and 1992, financial institutions held the most interlocking directorates with other corporations. This would substantiate the work of Fennema (1982) who suggested that banks control the production process and need good information linkages to do this. However, due to the large number of mergers and acquisitions in the EU in the last decade, which has been documented by the work of Thomsen and Woolcock (1992) and Jacquemin (1993). The increase in the number of interlocking directorates held by financial institutions from 4.12 to 8.18 per corporation may have also occurred because of the corporations need for large amounts of capital to participate in the mergers and acquisition process. In order for financial institutions to keep an eye on loaned capital interlocking directorates are created with those corporations. The large increase in interlocking directorates amongst holding corporations must be viewed with caution due to the small number of corporations present in the 1992 sample.

5.5 Interlocking Directorates by Industrial Group: Individual Countries 1986 and 1992.

It is also possible determine the number of interlocking directorates for each industrial group for the three most prominent countries and for the Rest of EU countries. It is necessary to do this to see if interlocking directorates occur within particular industrial groups in some countries, therefore being more or less prominent than the EU average. Table 5.7a, b, c, and d indicate the average number of interlocking directorates for each industrial group in the UK, France, Germany and the "Rest of EU" respectively.

Table 5.7a, Average Number of Interlocking Directorates by Industrial Group Per Corporation, UK 1986 and 1992

| Industrial Group | 1986 | | | 1992 | | |
|------------------|-----------------|-------------------------------------|---------------|-----------------|-------------------------------------|---------------|
| | Number of Firms | Number of Interlocking Directorates | Ave. Per Firm | Number of Firms | Number of Interlocking Directorates | Ave. Per Firm |
| Resources | 38 | 94 | 2.47 | 18 | 52 | 2.88 |
| Transportation | 25 | 60 | 2.4 | 24 | 88 | 3.67 |
| Manufacturing | 55 | 166 | 3.02 | 66 | 227 | 3.44 |
| Retail Services | 60 | 162 | 2.7 | 62 | 174 | 2.81 |
| Comm'cation | 17 | 54 | 3.18 | 27 | 93 | 3.44 |
| Financial | 4 | 45 | 11.25 | 8 | 87 | 10.88 |
| Holding Co. | 0 | 0 | 0 | 0 | 0 | 0 |

Source; Calculated by the Author

Table 5.7b, Average Number of Interlocking Directorates by Industrial Group
Per Corporation, France 1986 and 1992

| Industrial Group | 1986 | | | 1992 | | |
|------------------|-----------------|-------------------------------------|---------------|-----------------|-------------------------------------|---------------|
| | Number of Firms | Number of Interlocking Directorates | Ave. Per Firm | Number of Firms | Number of Interlocking Directorates | Ave. Per Firm |
| Resources | 12 | 28 | 2.33 | 15 | 57 | 3.8 |
| Transportation | 12 | 14 | 1.17 | 14 | 91 | 6.5 |
| Manufacturing | 17 | 49 | 2.88 | 30 | 157 | 5.23 |
| Retail | 22 | 68 | 3.09 | 31 | 117 | 3.77 |
| Comm'cation | 5 | 9 | 1.8 | 11 | 74 | 6.73 |
| Financial | 4 | 21 | 5.25 | 7 | 74 | 10.57 |
| Holding Co. | 23 | 86 | 3.74 | 1 | 6 | 6 |

Source; Calculated by the Author

Table 5.7c, Average Number of Interlocking Directorates by Industrial Group
Per Corporation, Germany 1986 and 1992

| Industrial Group | 1986 | | | 1992 | | |
|------------------|-----------------|-------------------------------------|---------------|-----------------|-------------------------------------|---------------|
| | Number of Firms | Number of Interlocking Directorates | Ave. Per Firm | Number of Firms | Number of Interlocking Directorates | Ave. Per Firm |
| Resources | 27 | 91 | 3.37 | 21 | 103 | 4.9 |
| Transportation | 13 | 53 | 4.08 | 15 | 125 | 8.33 |
| Manufacturing | 37 | 88 | 2.38 | 46 | 263 | 5.72 |
| Retail | 20 | 32 | 1.6 | 18 | 7 | 3.61 |
| Comm'cation | 6 | 7 | 1.17 | 4 | 69 | 1.75 |
| Financial | 9 | 50 | 5.56 | 5 | 74 | 13.8 |
| Holding Co. | 15 | 28 | 1.86 | 0 | 0 | 0 |

Source; Calculated by the Author

Table 5.7d, Average Number of Interlocking Directorates by Industrial Group Per Corporation, "Rest of EU" 1986 and 1992

| Industrial Group | 1986 | | | 1992 | | |
|------------------|-----------------|-------------------------------------|---------------|-----------------|-------------------------------------|---------------|
| | Number of Firms | Number of Interlocking Directorates | Ave. Per Firm | Number of Firms | Number of Interlocking Directorates | Ave. Per Firm |
| Resources | 28 | 46 | 1.64 | 24 | 45 | 1.88 |
| Transportation | 6 | 11 | 1.83 | 10 | 30 | 3 |
| Manufacturing | 21 | 24 | 1.14 | 30 | 83 | 2.77 |
| Retail | 23 | 25 | 1.09 | 23 | 62 | 2.7 |
| Comm'cation | 4 | 6 | 1.5 | 9 | 22 | 2.44 |
| Financial | 17 | 13 | 0.76 | 14 | 38 | 2.71 |
| Holding Co. | 14 | 26 | 1.86 | 1 | 7 | 7 |

Source; Calculated by the Author

As with the previously presented national interlocking directorates in the EU, table 5.6, the breakdown of interlocking directorates by industrial group is similar. However, some interlocking directorates are more prevalent than others, particularly the number of interlocking directorates held by financial corporations in the UK, Germany and France. Although UK financial institutions have experienced a slight decrease in the average number of interlocking directorates, they are still triple the number of the closest industrial group. At the same time French and German financial institutions have doubled their number of interlocking directorates to now approximately equal the level of the UK. In 1992, financial institutions in each group have over 10 interlocking directorates with corporations in other industrial groups. The "Rest of EU" countries do not exhibit the same characteristics. All corporations in this category generally have an average number of interlocking directorates lower than that of their French, German and UK counterparts. However, between 1986 and 1992 the "Rest of EU" countries have seen similar rates of expansion in the average number of interlocking directorates per corporation.

5.6 Interlocking Directorates by Sales, EU as a Whole: 1986 and 1992.

In addition to providing information on the corporations external environment, the rate of formation of interlocking directorates can be affected by the size of the corporation (Green, 1983). Two variables of corporate size were chosen for this thesis, sales for the previous year, and as discussed in the following section, (5.8) the number of employees in the corporation.

Table 5.8 shows the average number of interlocking directorates within and between corporations with different annual sales in 1986 and 1992. The table only indicates the interlocking directorates that occur within national borders.

Table 5.8. Average Number of Interlocking Directorates by Sales Per Corporation, EU, 1986 and 1992

| Annual Sales in Pounds | 1986 Average Number Of Interlocks | 1992 Average Number Of Interlocks |
|-----------------------------------|--|--|
| >8.00 | 5.73 | 10.11 |
| 6.00-7.99 | 3.75 | 8.87 |
| 4.00-5.99 | 3.11 | 4.83 |
| 2.00-3.99 | 3.39 | 5.06 |
| 1.00-1.99 | 2.87 | 2.68 |
| <0.99 | 1.76 | 2.46 |

Sales in Billions

Source: Calculated by the Author

Those corporations with an annual turnover in excess of 6 billion pounds generally have more interlocking directorates than those corporations with smaller sales figures. In fact, the average number of interlocking directorates for these corporations has doubled between 1986 and 1992, at the same time, those corporations with less than 2 billion pounds in annual turnover, but more than 1 billion pounds, have seen their average number of interlocking directorates decline, and those corporations with less than 1 billion pounds in sales have only seen a marginal increase. While it may be argued that smaller

corporations have a greater need for information on their external environment and thus more interlocking directorates, the data presented proves this to be an incorrect assumption. In addition, large corporations that operate in an oligopolistic manner would also be expected not to have too many interlocking directorates because the need for information on the corporate milieu is decreased. If oligopolistic corporations are generally larger then the data does not support this assumption either.

5.7 Interlocking Directorates by Sales: Individual Countries 1986 and 1992.

The data for interlocking directorates held by corporations with different annual turnovers can also be viewed separately by the four categories of country. The purpose of this exercise is to determine if the number of interlocking directorates held by corporations with different annual turnovers differs by country. The data can be seen for each group in table 5.9a, b, c and d.

Table 5.9a, Average Number of Interlocking Directorates by Sales
Per Corporation, UK 1986 and 1992

| Sales UK Pounds | 1986 | | | 1992 | | |
|-----------------------|-----------------------|---|------------------------|-----------------------|---|------------------------|
| | Number of Firms | Number of Interlocking Directorates | Average Per Firm | Number of Firms | Number of Interlocking Directorates | Average Per Firm |
| >8.00 | 0 | 48 | 5.33 | 11 | 110 | 10 |
| 6.00-7.99 | 6 | 35 | 5.83 | 6 | 49 | 8.17 |
| 4.00-5.99 | 6 | 21 | 3.5 | 16 | 74 | 4.63 |
| 2.00-3.99 | 28 | 109 | 3.89 | 44 | 193 | 4.39 |
| 1.00-1.99 | 61 | 169 | 2.77 | 66 | 147 | 2.23 |
| <0.99 | 89 | 193 | 2.17 | 62 | 186 | 3 |

Sales in Billions

Source, Calculated by the Author

Table 5.9b, Average Number of Interlocking Directorates by Sales
Per Corporation, Germany 1986 and 1992

| Sales UK Pounds | 1986 | | | 1992 | | |
|-----------------------|-----------------------|---|------------------------|-----------------------|---|------------------------|
| | Number of Firms | Number of Interlocking Directorates | Average Per Firm | Number of Firms | Number of Interlocking Directorates | Average Per Firm |
| >8.00 | 11 | 100 | 9.09 | 16 | 231 | 14.48 |
| 6.00-7.99 | 7 | 25 | 3.57 | 9 | 83 | 9.22 |
| 4.00-5.99 | 10 | 41 | 4.1 | 10 | 75 | 7.5 |
| 2.00-3.99 | 22 | 86 | 3.91 | 15 | 78 | 5.2 |
| 1.00-1.99 | 22 | 59 | 2.68 | 29 | 108 | 3.72 |
| <0.99 | 55 | 61 | 1.11 | 30 | 76 | 2.53 |

Sales in Billions

Source; Calculated by the Author

Table 5.9c, Average Number of Interlocking Directorates by Sales
Per Corporation, France 1986 and 1992

| Sales UK Pounds | 1986 | | | 1992 | | |
|-----------------------|-----------------------|---|------------------------|-----------------------|---|------------------------|
| | Number of Firms | Number of Interlocking Directorates | Average Per Firm | Number of Firms | Number of Interlocking Directorates | Average Per Firm |
| >8.00 | 8 | 35 | 4.38 | 17 | 144 | 8.47 |
| 6.00-7.99 | 2 | 2 | 1 | 4 | 58 | 14.5 |
| 4.00-5.99 | 6 | 19 | 3.17 | 8 | 39 | 4.86 |
| 2.00-3.99 | 13 | 39 | 3 | 24 | 157 | 6.54 |
| 1.00-1.99 | 28 | 89 | 3.18 | 25 | 94 | 3.76 |
| <0.99 | 38 | 78 | 2.05 | 31 | 100 | 3.23 |

Sales in Billions

Source; Calculated by the Author

Table 5.9d, Average Number of Interlocking Directorates by Sales
Per Corporation, Rest of EU 1986 and 1992

| Sales UK Pounds | 1986 | | | 1992 | | |
|-----------------------|-----------------------|---|------------------------|-----------------------|---|------------------------|
| | Number of Firms | Number of Interlocking Directorates | Average Per Firm | Number of Firms | Number of Interlocking Directorates | Average Per Firm |
| >8 00 | 9 | 19 | 2.11 | 9 | 51 | 5.67 |
| 6 00-7.99 | 6 | 13 | 2.17 | 4 | 14 | 3.5 |
| 4 00-5.99 | 6 | 7 | 1.17 | 12 | 34 | 2.83 |
| 2 00-3.99 | 11 | 17 | 1.55 | 15 | 66 | 4.4 |
| 1 00-1.99 | 21 | 48 | 2.29 | 32 | 59 | 1.84 |
| <0.99 | 60 | 56 | 0.93 | 29 | 70 | 2.41 |

Sales in Billions

Source, Calculated by the Author

In each category it would appear that those corporations with greater annual sales have more interlocking directorates. Although there are some discrepancies, most notably France and the "Rest of EU", the average number of interlocking directorates increases with annual sales. This data would support previous research by Green (1981) and Fennema and Schijf (1985) that suggests that interlocking directorates are related to corporate size.

While those corporations with higher annual sales have more interlocking directorates, these figures differ between countries. Therefore, it was found that in 1992 German corporations with annual sales in excess of 8 billion pounds, on average, have a greater number of interlocking directorates, than its EU counterparts. The category with the greatest number interlocking directorates per corporation in 1992 occurred in France with corporations with annual sales between 6-7.99 billion pounds. One possible reason for this occurrence is the high degree of state involvement in French industry. In many state owned or partly owned corporations the influence of the French government is seen with their positions on corporate boards of director

5.8 Interlocking Directorates by Number of Employees: EU as a Whole, 1986 and 1992

An alternative measure of corporate size is the number of employees Table 5.10 indicates the average number of interlocking directorates held by corporations with different numbers of employees.

5.10, Interlocking Directorates by Number of Employees
EU as a Whole, 1986 and 1992.

| Number of Employees | 1986 Average Number of Interlocks | 1992 Average Number of Interlocks |
|---------------------|---|---|
| >70,001 | 4.07 | 6.68 |
| 50,001-70,000 | 4.46 | 8.36 |
| 30,001-50,000 | 4.3 | 5.16 |
| 10,001-30,000 | 2.41 | 3.7 |
| <10,000 | 1.61 | 1.95 |

Source; Calculated by Author

Interlocking directorate by number of employees not exhibit previously discussed patterns. That is, the largest corporations, in terms of employees, are not the most frequently interlocked. Those corporations who have between 50,001 and 70,000 employees generally have more interlocking directorates. This category has also seen the most dramatic increase in the average number of interlocking directorates between 1986 and 1992. The lower frequency of interlocking directorates held by corporations with employees in excess of 70,001 may reflect the existence of crown corporations in the sample. The increase in frequency in this category between 1986 and 1992 may have occurred due to an increasing number of crown corporations being privatized in the EU in the last decade. This section has illustrated the increasing average number of interlocking directorates by corporations with different numbers of employees. The following section discusses the spatial variation in interlocking directorates by number of employees for each of the four country categories.

5.9 Interlocking Directorates by Number of Employees: Individual Countries 1986 and 1992.

Interlocking directorates by the number of employees per corporation show variation in each of the four country categories. This can be seen in table 5.11a, b, c, and d. Green (1983) suggests that interlocking directorates are related to corporate size.

**Table 5.11a Interlocking Directorates by Number of Employees
UK, 1986 and 1992**

| | 1986 | | | 1992 | | |
|---------------------|-----------------|-------------------------------------|------------------|-----------------|-------------------------------------|------------------|
| | Number of Firms | Number of Interlocking Directorates | Average Per Firm | Number of Firms | Number of Interlocking Directorates | Average Per Firm |
| >70,001 | 17 | 80 | 4.71 | 22 | 153 | 6.95 |
| >50,001- <70,000 | 16 | 68 | 4.25 | 15 | 91 | 6.07 |
| >30,001- <50,000 | 30 | 118 | 3.93 | 30 | 121 | 4.03 |
| >10,001- 30000 | 71 | 201 | 2.83 | 80 | 231 | 2.89 |
| <10,000 | 65 | 118 | 1.82 | 58 | 100 | 1.72 |

Source, Calculated by the Author

**Table 5.11b. Interlocking Directorates by Number of Employees
France, 1986 and 1992**

| | 1986 | | | 1992 | | |
|---------------------|-----------------|-------------------------------------|------------------|-----------------|-------------------------------------|------------------|
| | Number of Firms | Number of Interlocking Directorates | Average Per Firm | Number of Firms | Number of Interlocking Directorates | Average Per Firm |
| >70,001 | 9 | 25 | 2.78 | 15 | 134 | 8.93 |
| >50,001- <70,000 | 4 | 17 | 4.25 | 7 | 35 | 5 |
| >30,001- <50,000 | 10 | 51 | 5.1 | 15 | 101 | 6.73 |
| >10,001- 30000 | 34 | 90 | 2.65 | 41 | 211 | 5.15 |
| <10,000 | 38 | 84 | 2.21 | 31 | 99 | 3.19 |

Source, Calculated by the Author

Table 5.11c Interlocking Directorates by Number of Employees
Germany, 1986 and 1992

| | 1986 | | | 1992 | | |
|---------------------|-----------------|-------------------------------------|------------------|-----------------|-------------------------------------|------------------|
| | Number of Firms | Number of Interlocking Directorates | Average Per Firm | Number of Firms | Number of Interlocking Directorates | Average Per Firm |
| >70,001 | 10 | 60 | 6 | 13 | 180 | 13.85 |
| >50,001- <70,000 | 6 | 34 | 5.67 | 9 | 137 | 15.22 |
| >30,001- <50,000 | 17 | 81 | 5.76 | 17 | 100 | 5.88 |
| >10,001- <30,000 | 42 | 103 | 2.45 | 36 | 165 | 4.58 |
| <10,000 | 52 | 86 | 1.62 | 34 | 76 | 2.24 |

Source; Calculated by the Author

Table 5.11d. Interlocking Directorates by Number of Employees
"Rest of the EU", 1986 and 1992

| | 1986 | | | 1992 | | |
|---------------------|-----------------|-------------------------------------|------------------|-----------------|-------------------------------------|------------------|
| | Number of Firms | Number of Interlocking Directorates | Average Per Firm | Number of Firms | Number of Interlocking Directorates | Average Per Firm |
| >70,001 | 8 | 14 | 1.75 | 10 | 43 | 4.3 |
| >50,001- <70,000 | 2 | 6 | 3 | 2 | 13 | 6.5 |
| >30,001- <50,000 | 3 | 8 | 2.67 | 7 | 34 | 4.86 |
| >10,001- 30,000 | 37 | 49 | 1.32 | 37 | 109 | 2.95 |
| <10,000 | 63 | 62 | 0.98 | 55 | 72 | 1.31 |

Source; Calculated by the Author

Corporations in the UK in 1986 and 1992 that have more employees also have more interlocking directorates. Both categories above 50,001 employees experienced approximately a 50% increase in the average number of interlocking directorates held. Small increases were exhibited by the 10,001-30,000 and 30,001-50,000 categories, while

the <10,000 category experienced a small decline. One possible reason for the increase in the average number of interlocking directorates for larger corporations is patronage appointments. That is, shortly after leaving political office prominent individuals are incorporated into a corporation's board of directors. Arguably, the appointment recognizes that the individual is extremely knowledgeable in that market sector. Conversely, an argument can also be made that the appointment is a reward for policies that have benefited the corporation. Many crown corporations were privatized in the late 1980's, this may have contributed to the increase in the number of interlocking directorates of large corporations.

The lower average number of interlocking directorates for those corporations with a smaller number of employees may indicate several events. Smaller corporations may operate in a specific market niche, therefore, requiring minimal information on the external environment. In addition, smaller corporations may not have the resources available to entice prominent individuals to sit on their boards.

German corporations, table 5.11c, exhibit a pattern that is similar to that in the UK. That is, those corporations with more employees also have a higher average number of interlocking directorates per corporation. The difference between German and UK corporations is that between 1986 and 1992, German corporations with employees in excess of 50,001 have nearly three times as many interlocking directorates as their UK counterparts. Partial explanations for this occurrence involve the emergence of a distinct group of prominent German business people. In addition, it may also reflect large corporations having more connections to those corporations involved in the subcontracting process.

The "Rest of EU" countries and France contrast from Germany and the UK in that in each year those corporations with the largest number of employees do not have the highest average number of interlocking directorates. In the "Rest of EU" countries, the category with 50,001-70,000 employees exhibits the greatest average number of

interlocking directorates. Every category also experienced an approximate 50% increase in 1992 over 1986.

France however, is quite different than its EU counterparts. In 1986, those corporations with 30,001-50,000 employees had the highest average number of interlocking directorates. In 1992, this changed to the category with employees in excess of 70,001. In addition, those corporations in France with employees numbering less than 50,000, on average, have more interlocking directorates than their EU counterparts. A partial explanation for this may be that significant portions of the production process have been subcontracted. In order to control or observe this process interlocking directorates between the participating corporations have been created. Another explanation includes corporate collaborations which may be more prominent in France, linking smaller corporations together, thus helping them be more competitive.

5.10 Chi-Squared Results.

The significance of change in interlocking directorates by industrial group, by number of employees and by annual sales can be analyzed with chi-square tests. Using the 1986 frequencies as the expected occurrence and the 1992 frequencies as the observed occurrences. This was done in order to test for any significant change between the two study periods. It was hypothesized that by 1992 there would be an increase in interlocking directorates over 1986. The results of all chi-squared tests can be found in Appendix C. A significance level of 0.05 was decided upon. A figure above the determined critical value indicates a significant change.

5.11 National Interlocking Directorates by Industrial Group: Chi-Squared Results 1986 and 1992.

To accomplish this four categories of countries were established, the UK, France, Germany and the "Rest of EU". The interlocking directorates within and between seven industrial groups were established. After performing the chi-squared test it was found that

the UK exhibited the least amount of change between 1986 and 1992. Only eleven out of a possible twenty-eight categories exhibited a significant change. The "Rest of EU" and the German groups exhibited thirteen and fifteen significant changes respectively. In contrast, twenty-two of twenty-eight industrial groups in France exhibited significant change. Clearly, interlocking directorates in France have seen the greatest change within and between industrial groups in the EU between 1986 and 1992.

The largest significant change within an industrial group occurred in Germany in the manufacturing group. The largest significant change that occurred between groups was exhibited between the manufacturing and communication group, and between the retail and communication group. Both occurrences were exhibited in France.

Carrol and Lewis(1991) have indicated that change in the structure of boards of directors is often insignificant due to executive positions often being long term in nature. This fact could be used as a possible explanation for the lack of change in the natural resource group. The results however for all categories, in the context of Carrol and Lewis's (1991) work, would appear to more outstanding. The significant change in the number of interlocking directorates within and between industrial groups inside of national boundaries of member countries of the EU may reflect the strategies of the corporations dealing with the opportunities and threats occurring from the 1992 programme, as previously suggested by Franko (1992).

5.12 National Interlocking Directorate by Number of Employees: Chi-Squared Results: 1986 and 1992.

Sections 5.6 to 5.8 indicated that the number and degree of occurrence of interlocking directorates is in part related to corporate size. This section will discuss the chi-squared results for interlocking directorates by number of employees, while the following section will address chi-squared results for interlocking directorates by annual sales.

The UK and the "Rest of EU" category exhibit the least amount of change between 1986 and 1992. However, in the UK significant change has occurred primarily in those corporations with employees in excess of 70,001 and their linkages with corporations with smaller numbers of employees. While France and Germany exhibit a significant change in over half of all categories, the majority of significant change occurred in all corporations with over 50,001 employees and their connection to corporations with different numbers of employees.

Thus, it may be argued that large corporations have increased their connections with the suppliers of inputs and receivers of outputs. The large increase in the number of strategic alliances and joint ventures in the EU (Buiges and Jacquemin, 1989) may have contributed to the increase in interlocking directorates between large and small corporations. However, authors such as Fennema (1982), would suggest that from a Marxist perspective, large corporations are controlling the production process, thus accruing greater amounts of capital and suppressing choice for the consumer. Intriguingly, the increase in interlocking directorates parallels increases in other forms of corporate collaboration, such as mergers and acquisitions, as documented in figure 3.1, strategic alliances and joint ventures, as documented by Buiges and Jacquemin (1989).

National interlocking directorates for the EU as a whole indicate significant change in 73% of the categories. Again, the majority of significant change can be observed in those corporations with employees in excess of 50,001

5.13 National Interlocking Directorate by Annual Sales: Chi-Squared Results: 1986 and 1992.

Another measure of corporate size is annual sales. Individual countries as a whole between 1986 and 1992 do not exhibit as much significant change as the EU as a whole. The majority of significant change for individual groups is in the category of corporations with greater than 8 billion pounds in annual sales and their interlocking directorates with

corporations with smaller annual sales figures. When determining the significant change in interlocking directorates for the EU as a whole, nineteen of twenty-one categories exhibit a significant change.

The largest significant change within a country occurred in Germany within those corporations with annual sales between 1.00-1.99 billion pounds and their connections to corporations with annual sales between 6.00-7.99 billion pounds. Other significant changes of note include the interlocking directorates between French corporations when both have annual sales between 2.00-3.99 billion pounds and in the "Rest of EU" category when the corporations that are interlocked have annual sales of 4.00-5.99 billion pounds and less than 1.00 billion pounds. One reason for those corporations with lower annual sales indicating a larger significant change is corporate collaboration. That is, smaller corporations are collaborating in order to compete against larger corporations. Another possible explanation is that the significant change has occurred between corporations that are operating in niche markets. All in all, no discernible pattern emerges in any country when observed separately. However, when all national interlocking directorates are examined for the EU the largest significant changes occur within and between those corporations with higher annual sales.

5.14 The International Dimension: Interlocking Directorates Between Countries, 1986 and 1992.

Another of the underlying assumptions of this research is that interlocking directorates between countries in the EU have increased between 1986 and 1992. Previous research by Fennema and Schijf (1985) indicated that interlocking directorates between member countries of the EU did not occur to any great degree. One reason for interlocking directorates not to occur across national boundaries is the language difficulty (Blackwell, 1992, Buxton, 1989). However, due to the large number of mergers and

acquisitions and increasing corporate collaborations in the last decade in the EU, it would be expected that cross-border interlocking directorates would have increased.

International interlocking directorates of the EU member countries for 1986 and 1992 can be seen in table 5.3a and table 5.3b. The most numerous international interlocking directorates occur in France and the UK and their connections with other member countries of the EU. However, this can partly be attributed to the number of corporations from those countries in the samples for 1986 and 1992. Table 5.4 indicated the average number of international interlocking directorates per corporation for each member country of the EU.

International interlocking directorates are more frequent in Belgium and The Netherlands in 1986 and again in 1992. As previously cited by Fennema (1982) and Fennema and Schijf (1985), international interlocking directorates may be a representation of the mercantilist era where countries enlarged their industrial and resource base through international expansion. In addition, the often saturated home markets of the Benelux countries has forced corporations that wished to expand move outside their own home borders (Fennema and Schijf, 1985). Having a small national market does not necessarily increase the frequency of international interlocking directorates, as can be seen in some of the smaller EU countries. In addition, the size of a country, as exhibited by Italy in 1986, shows that a large economy does not increase the number of international interlocking directorates. Italy does however show a substantial increase in 1992 over 1986. The 1986 finding may reflect the views of Christopherson and Redfield (1992) that Italian corporations are generally family owned and operated. The increase in 1992 may reflect an opening up of the Italian economy. The increasing privatization of Italian industry may have contributed to this change (Fedor, 1995).

As a percentage of all interlocking directorates in the EU the international dimension has seen very little increase as can be seen in table 5.12

Table 5.12, International Interlocking Directorates as a Percentage Of All Interlocking Directorates, 1986 and 1992.

| | Number of Interlocking Directorates | International Interlocking Directorates | International Percent of Total |
|------|---|---|--------------------------------------|
| 1986 | 920 | 134 | 14.56 |
| 1992 | 1524 | 234 | 15.39 |

Source, Calculated by the Author

Therefore, while interlocking directorates have increased as a whole in the EU, it would appear that the majority of this increase has occurred inside of national boundaries. Corporations however, do have more international connections.

5.15 The International Dimension: Interlocking Directorates by Industrial Group: 1986 and 1992.

It has been ascertained that cross-border interlocking directorates have increased in number between 1986 and 1992. By analyzing the international interlocking directorates it is possible to determine which industrial groups are more frequently involved in cross-border interlocking directorates. International interlocking directorates within and between industrial groups for corporations in the EU can be seen in table 5.13a and b.

Table 5.13a, International Interlocking Directorates by Industrial Group, 1986.

| Industrial Group | NR | T | M | R | C | F | HC | Average Per Firm |
|-----------------------|----|---|----|----|---|---|----|---------------------|
| Natural Resources(NR) | 13 | 2 | 10 | 8 | 2 | 4 | 8 | 0.45 |
| Transportation(T) | | 4 | 5 | 5 | 1 | 2 | 6 | 0.45 |
| Manufacturing(M) | | | 4 | 11 | 2 | 2 | 8 | 0.32 |
| Retail(R) | | | | 20 | 2 | 5 | 5 | 0.45 |
| Communications(C) | | | | | 2 | 0 | 1 | 0.31 |
| Financial(F) | | | | | | 0 | 2 | 0.44 |
| Holding Companies(HC) | | | | | | | 0 | 0.58 |

Source, Calculated by the Author

Table 5.13b, International Interlocking Directorates by Industrial Group, 1992

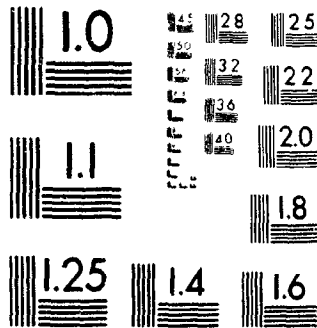
| <u>Industrial Group</u> | <u>NR</u> | <u>T</u> | <u>M</u> | <u>R</u> | <u>C</u> | <u>F</u> | <u>HC</u> | <u>Average Per Firm</u> |
|-------------------------|-----------|----------|----------|----------|----------|----------|-----------|-----------------------------|
| Natural Resources(NR) | 6 | 11 | 22 | 11 | 1 | 5 | 0 | 0.72 |
| Transportation(T) | | 14 | 23 | 13 | 10 | 6 | 0 | 1.22 |
| Manufacturing(M) | | | 34 | 29 | 8 | 10 | 0 | 0.73 |
| Retail(R) | | | | 8 | 4 | 9 | 0 | 0.55 |
| Communications(C) | | | | | 2 | 3 | 0 | 0.55 |
| Financial(F) | | | | | | 5 | 0 | 1.12 |
| Holding Companies(HC) | | | | | | | 0 | 0 |

Source, Calculated by the Author

As a whole the average number of international interlocking directorates held by EU corporations rose from 0.25 to 0.44 per corporation between 1986 and 1992. In the six years between 1986 and 1992 the number of international interlocking directorates has increased by approximately 75%. Every industrial group except for retail services and holding companies have almost doubled their average number of cross-border interlocking directorates per corporation. This may suggest differing consumer preferences in the member countries of the EU. In addition, it may also suggest that manufacturing products are more easily transferred across borders. Possibly, manufacturing corporations have been more diligent in complying with new policy initiatives of the SEA, particularly item 6, outlined by Purvis, (1990) the increased standardization of products. The increase in the number of interlocking directorates held by financial institutions in foreign corporations would suggest that some corporations are using foreign financial institutions as a source to finance international expansion. Dicken (1986) suggests that when corporations expand abroad, capital is usually borrowed from a host country financial institution. Five direct interlocking directorates did occur between financial institutions in 1992, which may suggest that some financial institutions through mergers and acquisitions have acquired board seats in these corporations and thus can, to some degree, influence decision making.

2 of/de 2

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NBS 1010a ANSI/ISO #2 EQUIVALENT



Dicken and Thrift (1992) have argued that despite the wave of mergers in the European banking industry due to market deregulation, no dominant banks have occurred

The manufacturing group experienced a large gain in the number of interlocking directorates held within the group, this can be partially accounted for in the large number of mergers and acquisitions that occurred within this category in the years preceding 1992 (Thomsen and Woolcock, 1992). The largest increase within and between an industrial group, in terms of average number of international interlocking directorates per corporation, occurred in the transportation sector. One partial reason for this increase may be opportunities arising from a barrier free EU in 1992. Another partial explanation may be the massive restructuring that occurred in the transportation sector in the late 1980's due to the threats incurred from Japanese and other non-EU competitors. Cross-ownership and increasing collaboration amongst automobile makers in the EU (Clarkson, 1994) may have also contributed to this increase.

5.16 The International Dimension, Interlocking Directorates by Sales: 1986 and 1992.

As previously mentioned, one of the underlying assumptions of this research is that interlocking directorates have increased between corporations in member countries of the EU. As previously seen in table 5.3a and b this did occur. However, the question is raised as to "are international interlocking directorates more prevalent between corporations of different financial size?"

Table 5.14 indicates how the number of international interlocking directorates are distributed between corporations with different annual sales

Table 5.14, Average Number of International Interlocking Directorates by Sales Per Corporation, EU, 1986 and 1992

| Annual Sales in UK Pounds | 1986 Number of International Interlocking Directorates Per Firm | 1992 Number of International Interlocking Directorates Per Firm |
|---------------------------|--|--|
| >8 00 | 1.62 | 2.23 |
| 6 00-7 99 | 1.2 | 1.61 |
| 4 00-5.99 | 0.32 | 0.85 |
| 2 00-3 99 | 0.38 | 1.1 |
| 1 00-1.99 | 0.31 | 0.48 |
| <0.99 | 0.31 | 0.38 |

Sales in Billions

Source; Calculated by the Author

Each sales group has witnessed an increase in the average number of international interlocking directorates per corporation. Those corporations with annual sales under 2 billion pounds annually were the recipients of very small increases in their international linkages while other categories showed more prominent increases. However, these averages assume that each corporation needs information on international markets or that they have the suppliers of inputs or the receivers of outputs in a different country.

Measuring the interlocking directorates of the corporations in this study could be enhanced with a study, as described by Franko (1992) regarding the approaches to the new 1992 market that could be undertaken by the corporation. Smaller corporations may have decided to concentrate on the national market instead of the EU market. Conversely, larger corporations may be more likely to be multinational in nature and therefore have a greater need for information from all market sectors to aid in their business decisions.

5.17 The International Dimension: Interlocking Directorates by Number of Employees, 1986 and 1992.

Chi-squared results for individual countries indicated that categories with a different number of employees did not exhibit similar results in each country. However, the average number of interlocking directorates by number of employees, indicated that larger corporations tended to have more interlocking directorates. Table 5.15 indicates the average number of international interlocking directorates by number of employees.

Table 5.15, Average Number of International Interlocking Directorates Per Corporation, by Number of Employees, EU, 1986 and 1992.

| <u>Number of Employees</u> | <u>1986</u> | <u>1992</u> |
|----------------------------|-------------|-------------|
| >70,001 | 0.87 | 1.55 |
| >50,001-<70,000 | 0.5 | 1.3 |
| >30,001-<50,000 | 0.35 | 0.93 |
| >10,001-<30,000 | 0.41 | 0.68 |
| <10,000 | 0.29 | 0.38 |

Source; Calculated by the Author

International interlocking directorates by number of employees also appear to be more frequent in those corporations with more employees. This is surprising when it is considered that many of those corporations with employees in excess of 70,001 are crown corporations. It would be expected that their international interests are minimal. In the years that this research was conducted an increasing number of publicly owned corporations were privatized by national governments. Attempts to gain more information from the market may have increased their number of interlocking directorates. However other large corporations are often multinational in nature. In order to gain information on numerous markets interlocking directorates are created. Those corporations with employees in excess of 70,001 most frequently interlock with those corporations with employees numbering in the 10,001-30,000 category. This category is more frequently, in terms of numbers, interlocked than other categories. This may indicate that the category is

interlocked through subcontracting mechanism's or as a result of the EU's corporate collaboration wave of the late 1980's and early 1990's.

5.18 The International Dimension, Interlocking Directorates by Industrial Group: Chi-Squared Results, 1986 and 1992.

Again to test for significant change two sample chi-squared tests were performed on the international interlocking directorates by industrial groups, annual sales, and by the number of employees. The matrices of these results can be found in Appendix D. As previously mentioned the largest significant increase occurred within the manufacturing group. The retail services group exhibited change, that was not significant. While this industrial group has also experienced much merger and acquisition activity, the lack of significant change in the number of cross-border interlocking directorates may reflect a consumer preference for national brands, and different cultural tastes within the EU member countries. The global product may not be as prominent as Drohan (1992) suggests. Corporations may indeed be wary of expanding into foreign markets due to taste differences. An example of this would be Nestle, although an internationally recognizable corporation, they produce different brands of coffee for consumers in different European markets.

The transportation sector saw significant change within its own industrial group, in terms of cross-border interlocking directorates. As previously mentioned, partial explanations may involve a consolidation of the transportation group due to opportunities and threats arising from the 1992 programme. Other explanations involve the centralization of facilities (The Economist, 1995). More corporations are operating with a regional headquarters and a spatially diverse production system. An example of a corporation operating in such an environment is Nissan. European headquarters are in The Netherlands, automobiles are produced in the UK and the truck division is located in Spain (The Economist, 1993). If corporate divisions wish to interlock, then national

borders would have to be crossed. The transportation group has also encountered significant change in its interlocking directorate linkages with the natural resources group, the manufacturing group and the communications group. These interlocking directorates can be explained by the need for the transportation of finished goods and raw materials throughout the EU. The linkage created between the transportation group and the communications group can also be explained with the help of Marshall's work (1994) regarding corporate restructuring and resulting subcontracting of producer services. If corporate directors have been moved in the subcontracting process, interlocking directorates may also show increased spatial variation.

Natural resources and the manufacturing group also show a small significant change. These linkages, together with the linkages in the transportation system can be explained in that they connect the corporation with the producer of inputs and the receivers of outputs.

The manufacturing group, in addition to a significant change within the industrial group, also exhibits significant change with retail services, communication services and financial institutions. The significant change in the number of international interlocking directorates can, again, be partially explained due to the number of corporate collaborations that have occurred in the last decade in the EU. In addition, the change may be attributed to increased transferability of manufacturing products due to policies implemented by the SEA

5.19 The International Dimension: Interlocking Directorates by Annual Sales, Chi-Squared Tests 1986 and 1992

Categorizing corporations by their annual sales enables us to determine if interlocking directorates are more prominent within or between corporations with different annual turnovers. Using the chi-square test allows us to determine if the change

within and between interlocking directorates across borders in sales categories has been significant.

The largest significant change occurred within the >8.00->8.00 billion pound group. This would suggest that large corporations are to some degree controlling the production process by sharing information amongst themselves. As many of these corporations operate in an oligopoly they become very susceptible to the actions of their competitors. In order to respond effectively to market changes and the actions of their competitors the interlocking directorate may be created. This also would contradict the impression that small corporations have a greater need for information. However, nearly all of the interlocking directorates between corporations with sales in excess of >8.00 billion pounds and other categories have significantly changed. Smaller corporations, in terms of annual sales, on the other hand do have linkages with larger corporations. Are they then controlled, to some degree by the larger corporation? One possible explanation for this connection may be attributed to the increase in the number of corporate collaborations in the EU (Jacquemin and Wright, 1993). At times, expansion into foreign markets can be expensive. Cooperation with home-based corporations enables the expanding corporation to have a recognizable name and gain knowledge from the host market. In addition, access to capital from host-market financial institutions may be increased with a recognizable partner.

With the exception of the significant change between >8.00-1-1.99 billion pound group and 2-3.99-1-1.99 billion pound group, each categories connection with sales categories of 1-1.99 billion pounds and >0.99 billion pounds do not exhibit any significant change. A possible explanation could be the corporate strategy of the corporation toward the 1992 programme as outlined by Franko (1992). If the corporation has undertaken either a national offensive or defensive strategy, then the need for international interlocking directorates would be minimal.

5.20 The International Dimension: Chi-Square Results, Interlocking Directorates by Number of Employees, 1986 and 1992.

The other measure of corporate size used in this study is the number of employees. Table 5.15 established that international interlocking directorates were more prominent amongst those corporations with more employees. Chi-squared tests for cross-border interlocking directorates by number of employees per corporation indicate that few categories experienced a significant change between 1986 and 1992. Those corporations categorized in the 10,001 -30,000 range experience significant change in the number of interlocking directorates held with corporations in categories that had more employees (30,001-50,000, 50,001-70,000, and >70,001). The largest significant change occurred between the categories of corporations with employees in excess of 70,001 and 10,001-30,000. Possible explanations for this occurrence is the subcontracting of business activities that has occurred due to corporate restructuring. In order to influence or control the subcontracting corporation the interlocking directorate is created. The previously cited examples of corporate collaboration and merger and acquisition activity can also be used as explanations.

5.21 Interlocking Directorates in the EU, 1986 and 1992: Summary.

Interlocking directorates in the EU for 1986 and 1992 show a number of similarities with previous research. Overall, the majority of interlocking directorates can be found in the UK, France and Germany. This can be partly attributed to the number of corporations from those countries. The number of interlocking directorates have shown a dramatic 65.65% increase between 1986 and 1992. In addition, cross-border interlocking directorates increased by 74.63% in the same time period. Corporations headquartered in Belgium and The Netherlands have more international interlocking directorates, on average, than their counterparts in other EU countries. However, when measured against the total number of interlocking directorates the increase in cross-border interlocking

directorates is minimal. Therefore, it can be suggested that interlocking directorates are increasingly being used as part of a national offensive or defensive strategy.

Green (1981) indicated that corporations in the American North-East interlocked more frequently with other corporations headquartered in the North-East. Fennema and Schijf (1985), also indicated that cross-border interlocking directorates occurred more frequently with those countries that are in close proximity. The data for this study also indicates that those countries in geographic proximity have more interlocking directorates. Wood (1969) has also suggested that strong linkages between corporations only operate over a limited distance. This assumption would also prove to be correct with the data presented.

Interlocking directorates within national boundaries are more frequent in those corporations with higher annual sales. This attribute also occurs in cross-border interlocking directorates. However, the other indicator of corporate size, number of employees, does not exhibit the same occurrences. Cross-border interlocking directorates are more frequent in those corporations with more employees, however, national interlocking directorates are not as frequent in the larger corporations. A possible reason for this occurrence is the presence of crown corporations in the sample.

Analyzing interlocking directorates by industrial group indicates the prominence of financial institutions in the interlocking directorates process. Between 1986 and 1992, the average number of interlocking directorates held by financial institutions increased from 4.12 to 8.18. Transportation corporations also experienced a similar rate of expansion in the same time period. These two industrial groups were also the most prominent in terms of cross-border interlocking directorates. Fennema (1982) also indicated the increasing influence of financial institutions in the interlocking directorate process.

It is also interesting that the increase in interlocking directorates parallels increases in other forms of corporate collaboration over the same time period. The increase in

previously undocumented interlocking directorates may indicate an increasing integration of the corporate community.

6.0 Major European Union Urbanized Areas and their Interlocking Directorates

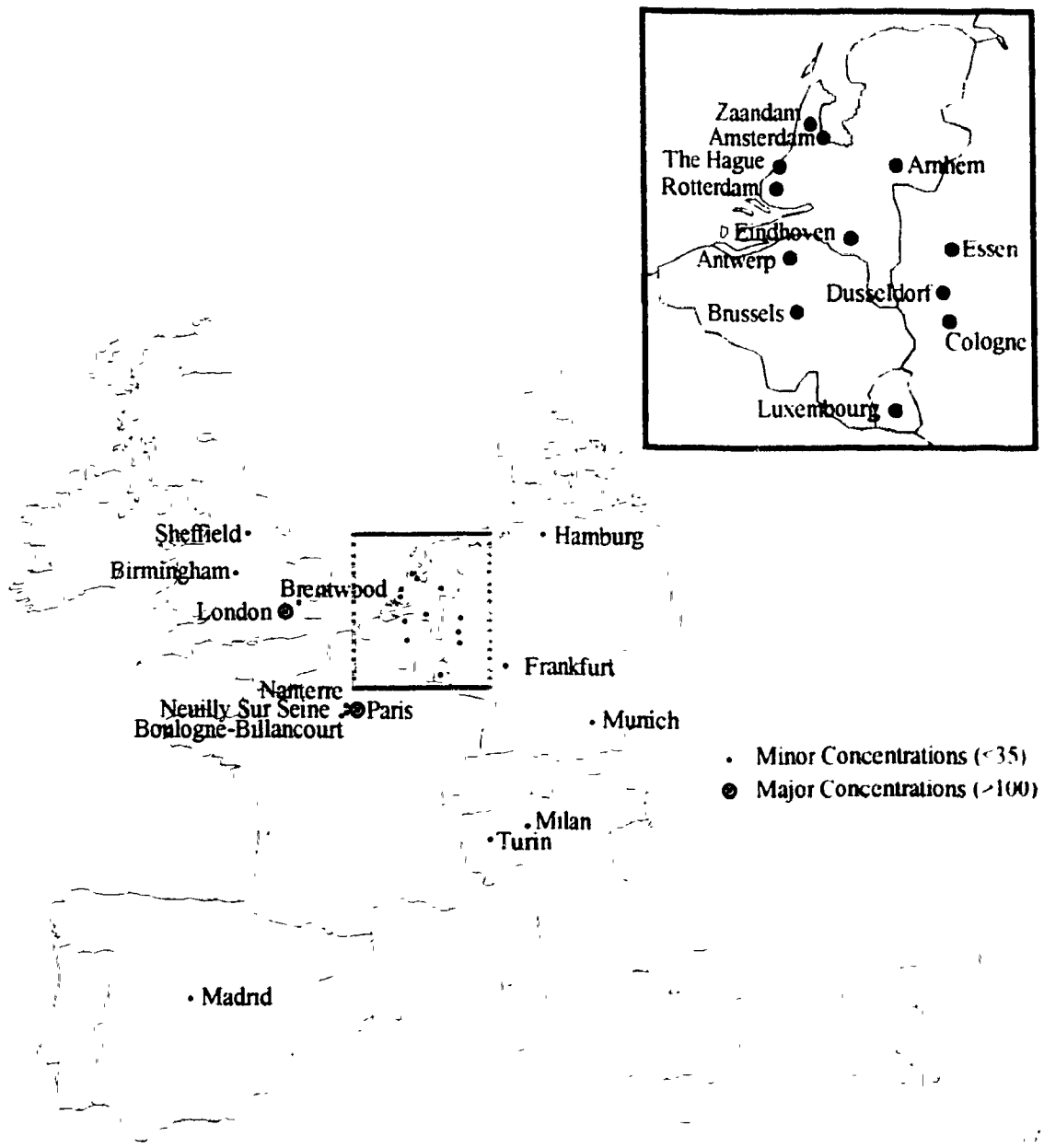
6.1 Introduction.

Through the reorganization of business activity in the late 1980's by methods such as subcontracting, merger and acquisitions and strategic alliance it is possible that the location of interlocking directorates has changed within EU boundaries. Not only do interlocking directorates have a national identity, as previously outlined, but they can be associated with cities. The city of each corporations headquarter was attributed to each director. Consequently, interlocking directorates create linkages between cities. The next section will examine the interlocking directorates between cities on a national scale for 1986 and 1992. Section 6.3 will examine the industrial groups that are interlocked within and between the most prominent cities, also on a national scale. Section 6.4 will examine the cross-border city interlocking directorates for 1986 and 1992. All cities discussed in this chapter can be seen in figure 6.1. It must be recognized that these cities account for the most prominent occurrences of interlocking directorates and do not reflect the complete sample

6.2 Interlocking Directorates by City.

In many cases, analyzing the linkages created between cities by interlocking directorates indicates the presence of a core or hub city. This scenario is exemplified by London in the UK. In 1986, 51.34% of all national interlocking directorates occurred between corporations in London. In fact, the hub or core scenario is further substantiated by the fact that in 1986, 299 of 337 interlocking directorates had at least one corporation headquartered in the city of London, or 88.72%. This clearly indicates the prominent role played by London in the UK economy. London's most prominent interlocking directorate connection with another city in the UK for

Figure 6.1, Interlocking Directorates by City. Most Frequent Occurrences (1986 and 1992)



1986 is created with Birmingham. However, this connection only accounts for 4.75% of all interlocking directorates occurring within the UK.

By 1992, interlocks within London as a percentage of all interlocking directorates in the UK had slightly decreased to 48.28%. This decline suggests that corporations in London had a head start in the interlocking directorate creation process or it may support the work of Marshall (1994) who indicated the job loss of corporations in London in the late 1980's. Much of this job loss was a result of corporate restructuring. Therefore, if corporate headquarters have declined in London, there would be less corporations to interlock with. In addition, of all interlocking directorates created 87.01% had at least one connection with London, a decrease of 1.71% since 1986, again supporting the work of Marshall (1994).

France exhibits a similar pattern to the UK with the existence of a core city. All interlocking directorates between two corporations headquartered in Paris in 1986 accounted for 50.94% of all interlocking directorates in France. As with London, Paris also exhibited a minimal decline to 50.00% of all interlocking directorates in 1992. However, between 1986 and 1992 Paris differs from London in that the percentage of all interlocking directorates in France with at least one corporation headquartered in Paris rose from 84.28% to 92.31%. Explanations for this increase may involve a corporate desire to acquire knowledge on the external market by interlocking with corporations headquartered in Paris, or vice versa. Other explanations involve corporate collaborations. That is, small regional corporations collaborating with national corporations in order for either offensive and defensive strategies. In 1986, the second most frequent connection of cities occurred between Paris and Nanterre, accounting for 6.29% of all interlocking directorates. After the Paris-Paris interlocks in 1992 the most frequent linkages are made between Paris and Boulogne-Billancourt and Paris and Neuilly Sur Seine, these interlocking directorates each account for 9.21% of the total network. Incidentally, all of these cities are suburbs of Paris.

In contrast, Germany does not exhibit a core city to the same extent. The most prominent interlocking directorate linkage is created between Frankfurt and Dusseldorf, accounting for only 5.47% of the total German interlocking directorate network. This linkage is still the most prominent in 1992, however it declines in importance to 4.61% of all interlocking directorates. Nevertheless, Frankfurt is the most popular city in which an interlocking directorate has at least one corporation headquartered in it. Frankfurt however experiences a big loss as a percentage of all interlocking directorates between 1986 and 1992, declining from 39.30% to 29% in which at least one corporation was headquartered in Frankfurt. Considering that Frankfurt is traditionally regarded as Germany's financial centre the decline is surprising. However given that only four financial institutions from Germany are present in 1986 and only two in 1992, and in each year only one financial institutional was headquartered in Frankfurt the data does indicate the prominence of the Deutsche Bank in the German economy. Germany's second largest city in terms of having at least one corporation headquarters in that city is Dusseldorf. The percentage of interlocking directorates occurring in this city increases between 1986 and 1992, from 16.92% to 24.39%. This increase can be partially explained by Dusseldorf's geographic location in Germany's industrial heartland of the Ruhr. The city is in close proximity to many major industrial areas.

Due to the fact that this study focused on the largest 500 corporations and the largest 34 financial corporations in the EU it is not surprising that approximately 80% of all corporations are also found in the three largest countries of the EU, the UK, France and Germany. However even with limited data from other countries it is possible to observe the existence of core cities as centres for interlocking directorate activity. In Spain, for example, in 1986, 83.33% of all interlocking directorates occurred when both corporations were headquartered in Madrid. However by 1992, only 58.33% exhibited this same trait, although in 91.66% of the cases at least one corporation was

headquartered in Madrid. No corporations had headquarters in Spain's second largest city, Barcelona in the sample

For Belgium, Brussels and Antwerp demonstrate themselves to be the most prominent headquarters for corporations with interlocking directorates. The interlocking directorates between the two cities accounted for 53.33% of all occurrences in 1986, however this had decreased to 37.50% in 1992. In 1986, 86.67% of all interlocking directorates were between corporations where at least one was headquartered in Brussels. At least one corporation was headquartered in Antwerp in 56.78% of all cases. The most frequent linkage for 1992 occurred when both corporations were headquartered in Brussels. In contrast to 1986, 93.75% of interlocking directorates in 1992, in Belgium had at least one corporation headquartered in Brussels. However, by 1992 only 43.75% of interlocks occurred when at least one corporation was headquartered in Antwerp. The data for 1992 over 1986 would suggest that Brussels is becoming of increasing importance to the Belgian business community.

Although Italy does not exhibit a high degree of intra-city interlocking directorates, Milan emerges as the city most connected through interlocking directorates. Milan accounts for 84.21% of all interlocking directorates that had at least one corporation headquartered there in 1986. This declined to 80.77% in 1992. When both corporations were headquartered in Milan 21.05% of Italy's interlocking directorates were accounted for. This declined in 1992 to 19.23%. Milan's position as the prominent industrial centre of Italy's north is exhibited. This is in contrast to Rome's historical, tourist and political prominence.

The Netherlands appears to display a pattern that is similar to that of Germany. Amsterdam however does emerge as The Netherlands prominent centre. In 1986, 55.17% of all interlocking directorates had at least one corporation located in Amsterdam, this declines to 49.00% in 1992. However, 1992 also shows the emergence of interlocking

directorates when both corporations are located in Amsterdam, accounting for 14.00% of the total.

In conclusion, some countries have one city that emerges as a prominent centre for interlocking directorate activity. In other countries this role is shared between several cities. The data also reflects a decentralizing of interlocking directorates from core cities to suburbs. However, if these suburbs were incorporated into the greater metropolitan core, the data may reflect increasing concentration instead of dispersal.

6.3 Interlocking Directorates Within and Between Prominent Cities by Industrial Group, 1986 and 1992.

Cities have reputations, for being either financial or industrial centres, other cities are seen as being an all encompassing centre for national business activity. This section examines the interlocking directorates within and between cities and the types of industrial activity that they connect together within national boundaries. This was done to determine if some cities act as hubs for particular types of industrial activity. Only the prominent interlocking directorate linkages are discussed. Again, in some cases the interlocking directorates within and between industrial groups are infrequent. Therefore, it is difficult to make conclusive statements. The previous section showed the interlocking directorates between and within cities as a percentage of all linkages. The industries that are connected by interlocking directorates will be represented as a percentage of the country whole for that connection.

In London, for 1986, the most popular within city interlocking directorate connection occurred between corporations in the retail services and the communication group. They accounted for 19 of 173 interlocking directorates within London. Other prominent interlocking directorates occurred between the manufacturing group and the retail services group (16 of 173) in addition to, the natural resources and manufacturing group (18 of 173).

Of all the interlocking directorates occurring within London 30 of 173 were established by corporations interlocking with financial corporations. Table 6.1a and b indicate the percentage of all industrial group interlocking directorates occurring within London for 1986 and 1992.

By 1992, the largest number of interlocking directorates occurs between the manufacturing and retail services groups (21 of 197), followed by the connection between the manufacturing group and financial institutions (19 of 197) and retail services and communications group (18 of 197). These linkages can be partially explained with the usefulness of interlocking directorates in that they connect the suppliers of inputs and the receivers of outputs.

Table 6.1a, Percentage of all Industrial Group Interlocking Directorates Occurring within London, 1986.

| Industrial Group | NR | T | M | R | C | F | HC |
|-----------------------|----|----|-------|-------|-------|-------|----|
| Natural Resources(NR) | 40 | 75 | 56.35 | 46.66 | 100 | 100 | 0 |
| Transportation(T) | | 50 | 50 | 61.9 | 83.33 | 0 | 0 |
| Manufacturing(M) | | | 27.27 | 39.02 | 64.29 | 47.37 | 0 |
| Retail(R) | | | | 45.16 | 82.61 | 62.5 | 0 |
| Communication(C) | | | | | 100 | 33 | 0 |
| Financial(F) | | | | | | 0 | 0 |
| Holding Companies(HC) | | | | | | | 0 |

Source; Calculated by the Author

Table 6.1b, Percentage of all Industrial Group Interlocking Directorates Occurring Within London, 1992.

| Industrial Group | NR | T | M | R | C | F | HC |
|-----------------------|----|-------|-------|-------|-------|-------|----|
| Natural Resources(NR) | 0 | 22.22 | 60 | 100 | 66.66 | 85.71 | 0 |
| Transportation(T) | | 40 | 22.86 | 59.1 | 62.5 | 0 | 0 |
| Manufacturing(M) | | | 26.09 | 29.63 | 26.47 | 34.21 | 0 |
| Retail(R) | | | | 40 | 67.86 | 41.67 | 0 |
| Communication(C) | | | | | 50 | 11.11 | 0 |
| Financial(F) | | | | | | 0 | 0 |
| Holding Companies(HC) | | | | | | | 0 |

Source; Calculated by the Author

It could be suggested that those interlocking directorates that only occur within London act as a centre for that type of industrial activity. In 1986, London contained 100% of the interlocking directorates between the Natural Resources and Communications group, Natural Resources and Financial Institutions, and the Communications to Communications group. In 1992, the only industrial group to contained 100% of the UK's interlocking directorates was the natural resources-retail services sector. Of the other interlocking directorates within and between industrial groups, many account for over 50% of all interlocking directorates in the UK. However when analyzed in terms of change between 1986 and 1992, only two groups indicate an increase in the national percentage of interlocking directorates by corporations headquartered in London. These findings would again serve to substantiate Marshall's research (1994). Carrol and Lewis (1992) indicated the difficulties in replacing directors who pass away and consequently re-establishing all connections. This may have contributed to the change within and between industrial groups.

The second most frequent interlocking directorate linkage in the UK for 1986 occurs when the two corporations are headquartered in London and Birmingham respectively. Sixteen interlocking directorates connect the two cities. Birmingham is the UK's second most populous city and acts as a regional centre to much of the UK's manufacturing sector. This can be seen in the interlocking directorate linkages for Birmingham to London in table 6.2.

Table 6.2, Interlocking Directorates, By Industrial Group
Birmingham-London, 1986

| <u>Industrial Groups</u> | <u>Occurrences</u> |
|---------------------------------|--------------------|
| Natural Resources-Manufacturing | 3 |
| Manufacturing-Manufacturing | 6 |
| Manufacturing-Retail | 2 |
| Manufacturing-Communication | 1 |
| Manufacturing-Finance | 4 |

Source; Calculated by the Author

Every interlocking directorate contains a connection with a corporation in the manufacturing group. Interlocking directorates with financial institutions account for approximately 25% of all connections. While this is slightly before the large merger boom in the EU, it serves to show the role played by financial institutions in financing the production process.

By 1992, however, the most frequent interlocking directorate linkage, after London-London, was London-Brentwood and London-Sheffield. In each case the interlocking directorates of one corporation are represented with connections to corporations headquartered in London, except for one. It may be argued that Brentwood is simply a suburb of London. A distinction was made between these headquarter locations because of the different tax assessments that are often applied. Different tax rates can save the corporation millions of dollars when choosing a facility, while sacrificing very little in terms of location. One interlocking directorate between Brentwood and London occurs between the transportation and retail services group. Every other interlocking directorate between Brentwood and London involves Smithkline Beecham (manufacturing group) headquartered in Brentwood. Smithkline Beecham's most prominent linkages occur with financial institutions located in London. These interlocking directorates are possibly a result of the merger between Smithkline and Beecham that occurred in between the study years.

Interlocking directorates created between London and Sheffield occurred with Hepworth PLC (manufacturing group). Hepworth has individuals who also reside on the boards of directors of 10 corporations that are headquartered in London. Hepworth's most prominent linkages are with those corporations in retail services.

For the EU after London-London the most prominent city in terms of interlocking directorates is Paris. As previously seen in table 6.1a and b, it is possible to determine what percentage of interlocking directorates in industrial groups occur when both

corporations are headquartered in Paris. This can be seen for Paris in 1986 and 1992 in table 6.3a and b.

Table 6.3a. Percentage of all Industrial Group Interlocking Directorates Occurring within Paris 1986.

| Industrial Group | NR | T | M | R | C | F | HC |
|-----------------------|----|-----|-------|-------|-------|-----|-------|
| Natural Resources(NR) | 50 | 100 | 62.5 | 33.33 | 33.33 | 75 | 100 |
| Transportation(T) | | 20 | 0 | 25 | 0 | 50 | 63.64 |
| Manufacturing(M) | | | 14.29 | 61.54 | 100 | 100 | 33.33 |
| Retail(R) | | | | 42.86 | 0 | 100 | 42.42 |
| Communication(C) | | | | | 0 | 0 | 66.67 |
| Financial(F) | | | | | | 0 | 83.33 |
| Holding Companies(HC) | | | | | | | 40 |

Source; Calculated by the Author

Table 6.3b, Percentage of all Industrial Group Interlocking Directorates Occurring Within Paris, 1992.

| Industrial Group | NR | T | M | R | C | F | HC |
|-----------------------|----|-------|-------|-------|-------|-------|-----|
| Natural Resources(NR) | 25 | 80 | 37.5 | 38.46 | 25 | 81.82 | 0 |
| Transportation(T) | | 36.67 | 53.66 | 81.82 | 40 | 55.56 | 100 |
| Manufacturing(M) | | | 22.22 | 54.55 | 23.08 | 81.25 | 50 |
| Retail(R) | | | | 21.88 | 61.54 | 86.67 | 0 |
| Communication(C) | | | | | 63.64 | 38.89 | 100 |
| Financial(F) | | | | | | 100 | 100 |
| Holding Companies(HC) | | | | | | | 0 |

Source; Calculated by the Author

While the percentage of interlocking directorates between the majority of corporations headquartered in London declined as a percentage of all UK activity between 1986 and 1992, those headquartered in Paris, in contrast, increased as a percentage of all interlocking directorates in France. Largest gains between the two years were exhibited within the financial group (+100%). The transportation group demonstrated an increase with every category except the natural resource sector. In 1986, Paris's second most

frequent connection through interlocking directorates was with the city of Nanterre. Similar to the Brentwood-London connection, Nanterre is a suburb of Paris. Table 6.4 indicates the industrial group connection made by the three holding corporations headquartered in Nanterre.

Table 6.4, Interlocking Directorates By Industrial Group, Paris-Nanterre, 1986.

| <u>Industrial Group</u> | <u>Occurrences</u> |
|-------------------------------------|--------------------|
| Natural Resources-Holding Companies | 1 |
| Transportation-Holding Companies | 1 |
| Manufacturing-Holding Companies | 3 |
| Retail-Holding Companies | 3 |
| Holding Companies-Holding Companies | 2 |

Source; Calculated by the Author

The holding companies most frequently connect with corporations in the manufacturing and retail services group, however they have no connections with financial institutions. By 1992 however, Paris's dominant interlocking directorate linkages occurred with Boulogne-Billancourt and Neuilly Sur Seine, again both these cities are suburbs of Paris.

Approximately half of Boulogne-Billancourt's interlocking directorates with Paris are created due to French automobile manufacturer, Renault, headquartered in Boulogne-Billancourt Table 6.5 indicates all of the interlocking directorates that connect industrial groups in Boulogne-Billancourt and Paris.

Table 6.5 Interlocking Directorates by Industrial Group, Paris- Boulogne Billancourt, 1992.

| <u>Industrial Group</u> | <u>Occurrence</u> | <u>Industrial Group</u> | <u>Occurrence</u> |
|----------------------------------|-------------------|---------------------------------|-------------------|
| Natural Resources-Transportation | 2 | Transportation-Financial | 4 |
| Transportation-Transportation | 1 | Natural Resources-Manufacturing | 1 |
| Transportation-Manufacturing | 9 | Manufacturing-Manufacturing | 4 |
| Transportation-Retail | 2 | Manufacturing-Retail | 4 |
| Transportation-Communication | 5 | Manufacturing-Financial | 2 |

Source; Calculated by the Author

The transportation group is most frequently connected to the manufacturing group. The connections would suggest that interlocking directorates connect corporations with the suppliers of inputs and the receivers of outputs.

Neuilly Sur Seine also has a large number of interlocking directorate connections with Paris. This connection is dominated by two corporations in the communications group. They account for 26 of 34 interlocking directorates created between the two cities as can be seen in Table 6.6

Table 6.6 Interlocking Directorates, By Industrial Group Paris-Neuilly Sur Seine, 1992.

| <u>Industrial Group</u> | <u>Occurrence</u> | <u>Industrial Group</u> | <u>Occurrence</u> |
|--------------------------------|-------------------|-----------------------------|-------------------|
| Natural Resource-Retail | 3 | Retail-Communication | 6 |
| Natural Resource-Communication | 4 | Communication-Communication | 2 |
| Transportation-Communication | 2 | Communication-Financial | 11 |
| Manufacturing-Communication | 6 | | |

Source; Calculated by the Author

The two corporations in the communication services group have a total of 11 interlocking directorates with financial institutions. This would suggest that those corporations have been rapidly expanding, thus needing capital, or are in extreme financial difficulties, as experienced by Chrysler corporation in the 1970's (Fennema, 1982, pg137).

When observing interlocking directorates within and between cities in Germany it is apparent that the majority of interlocking directorates do not occur within a core city. However, Frankfurt does play a connecting role with other German cities. Four of the top five occurrences in 1986 involve Frankfurt this can be seen in table 6.7

Table 6.7, Interlocking Directorates Connecting German Cities:
The Most Frequent Occurrences, 1986.

| <u>Cities Connected</u> | <u>Occurrences</u> |
|-------------------------|--------------------|
| Frankfurt-Dusseldorf | 11 |
| Frankfurt-Munich | 11 |
| Frankfurt-Essen | 9 |
| Frankfurt-Hamburg | 8 |
| Cologne-Essen | 8 |

Source: Calculated by the Author

These 47 interlocking directorates only account for 23.38% of occurrences in Germany in 1986. When the Cologne-Essen connection is removed, of the remaining 39 connections 23 or 58.97% are with the financial institution based in Frankfurt, again showing the prominence of the Deutsche Bank in German business. Those corporations that most frequently interlocked with the financial institutions were based in the natural resource group, the manufacturing group and the retail services group, each with six connections.

In 1992, Frankfurt still had a prominent role connecting Germany's cities through interlocking directorates. The most frequent occurrences can be seen in table 6.8

Table 6.8, Interlocking Directorates Connecting German Cities:
The Most Frequent Occurrences, 1992.

| <u>Cities Connected</u> | <u>Occurrences</u> |
|-------------------------|--------------------|
| Frankfurt-Dusseldorf | 17 |
| Frankfurt-Hamburg | 15 |
| Frankfurt-Frankfurt | 13 |
| Frankfurt-Essen | 11 |
| Frankfurt-Munich | 11 |

Source: Calculated by the Author

Although interlocking directorates appear to have become more prominent, in terms of numbers, the top five only accounted for 15.45% of the German interlocking directorate network in 1992, opposed to 23.38% in 1986. In 1992, those corporations with interlocking directorates with financial institutions headquartered in Frankfurt declined to 33.33% of all interlocking directorates occurring with a financial institution in Germany.

Interlocking directorates between cities in other EU countries are often the result of one corporation having multiple interlocks with another city. Therefore, only the most prominent city linkages for 1986 are seen in table 6.9

Table 6.9, Prominent Interlocking Directorates Between Cities:
The "Rest of the EU", 1986

| <u>Cities and Countries</u> | <u>Occurrences</u> |
|---------------------------------------|--------------------|
| Milan-Milan (Italy) | 4 |
| Milan-Turin (Italy) | 3 |
| Madrid-Madrid (Spain) | 5 |
| Brussels-Antwerp (Belgium) | 16 |
| Brussels-Brussels (Belgium) | 6 |
| Amsterdam-Amsterdam (The Netherlands) | 5 |
| Amsterdam-The Hague (The Netherlands) | 4 |

Source; Calculated by the Author

Table 6.10 indicates the most prominent interlocking directorates between cities for the "Rest of the EU" for 1992.

Table 6.10, Prominent Interlocking Directorates between Cities:
The "Rest of the EU", 1992.

| <u>Country and Cities</u> | <u>Occurrences</u> |
|---------------------------------------|--------------------|
| Milan-Turin (Italy) | 8 |
| Milan-Milan (Italy) | 5 |
| Madrid-Madrid (Spain) | 2 |
| Brussels-Brussels (Belgium) | 7 |
| Brussels-Antwerp (Belgium) | 6 |
| Amsterdam-Amsterdam (The Netherlands) | 14 |
| Amsterdam-Zaandam (The Netherlands) | 9 |

Source; Calculated by the Author

Interlocking directorate linkages within and between cities in the "Rest of EU" category are significantly lower than those previously presented for other EU countries. However, they do serve to show prominent centres within countries.

6.4 Interlocking Directorate by City: the International Perspective, 1986 and 1992.

As already discussed in previous sections, cross-border interlocking directorates increased in the EU between 1986 and 1992, from 134 to 234. The purpose of this section is to examine the cross-border interlocking directorates to see if any cities are particularly dominant.

In many cases the cross-border interlocking directorates are held by one person or by one corporation with multiple linkages to another city. Therefore, it is difficult to make conclusive statements from this data. In 1986, London and Paris appear to be the cities that are most frequently interlocked with other EU cities. The previous section outlined that London and Paris were dominant national centres for interlocking directorates. Table 6.11 identifies the cities that are most frequently interlocked in across borders 1986.

Table 6.11, Cross-Border Interlocking Directorates by City, 1986

| Cities Connected | Occurrence | Percent |
|-------------------------|-------------------|----------------|
| London-Rotterdam | 18 | 13.43 |
| Paris-Brussels | 8 | 5.97 |
| London-Paris | 7 | 5.22 |
| London-Brussels | 5 | 3.73 |
| Birmingham-Paris | 5 | 3.73 |

Source: Calculated by the Author

The London-Rotterdam interlocking directorate linkage is highly exaggerated due to the directors of one corporation also sitting on the board of its subsidiary. This accounted for seventeen of the eighteen occurrences. The corporations involved are Unilever PLC (UK) and Unilever NV (Neth.). Brussels also emerges as a prominent centre. The linkage with Paris can partially be explained by the ease of communication. Another reason that would account for both London's and Paris's interlocking directorates with Brussels is that Brussels is the centre for EU political power. In order for corporations to have some

influence on, or gain information on EU policies, connections with Brussels may help develop successful strategies.

The most prominent cross-border interlocking directorates between cities for 1992 can be seen in table 6.12

Table 6.12, Cross-Border Interlocking Directorates by City, 1992

| <u>Cities Connected</u> | <u>Occurrence</u> | <u>Percent</u> |
|---------------------------|-------------------|----------------|
| Paris- Brussels | 23 | 9.83 |
| Paris- London | 16 | 6.84 |
| Paris- Turin | 11 | 4.7 |
| London- Eindhoven | 9 | 3.85 |
| Paris- Arnhem | 5 | 2.14 |
| Brentwood- Cologne | 5 | 2.14 |
| Brussels- Luxembourg City | 5 | 2.14 |
| Antwerp- Luxembourg City | 5 | 2.14 |

Source: Calculated by the Author

Again in 1992, Paris, London and Brussels appear to be the cities that are most frequently connected through interlocking directorates across national borders. The influence that a corporation and a subsidiary can have in exaggerating the network is exemplified by the Brentwood-Cologne link, which is established by Ford UK and Ford Motor Werke (Germany). The emergence of Luxembourg City in the network can be partially explained by Luxembourg's small economy. In order to increase sales and find new customers, foreign markets must be penetrated. Luxembourg's close relations with Belgium are shown with the interlocking directorates with Brussels and Antwerp. Luxembourg City's increased prominence may have also occurred because of the distinct tax advantages available in that country. For this reason Luxembourg has attracted a large proportion of Japanese foreign direct investment in financial institutions since the signing of the SEA (Nicholaides, 1991).

However, Paris becomes the prominent European city for international interlocking directorates. Table 6.12 alone indicates that Paris is connected fifty-five times

with cities outside of its national borders. The Paris-Brussels connection has already been partially explained. However, the Paris-Turin connection accounts for zero interlocking directorates in 1986, but eleven in 1992. The corporations of Fiat and BSN are partially responsible for these interlocking directorates. Fiat is surprisingly a very diversified corporation. In exchange for some of BSN's markets Fiat has helped BSN enter the diversified Italian food processing market. This cooperation is seen in the board structure of the two corporations. BSN now contains members of the Agnelli family that controls Fiat, and Fiat's board of directors now contains Alain Riboud, chairman of BSN (The Economist, February 29th, 1992).

The data suggests that Paris is a centre for those corporations with cross-border interlocking directorates. The data would also suggest that London and Brussels are also prominent centres. Brussels international perspective is confirmed by table 5.4 that indicates the number of cross-border interlocking directorates held per corporation. Belgian corporations are more highly interconnected with their EU counterparts than most other countries. However, this same data would not support the positions of London and Paris. It may be essential for those corporations with pan-European intentions to gain information from persons located in Brussels to evolve an effective corporate strategy.

6.5 A Comparison with Previous Interlocking Directorate Research in the EU.

It can be difficult to arrive at conclusive statements when data is only examined for two years. For this purpose an attempt has been made to incorporate the findings of Fennema and Schijf's study on interlocking directorates published in 1985 that used data from 1976. However, it must be noted that Fennema and Schijf's sample was significantly different than the one used in the present study. Their sample involved determining the forty most predominantly linked corporations within six EU countries and four other countries, and then determining the cross-border interlocking directorates held by those corporations. The cross-border interlocking directorates held by those corporations can be

seen in table 3.2. When the non-EU countries are removed the average number of interlocking directorates for the EU countries in Fennema and Schijf's study can be seen in table 6.13.

Table 6.13, Average Number of Interlocking Directorates Per Corporation In Fennema and Schijf's, 1976 Study.

| Country | Number of International Interlocking Directorates | Number of Firms | Average Per Firm |
|-----------------|---|-----------------|------------------|
| Belgium | 56 | 40 | 1.4 |
| Germany | 57 | 40 | 1.43 |
| France | 69 | 40 | 1.73 |
| UK | 26 | 40 | 0.65 |
| Italy | 10 | 40 | 0.25 |
| The Netherlands | 60 | 40 | 1.5 |

Source; Fennema and Schijf, 1985, pg 259.

These averages can then be compared to the data previously presented in table 5.4. Fennema and Schijf (1985) indicated that the most numerous cross-border interlocking directorates occurred when countries are in close geographic proximity, ie. The Netherlands-Germany, France-Belgium and France-UK. Surprisingly the Belgian and Dutch business communities are infrequently interlocked. This occurs in Fennema and Schijf's study (1985) table 3.2, and in this study, table 5.3a and 5.3b. Some reasons for this occurrence, as cited in Fennema and Schijf (1985), involve the historical background of the two countries. In the mercantilist era corporations from these two countries focused their international expansion on different parts of the globe, Africa for the Belgians, and South-East Asia for the Dutch. As these efforts focused on different parts of the world the need for cooperation was minimal. In addition, Belgium has two prominent languages and cultures. The business community has more in common with France than The Netherlands.

When compared to Fennema and Schijf's (1985) research the countries of Belgium, Italy and the Netherlands have experienced an increase in their percentage of international

interlocking directorates per corporation. However, the countries of France, Germany and the UK have experienced a decline. These figures may not be completely accurate. They use the forty most central, or highly interlocked, corporations from each country. In some cases, Belgium 1986, for example, the 40th ranked Belgian corporation may not have ranked in the first one thousand corporations in the present study. In addition, the previously cited research only uses the forty most central UK corporations in 1980, while the present study incorporates 199 and 205 corporations for 1986 and 1992 respectively. Similar circumstances occur within France and Germany. The average number of international interlocking directorates would probably increase if only the forty largest (in terms of sales) were used. This notion is partially supported by table 5.8 that indicated that corporations with higher annual sales, generally, have a greater average number of interlocking directorates per corporation.

Fennema and Schijfs (1985) method of using the forty most central corporations was used because in analyzing the cross-border interlocking directorates of the original 250 corporations per country because it was determined that it

"would have exceeded the capacity of the research team",
pg. 257, Stokman et al (1985).

If that study had carried on finding the cross-border interlocking directorates of the 250 corporations in each of the six EU countries (which was done at the national scale) and the findings had been similar to the findings previously mentioned in table 3.2, the infrequency of international interlocking directorates among the smaller corporations would have marginalized the results. Fennema and Schijf (1985) do not discuss the possible implications of the research if they had attempted to analyze all of the data

The higher frequency of cross-border interlocks of Belgian and Dutch corporations can again be partially explained with Brussels's role as the political centre of the EU and the internationalized nature of the Dutch economy.

6.6 Interlocking Directorates by City, 1986 and 1992: Summary.

Interlocking directorates in the EU by city for 1986 and 1992 show a number of similarities with previous interlocking directorate research. The analyzed data in this study has reflected some interesting observations.

Interlocking directorates exhibited a dramatic increase between 1986 and 1992. On a national scale, prominent cities appear as cores in almost every country. Nevertheless, interlocking directorates within prominent cities appear to have decreased between the two study years. Much of the dispersal of interlocking directorates has occurred to the suburbs of these major cities. If these suburbs were incorporated into the main core, the results may indicate increased concentration instead of dispersal. When cross-border interlocking directorates are examined the cities of Paris, Brussels and London emerge as being most frequently interlocked. Green (1983) suggested that large cities were more prominent in the interlocking directorate process. The data for this study appears to reinforce this characteristic.

The presence of some cities as centres for various industrial activities as discussed by Rice and Semple (1994) also occurs in the EU. Paris emerges as a significant centre for the transportation industry. In addition, Paris and London have seen a significant rise in the number of interlocking directorates created with financial institutions headquartered in those cities.

7.0 Conclusions.

This section attempts to answer questions associated with the literature and hypothesis. In addition, suggestions for future research that arose from this study will be discussed. The conclusions are broken down by the separate segments of the research, interlocking directorates within and between countries and within and between cities. In addition, variation in interlocking directorates are discussed by sales, number of employees, and industrial group.

7.1 Interlocking Directorates Within and Between Countries.

It was hypothesized that as countries in the EU progressed toward further integration after the signing of the SEA, that corporations would increasingly link their managerial structures. One example of increasing cooperation amongst corporations would be the establishment of an increasing number of interlocking directorates.

Interlocking directorates are most frequent in 1986 and 1992, in the larger countries of the UK, France, and Germany. However, these numbers are partly reflective of the number of corporations in the sample each year from these countries. The average number of interlocking directorates within each country also indicates that interlocking directorates are more frequent in the UK, France and Germany. However, the same scenario does not occur when determining the average number of cross-border interlocking directorates by country. Fennema and Schijf (1985) suggested that interlocking directorates across national borders were influenced by geographic proximity. This study appears to substantiate these claims. Again the UK, France and Germany have the most frequent number of linkages outside of their own country. When determining an average number of cross-border interlocking directorates per corporation, corporations from Belgium, The Netherlands and Luxembourg are most frequently interlocked with their EU counterparts. Fennema and Schijf (1985) suggested that was, in part, due to the

small economies in these countries. In order to expand, new markets have to be found. However, Belgium's prominence may be reflected in the EU's centre of political power being located within its borders.

7.2 Interlocking Directorates Within and Between Cities.

Previous interlocking directorate research has also suggested that higher order cities are more prominent as a focal point for interlocking directorate formation (Green, 1983). Although Green's research was set in North America, this investigation appears to have found similar results. That is, the existence of a dominant centre, or centres, for interlocking directorates in the majority of countries.

Within their respective countries, London and Paris, contain in excess of 80% of interlocking directorates where at least one corporation is headquartered in that city. Other dominant centres for EU countries include Amsterdam in The Netherlands, Milan in Italy, Madrid in Spain, and Brussels and Antwerp in Belgium. Germany however, does not follow the same pattern. Germany's most prominent city in terms of interlocking directorates is Frankfurt, but compared to other EU countries its percentage of interlocking directorates is significantly lower.

Corporate board meetings are assumed to occur at the location of the corporations headquarter. Therefore, changes in corporate headquarter location may have an impact on the geographic structure of interlocking directorates. While the work of Askoy and Marshall (1992) and Marshall (1994) recognize the changing location of corporate headquarters, the resulting impact on interlocking directorates is not discussed. A general finding of this research is that interlocking directorates within some of the core cities have decreased. However, the establishment of interlocking directorates between core cities and suburbs appears to have increased. This is particularly evident in the case of London and Paris, and may have occurred due to headquarter relocation. Yet, this dispersal has mainly occurred to the suburbs of these main cities. As the suburbs are normally considered to be

a functional part of the greater metropolitan area, the results probably indicate an increasing concentration of interlocking directorates.

International interlocking directorates increased between 1986 and 1992. This increase may represent an attempt by corporations to improve access to information in distant markets. Green (1981) suggested that the economic decline of the American North-East was, in part, attributable to the preference of corporations to establish interlocking directorates between corporations within that region. Those corporations with more external contacts to other regions may experience improved economic success. The cities that appear to be focal points, or centres for international interlocking directorates are Brussels, London and Paris.

7.3 Interlocking Directorates and Previous Research

A study of corporate variables by themselves variables is normally outside the realm of Geography. However, linking geographic data with corporate variables allows Geographers to determine if corporations in different regions follow the same patterns when establishing their interlocking directorates.

In each of the established four regions interlocking directorates approximately follow similar patterns, although the "Rest of EU" category has a markedly lower frequency than the UK, France and Germany. Green (1981) suggests that the degree of occurrence and use of interlocking directorates is, in part, determined by the size of the corporation. That is, large corporations generally have more interlocking directorates. This research also reveals similar results when analyzing corporations by size. Large corporations also experienced the most dramatic increase between 1986 and 1992, in many cases a doubling in the number of interlocking directorates held. Walker (1989) had found earlier that the differences between large and small corporations were not that great. However, in the case of interlocking directorates a difference between large and small corporations is clearly apparent in this study. The frequency of connections made by larger

corporations is definitely higher than for smaller corporations. In addition, the actions of large corporations directly or indirectly affect corporations outside of its own statutory boundaries. The increasing connections of large corporations to small corporations may be an example of this. While the case for a distinctive corporate geography has not been made, there are differences between large and small corporations that are worthy of examination.

Interlocking directorates within and between industrial groups provided some interesting results, supporting previous research. Fennema (1982) suggested that interlocking directorates between industry and financial institutions were increasing. This study witnessed a 98.57% increase in the number of interlocking directorates held by financial institutions between 1986 and 1992. It is possible that this increase is, in part, attributable to the increase in the number of mergers and acquisitions that occurred in the EU in the late 1980's. Large amounts of capital were required for many of these mergers and acquisitions. In order for the financial institution to keep an eye on loaned capital, the interlocking directorate is established. It is possible to speculate that every increase in connections with financial institutions occurred because of mergers and acquisitions. Although the signing of the SEA was hypothesized to have a positive effect on business, the opening up of new markets, has introduced new competition for many national corporations. In order to combat new competitors interlocking directorates may have been created to increase the corporations access to market information. Essentially, interlocking directorates should increase with market uncertainty, or the introduction of new competitors.

However, although corporations were classified according to predominant business activity, many operate in a diversified manner. Therefore, an argument can be made for almost any corporation to have an interlocking directorate with another corporation

Many forms of corporate collaboration have shown a dramatic increase in the late 1980's and early 1990's (Thomsen and Woolcock, 1992, and Buiges and Jacquemin,

1993). The rapid numerical and geographical expansion of interlocking directorates parallels growth in other areas of corporate collaboration. While other forms of corporate collaboration have been documented this research recognizes the previously undocumented growth in interlocking directorates during the same time period. These findings would lend more weight to the claim of business and industry becoming increasingly integrated.

7.4 Suggestions for Future Research.

The hypothesis in this research has been proved with a minimal amount of statistical evaluation. It is possible to debate whether advanced statistical methods would have been beneficial in arriving at the same results. However, the possibility does exist for considerable future research in this area, with the same data set, but using different research methods. For example, computer software such as STRUCTURE, a network analysis program. The program could reveal networks of directors, as well as determining the range of indirect interlocking directors. Therefore, it may be possible to determine a core of corporations, or corporate directors and determine how far removed other corporations and directors are from this core. Determining geographic cores of interlocking directorates, could possibly support the argument of Gentle and Marshall (1992) who suggested that the centralization of management structures would lead to uneven economic development.

Are interlocking directorates beneficial to the corporation? By interviewing interlocking directors and determining how they actually help each corporation would be an interesting approach. It would however be very time consuming and expensive to undertake this approach.

Another question raised by this study is 'does the strategy of the corporation affect the number of interlocking directorates it holds within or between countries?' Surveying corporations may reveal explanations into the degree and use of interlocking directorates.

Franko (1992) recognized that corporations could undertake one of five strategies in response to the 1992 programme. Determining the strategy of the corporation, may then be reflected in the interlocking directorates created with different geographic regions. Clark (1994) has also suggested that more studies should focus on the strategy of the corporation.

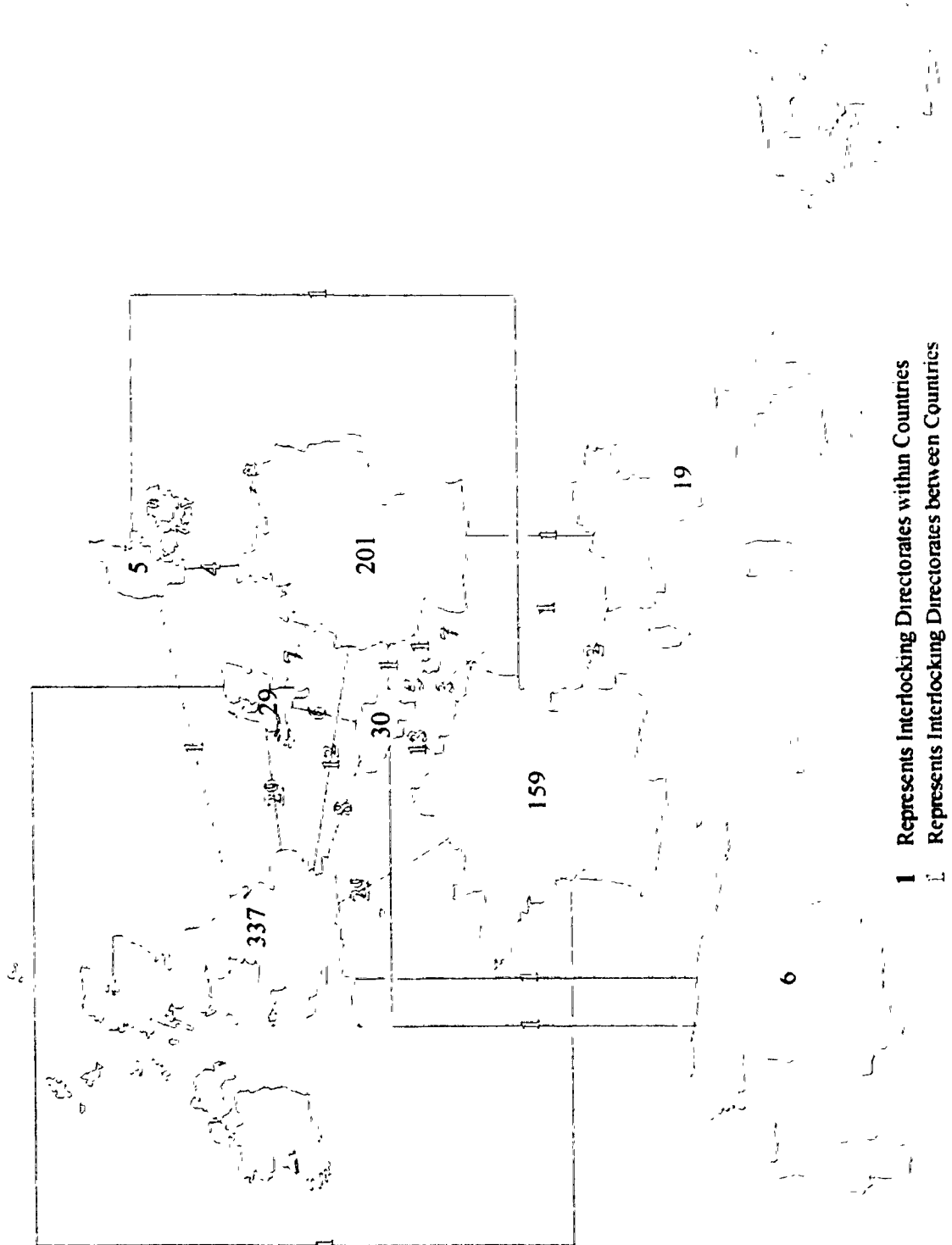
Longitudinal studies such as this have the potential to be conducted again. In addition, the study can be repeated for years prior to 1986 to determine if the 1986 sample represented an anomaly. Using the same sample size would lend more weight to these findings, and perhaps more weight to the assumption that the increase in interlocking directorates occurred because of the SEA. However, as the EU keeps expanding, more corporations from additional countries would have to be incorporated, compromising previous samples. Conversely, adding corporations from different countries could provide researchers with a measure of globalization. In order for corporations to have access to information from different parts of the world, interlocking directorates could be created.

7.3 Final Conclusions.

Using interlocking directorates as a measure of integration indicates that corporations have become more entwined between 1986 and 1992. The number of interlocking directorates dramatically increased. However, this increase shows significant spatial variation within and between the member countries of the European Union, as well as between the nature of the corporations themselves.

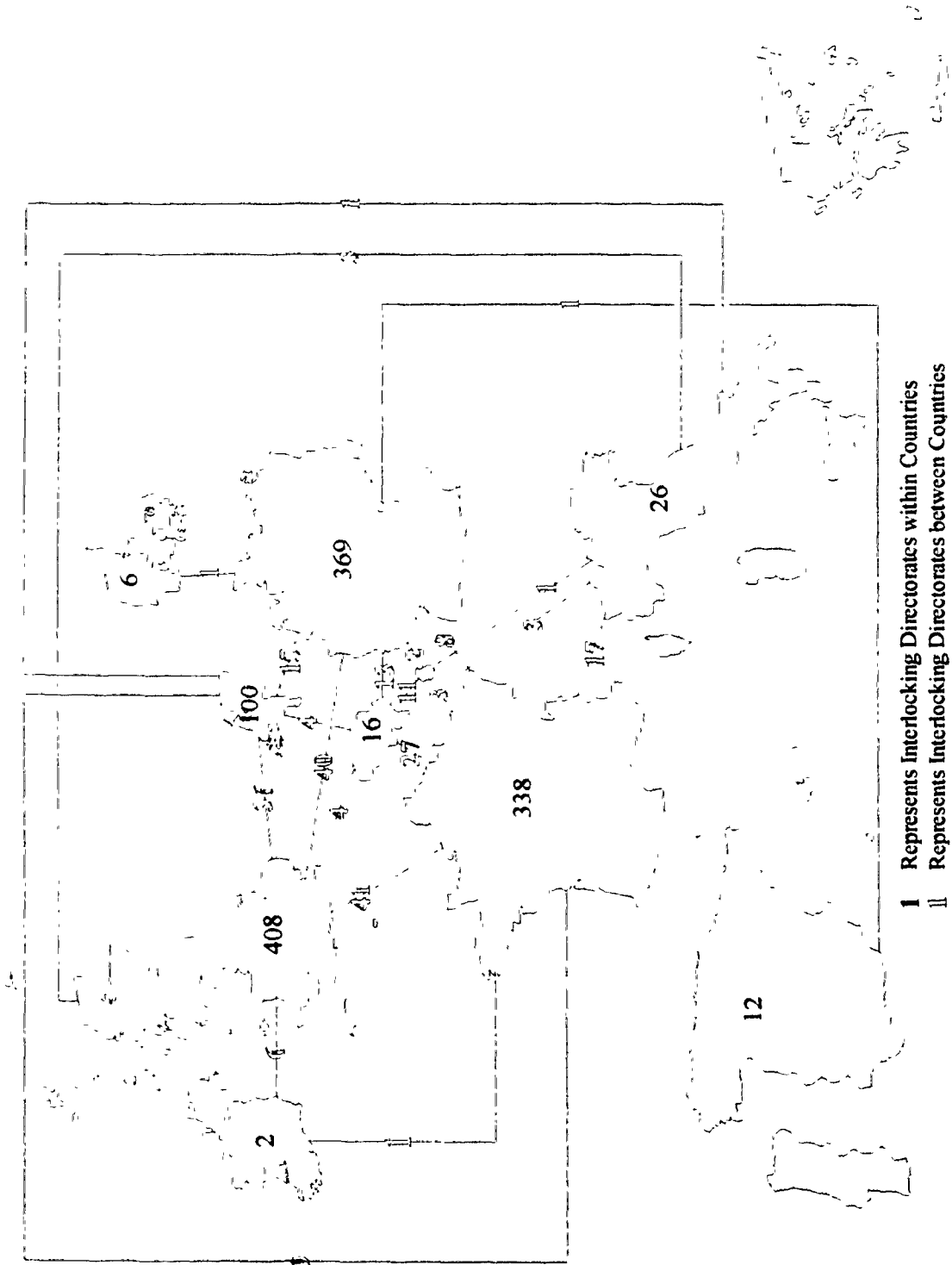
Appendixes

APPENDIX A, Interlocking Directorates by Country
in the European Union 1986



- 1 Represents Interlocking Directorates within Countries
- ┌ Represents Interlocking Directorates between Countries

APPENDIX A, Interlocking Directorates by Country in the European Union 1992



Appendix B. Interlocking Directorates by Industrial Group

Interlocking Directorates by Industrial Group, 1986.

| UK, 1986 | NR | T | M | R | C | F | HC |
|-----------------------|----|----|----|----|----|----|----|
| Natural Resources(NR) | 10 | 12 | 32 | 30 | 4 | 6 | 0 |
| Transportation(T) | | 4 | 16 | 21 | 6 | 1 | 0 |
| Manufacturing(M) | | | 44 | 41 | 14 | 19 | 0 |
| Retail(R) | | | | 31 | 23 | 16 | 0 |
| Communication(C) | | | | | 4 | 3 | 0 |
| Financial(F) | | | | | | 0 | 0 |
| Holding Companies(HC) | | | | | | | 0 |
| France, 1986 | NR | T | M | R | C | F | HC |
| Natural Resources(NR) | 4 | 1 | 8 | 3 | 3 | 4 | 5 |
| Transportation(T) | | 5 | 0 | 4 | 1 | 2 | 11 |
| Manufacturing(M) | | | 7 | 13 | 1 | 2 | 18 |
| Retail(R) | | | | 7 | 1 | 7 | 33 |
| Communication(C) | | | | | 0 | 0 | 3 |
| Financial(F) | | | | | | 0 | 6 |
| Holding Companies(HC) | | | | | | | 10 |
| Germany, 1986 | NR | T | M | R | C | F | HC |
| Natural Resources(NR) | 14 | 10 | 35 | 8 | 1 | 16 | 7 |
| Transportation(T) | | 2 | 19 | 2 | 1 | 13 | 6 |
| Manufacturing(M) | | | 11 | 10 | 3 | 13 | 7 |
| Retail(R) | | | | 2 | 0 | 8 | 2 |
| Communication(C) | | | | | 0 | 2 | 0 |
| Financial(F) | | | | | | 3 | 5 |
| Holding Companies(HC) | | | | | | | 1 |
| Rest of EU", 1986 | NR | T | M | R | C | F | HC |
| Natural Resources(NR) | 21 | 1 | 5 | 10 | 0 | 5 | 4 |
| Transportation(T) | | 0 | 4 | 0 | 0 | 2 | 4 |
| Manufacturing(M) | | | 4 | 4 | 1 | 2 | 4 |
| Retail(R) | | | | 0 | 2 | 2 | 7 |
| Communication(C) | | | | | 0 | 0 | 3 |
| Financial(F) | | | | | | 0 | 2 |
| Holding Companies(HC) | | | | | | | 2 |

| All EU, 1986 | NR | T | M | R | C | F | HC |
|-----------------------|----|----|----|----|----|----|----|
| Natural Resources(NR) | 49 | 24 | 80 | 51 | 8 | 31 | 16 |
| Transportation(T) | | 11 | 39 | 27 | 8 | 18 | 21 |
| Manufacturing(M) | | | 66 | 68 | 19 | 36 | 29 |
| Retail(R) | | | | 40 | 25 | 33 | 43 |
| Communication(C) | | | | | 4 | 6 | 5 |
| Financial(F) | | | | | | 3 | 13 |
| Holding Companies(HC) | | | | | | | 13 |

Interlocking Directorates by Industrial Group, 1992.

| UK, 1992 | NR | T | M | R | C | F | HC |
|-----------------------|----|---|----|----|----|----|----|
| Natural Resources(NR) | 0 | 9 | 20 | 10 | 6 | 7 | 0 |
| Transportation(T) | | 5 | 35 | 23 | 8 | 8 | 0 |
| Manufacturing(M) | | | 46 | 54 | 34 | 38 | 0 |
| Retail(R) | | | | 35 | 28 | 24 | 0 |
| Communication(C) | | | | | 8 | 9 | 0 |
| Financial(F) | | | | | | 1 | 0 |
| Holding Companies(HC) | | | | | | | 0 |

| France, 1992 | NR | T | M | R | C | F | HC |
|-----------------------|----|----|----|----|----|----|----|
| Natural Resources(NR) | 4 | 5 | 16 | 13 | 8 | 11 | 0 |
| Transportation(T) | | 13 | 41 | 11 | 10 | 9 | 2 |
| Manufacturing(M) | | | 36 | 33 | 13 | 16 | 2 |
| Retail(R) | | | | 32 | 13 | 15 | 0 |
| Communication(C) | | | | | 11 | 18 | 1 |
| Financial(F) | | | | | | 4 | 1 |
| Holding Companies(HC) | | | | | | | 0 |

| Germany, 1992 | NR | T | M | R | C | F | HC |
|-----------------------|----|----|----|----|---|----|----|
| Natural Resources(NR) | 8 | 23 | 51 | 11 | 3 | 7 | 0 |
| Transportation(T) | | 10 | 67 | 9 | 1 | 15 | 0 |
| Manufacturing(M) | | | 78 | 27 | 2 | 38 | 0 |
| Retail(R) | | | | 10 | 0 | 8 | 0 |
| Communication(C) | | | | | 0 | 1 | 0 |
| Financial(F) | | | | | | 0 | 0 |
| Holding Companies(HC) | | | | | | | 0 |

| | | | | | | | |
|-----------------------|----|----|-----|-----|----|-----|----|
| Rest of EU", 1992 | NR | T | M | R | C | F | HC |
| Natural Resources(NR) | 5 | 1 | 19 | 12 | 1 | 7 | 0 |
| Transportation(T) | | 2 | 8 | 10 | 2 | 7 | 0 |
| Manufacturing(M) | | | 12 | 17 | 7 | 15 | 5 |
| Retail(R) | | | | 5 | 7 | 11 | 0 |
| Communication(C) | | | | | 1 | 4 | 0 |
| Financial(F) | | | | | | 2 | 2 |
| Holding Companies(HC) | | | | | | | 0 |
| All EU, 1992 | NR | T | M | R | C | F | HC |
| Natural Resources(NR) | 17 | 38 | 106 | 46 | 18 | 32 | 0 |
| Transportation(T) | | 30 | 151 | 53 | 21 | 39 | 2 |
| Manufacturing(M) | | | 172 | 131 | 56 | 107 | 7 |
| Retail(R) | | | | 82 | 48 | 58 | 0 |
| Communication(C) | | | | | 20 | 32 | 1 |
| Financial(F) | | | | | | 7 | 3 |
| Holding Companies(HC) | | | | | | | 0 |

Appendix C

Chi Squared Results: 1986 and 1992.

Appendix C Chi Squared Results. Interlocking Directorates by Industrial Group

United Kingdom

| IG | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|-----------|-----------|----------|--------------|--------------|--------------|-----------|----------|
| 1 | 10 | 0.75 | 4.5 | 13.33 | 1 | 0.16 | n/a |
| 2 | | 0.25 | 22.56 | 0.19 | 0.66 | 49 | n/a |
| 3 | | | 0.09 | 4.12 | 28.57 | 19 | n/a |
| 4 | | | | 0.52 | 1.09 | 4 | n/a |
| 5 | | | | | 4 | 12 | n/a |
| 6 | | | | | | n/a | n/a |
| 7 | | | | | | | n/a |

France.

| IG | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|-----------|----------|-------------|---------------|--------------|-------------|-------------|--------------|
| 1 | 0 | 16 | 8 | 33.33 | 8.33 | 4.45 | 5 |
| 2 | | 12.8 | n/a | 12.25 | 81 | 24.5 | 7.36 |
| 3 | | | 120.14 | 30.77 | 144 | 98 | 14.22 |
| 4 | | | | 32 | 144 | 9.14 | 33 |
| 5 | | | | | n/a | n/a | 1.33 |
| 6 | | | | | | n/a | 4.17 |
| 7 | | | | | | | 10 |

Germany

| IG | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|-----------|----------|-------------|---------------|-------------|----------|--------------|----------|
| 1 | 2.57 | 16.9 | 5.02 | 1.13 | 4 | 5.06 | 7 |
| 2 | | 32 | 121.26 | 24.5 | 1 | 0.31 | 6 |
| 3 | | | 408.09 | 28.9 | 0.33 | 48.08 | 7 |
| 4 | | | | 32 | n/a | 0 | 2 |
| 5 | | | | | n/a | 0.5 | n/a |
| 6 | | | | | | 3 | 5 |
| 7 | | | | | | | 1 |

Rest of European Union

| IG | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|----|--------------|-----|-------------|--------------|-------------|-------------|----------|
| 1 | 12.19 | 1 | 39.2 | 0.4 | n/a | 0.8 | 4 |
| 2 | | n/a | 4 | n/a | n/a | 12.5 | 4 |
| 3 | | | 16 | 42.25 | 36 | 84.5 | 0.25 |
| 4 | | | | n/a | 12.5 | 40.5 | 7 |
| 5 | | | | | n/a | n/a | 3 |
| 6 | | | | | | n/a | 0 |
| 7 | | | | | | | 2 |

All of the European Union

| IG | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|----|-------------|--------------|---------------|--------------|--------------|---------------|--------------|
| 1 | 20.9 | 8.17 | 8.45 | 0.49 | 12.5 | 0.03 | 16 |
| 2 | | 32.82 | 321.64 | 25.04 | 21.13 | 24.5 | 17.19 |
| 3 | | | 170.24 | 58.37 | 72.05 | 140.03 | 16.69 |
| 4 | | | | 44.1 | 21.16 | 18.94 | 43 |
| 5 | | | | | 64 | 112.66 | 3.2 |
| 6 | | | | | | 5.33 | 7.69 |
| 7 | | | | | | | 13 |

Significant at the 0.05 level

Critical Value= 3.84

Significant changes are in bold.

IG = Industrial Group, 1=Natural Resources, 2=Transportation, 3=Manufacturing, 4=Retail Services, 5=Communications, 6=Financial Institutions, 7=Holding Companies.

Appendix C. Chi Squared Results. Interlocking Directorates by Number of Employees

United Kingdom.

| Employees | A | B | C | D | E |
|-----------|-----------|--------------|-------------|--------------|-------------|
| A | 63 | 23.27 | 3.86 | 10.62 | 9.14 |
| B | | 2 | 0.33 | 0.15 | 0.09 |
| C | | | 3.27 | 3.43 | 6.04 |
| D | | | | 2.81 | 3.5 |
| E | | | | | 0.25 |

France.

| Employees | A | B | C | D | E |
|-----------|--------------|------------|-----------|--------------|--------------|
| A | 42.25 | 9.8 | 50 | 627.2 | 56.33 |
| B | | 3 | 25 | 16 | 0.25 |
| C | | | 1.29 | 8.45 | 5.4 |
| D | | | | 98 | 0.09 |
| E | | | | | 5.26 |

Germany.

| Employees | A | B | C | D | E |
|-----------|---------------|------------|--------------|--------------|-------------|
| A | 208.33 | 169 | 18.29 | 60.84 | 2.4 |
| B | | 196 | 15.13 | 56 | 60.5 |
| C | | | 0.66 | 0.64 | 7 |
| D | | | | 1.56 | 2.79 |
| E | | | | | 5.26 |

Rest of European Union.

| Employees | A | B | C | D | E |
|-----------|-----------|-----|-----|-------------|-------------|
| A | 16 | 1 | n/a | 18 | 6.25 |
| B | | n/a | n/a | 0 | 8.33 |
| C | | | n/a | 45 | 5.33 |
| D | | | | 52.9 | 4.16 |
| E | | | | | 7 |

All of the European Union

| Employees | A | B | C | D | E |
|-----------|--------------|---------------|--------------|---------------|--------------|
| A | 264.6 | 152.65 | 62.88 | 221.83 | 35.31 |
| B | | 21.33 | 15.43 | 31.39 | 12.8 |
| C | | | 0.14 | 21.04 | 2.65 |
| D | | | | 75.41 | 0.8 |
| E | | | | | 9.01 |

Significant at the 0.05 level

Critical Value=3.84

Significant changes are in bold

Sales Groups, A=>70,001, B=50,001-70,000, C=30,001-50,000, D=10,001-30,000,

E=<10,000

Appendix C, Chi Squared Results, Interlocking Directorates by Annual Sales

United Kingdom.

| Sales | 1 | 2 | 3 | 4 | 5 | 6 |
|-------|-------------|------|-------------|--------------|------|--------------|
| 1 | 4.17 | 2.67 | 33.3 | 129.6 | 0.29 | 1.32 |
| 2 | | n/a | 25 | 5.14 | 0 | 0.36 |
| 3 | | | 4 | 96.33 | 3.57 | 32.66 |
| 4 | | | | 40.11 | 0.64 | 0.02 |
| 5 | | | | | 1.29 | 11.04 |
| 6 | | | | | | 16 |

France.

| Sales | 1 | 2 | 3 | 4 | 5 | 6 |
|-------|--------------|-----|-------------|---------------|--------------|--------------|
| 1 | 115.2 | n/a | 5.14 | 112.5 | 28.16 | 21.77 |
| 2 | | n/a | n/a | n/a | n/a | 32 |
| 3 | | | 1 | 48 | 0 | 4.5 |
| 4 | | | | 240.25 | 0.88 | 96 |
| 5 | | | | | 4.16 | 2.25 |
| 6 | | | | | | 14.08 |

Germany.

| Sales | 1 | 2 | 3 | 4 | 5 | 6 |
|-------|------------|------------|--------------|------|--------------|-------------|
| 1 | 135 | 169 | 37.78 | 0 | 25.47 | 15 |
| 2 | | n/a | 7.2 | 0.14 | 324 | 1.13 |
| 3 | | | n/a | 0.44 | 12.25 | 4 |
| 4 | | | | 2.29 | 0 | 0.08 |
| 5 | | | | | 0.25 | 0.08 |
| 6 | | | | | | 4.25 |

Rest of European Union

| Sales | 1 | 2 | 3 | 4 | 5 | 6 |
|-------|---|----------|-----|-------------|-------------|-------------|
| 1 | 1 | 4 | 0.5 | n/a | 1.13 | 5.14 |
| 2 | | 1 | n/a | 4 | 0.33 | 2.29 |
| 3 | | | n/a | 36 | 8.33 | 169 |
| 4 | | | | 12.5 | 20 | 3.13 |
| 5 | | | | | 0.2 | 3.38 |
| 6 | | | | | | 1 |

All of the European Union.

| Sales | 1 | 2 | 3 | 4 | 5 | 6 |
|-------|---------------|---------------|--------------|---------------|--------------|--------------|
| 1 | 208.33 | 265.09 | 55.53 | 148.41 | 34.04 | 18 |
| 2 | | 49 | 28.17 | 38.4 | 48.29 | 0.89 |
| 3 | | | 50 | 68.06 | 15.21 | 32 |
| 4 | | | | 118.23 | 4.51 | 12.55 |
| 5 | | | | | 3.21 | 14.66 |
| 6 | | | | | | 12.64 |

Significant at the 0.05 level

Critical Value= 3.84

Significant Changes are indicated in bold

Sales Groups, 1=>8 00, 2=6.00-7.99, 3=4.00-5.99, 4=2.00-3.99, 5=1.00-1 99, 6=<0.99

All sales in billions of pounds.

Appendix D

Chi-Squared Results: International Interlocking Directorates

Appendix D, International Interlocking Directorates by Industrial Group: Chi-Squared Results, 1986 and 1992

| IG | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|----|------|-------------|-------------|--------------|-----------|-----------|----------|
| 1 | 3.77 | 40.5 | 14.4 | 1.13 | 0.5 | 0.25 | 8 |
| 2 | | 25 | 64.8 | 12.8 | 81 | 8 | 6 |
| 3 | | | 225 | 29.45 | 18 | 32 | 8 |
| 4 | | | | 7.2 | 2 | 3.2 | 5 |
| 5 | | | | | 0 | n/a | 1 |
| 6 | | | | | | n/a | 2 |
| 7 | | | | | | | n/a |

Significant at the 0.05 level

Critical Value= 3.84

Significant changes are in bold.

IG= Industrial Group, 1=Natural Resources, 2=Transportation, 3=Manufacturing, 4=Retail Services, 5=Communications, 6=Financial Institutions, 7=Holding Companies

Appendix D, International Interlocking Directorates by Annual Sales: Chi-Squared Results, 1986 and 1992.

| Sales | A | B | C | D | E | F |
|-------|------------|------|-----------|--------------|-------------|-------------|
| A | 400 | 2.12 | 50 | 23.06 | 16.9 | 2.04 |
| B | | n/a | n/a | 81 | 4 | 0.8 |
| C | | | n/a | 169 | 0.25 | 0 |
| D | | | | 8.33 | 37.5 | 9.09 |
| E | | | | | 0.5 | 0.1 |
| F | | | | | | 8.91 |

Significant at the 0.05 level

Critical Value=3.84

Significant changes are in bold

Sales groups, A=>8.00, B=6.00-7.99, C=4.00-5.99, D=2.00-3.99, E=1.00-1.99, F=<0.99.

Appendix D, International Interlocking Directorates by Number of Employees: Chi-Squared Results, 1986 and 1992

| Employees | 1 | 2 | 3 | 4 | 5 |
|-----------|------|-------------|------------|---------------|-------------|
| 1 | 2.72 | 60.5 | n/a | 205.44 | 0.4 |
| 2 | | n/a | 64 | 24.2 | 2.67 |
| 3 | | | 4.5 | 17.82 | 3.57 |
| 4 | | | | 2.91 | 2.79 |
| 5 | | | | | 6.75 |

Significant at the 0.05 level

Critical Value= 3.84

Significant changes are in bold

Employee categories. 1=>70,001, 2=50,001-70,000, 3=30,001-50,000, 4=10,001-30,000, 5=<10,000.

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