National Networks of Corporate Power: An Irish perspective

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Abstract

This paper maps the network of interlocking directorships formed by the boards of the top 50 financial and 200 non-financial companies in Ireland. The Irish network is compared with those in ten countries, based on the same sample size and selection criteria as used in this paper, using the methods and theory of Social Network Analysis (SNA). Fundamental to the paper is the idea that the network of interlocking directorates is in some way structured, and not the result of random processes.

Irish boards were found to have a relatively loose connected network structure which is sparser and less dense than those of other countries. This is reflected in the relatively low percentage of multiple directors and the relatively fewer number of directorships per multiple director.

In general, indigenous Irish public companies tended to be central in the network, while a disproportionately large number of foreign and private companies were isolated on the periphery. However, a number of foreign-owned companies were central to the network - in particular, those which started as indigenous Irish companies which were subsequently taken over.

When account is taken of the nature of the Irish economy and business in comparison with that of the ten other countries, it is seen that the opportunities for company interlinking at board level in Ireland are relatively fewer. However, within these constraints, there is a thriving network of corporate power in Ireland.

Key words: Boards of directors, Interlocking directorates, Inter-country comparisons

INTRODUCTION

This paper recognises a convergence between two interesting areas: corporate governance and networks. It describes a study of the boards of the top 250 Irish companies and the network of interlocks created by individuals sitting on more than one board. SNA is used to map and examine this network structure using the methodology of Stokman, Ziegler and Scott (1985). Drawing on previous studies of other countries, international comparisons are made.

In recent years corporate governance has been receiving increasing attention. Tightened economic circumstances, legal changes and scandals such as the Maxwell affair in the UK, have resulted in company boards, functions and responsibilities coming under increasing scrutiny from shareholders, legislators and the public. The trend is world-wide, according to an *Economist* survey on corporate governance (Bishop, 1994). In the UK, shareholders have thrown their full weight behind a number of government-commissioned reports which offer recommendations for improved corporate governance practices (Cadbury Report, 1992; Greenbury Report, 1995; Hampel Report, 1998).

Parallel to this development has been increased interest in networking in all its forms (Miles, Snow and Coleman, 1992; Nohria and Eccles, 1992; Jarillo, 1993). Early networking studies attempted to prove conspiracy or class-hegemony theories, and worried about the concentration of power in too few hands (Mizruchi, 1996). More management-oriented research has followed. This interlock research has been greatly advanced by the addition of Social Network Analysis (SNA), borrowed from the field of sociology.

A number of explanations for interlocking directorates have been proposed (Mizruchi 1996). Within-industry interlocks may reduce competition. Interlocks may be associated with interfirm resource dependence (such as indebtedness to a bank). Interlocks may be instruments of corporate control or devices to monitor firms. Interlocking directorates may add to the reputation of a firm.

Empirical findings on the relationship between interlocks, firm performance and firm behaviour are mixed. There are numerous studies examining the relationship between corporate governance arrangements and performance (Dalton et al., 1998). Among these are a few specifically attempting to assess any interactions between interlocking directorates and performance outcomes. The conclusions of these studies are ambiguous. On the key issue as to whether interlocking directorates have a beneficial or harmful effect on corporate performance, there is no definitive evidence. Firms with lower profitability appear to have more interlocking directors, but there is little evidence that interlocks lead to improved profitability. In the handful of cases finding a positive relationship between interlocks and profitability, the dynamics of causality are unclear (Mizruchi, 1996) - do well-connected directors?

Hallock (1997) found that boards with CEO reciprocal interlocks influenced CEO pay. CEOs who lead interlocked firms earn significantly higher compensation. His view is borne out by research that suggests that non-executive directors (NEDs) who are themselves CEOs of companies are likely to be less strict in monitoring and control by executives of companies where they sit as NEDs. Thus, interlocking directorates involving CEOs create a cohesive inner circle of organisational elites (Westphal and Zajac, 1997).

BOARD FUNCTIONS AND COMPOSITION

The importance of the board of directors to companies is well documented. As its top decision making body, the board can have a profound effect on the fortunes of companies. Most of the literature agrees that the board's role is mainly a strategic, direction setting one (MacCormac, 1985; Kenny 1991; Cowen and Osborne, 1993). The UK Institute of Directors envisages an appointment, monitoring (of both the company and management) and reporting (to shareholders) role (Coulson-Thomas and Wakelam, 1991). MacCormac (1985), in a comprehensive Irish study, adds that boards have a decision making role (whether strategic or tactical) and a duty to '*participate in relationships with outside bodies*'.

Board structure reflects the many different sizes, ownership structures, and styles of companies (Kenny, 1991). It varies in both composition and function between family-owned, private, and public companies. Owner managed firms often have all executive boards of inside directors; here, boards exist in name only for statutory compliance. However, sometimes non-executive or outside directors are included to add expertise and to provide balance to boardroom deliberations (Clarke, 1993).

Much attention has been given to the qualities desirable in directors (Coulson-Thomas 1990). In an Irish study based on interviews with prominent board members, O'Higgins (1992) found that selection criteria such as '*business experience*' and '*having many contacts*' tend to work against outsiders entering the director pool, and make it more difficult for women and minorities to break into the directorship network.

Independent expert bodies/committees have made various recommendations regarding selection of NEDs (The Boardroom Centre, 1987; Cadbury, 1992). The calibre and number of NEDs on a board should be such that their views add significant weight to board decisions. It is imperative that NEDs should be independent of company executives and their remuneration should be such that this independence is maintained. NEDs should be consulted on all issues of audit and financial control. Their terms of office should not be open-ended. While the focus of the Cadbury Report (1992) is on public companies it also recommends increased use of NEDs in privately held companies.

Leighton and Thain (1993) take a more human resources management approach to director selection. They maintain that selection of the right board is a critical success factor for businesses and as such should be treated with great care. Their method involves profiling boards to expose deficiencies along multiple dimensions such as gender, international experience, languages, industry experience, technical expertise, financial expertise, contacts etc., and selecting directors to fill any gaps. This provides the variety and independence of thought which are noted as valuable characteristics of boards.

However, according to Paul Buchanan-Borrow (1993), who is involved in searches for NEDs, the world's favourite NED is a continental European female chief executive, with time available. He is rarely asked to find a person who can bring industry specific knowledge to a company.

The Old-boys' Network

Up to 90% of directors are appointed from inside companies (Buchanan-Barrow, 1993). Where outside NEDs are appointed, they are more likely to be found in larger established public companies. The main source of outside directors for companies is the personal networks of current board members (Coulson-Thomas, 1990; O'Higgins, 1992; Leighton and Thain, 1993). Davis (1993) has found that directors who are heavily interlocked are more likely to be chosen for new board positions. This has led to two common laments:

- An old-boys' network of top public company chairmen are sitting on each others boards and remuneration committees (Kennedy, 1993); and
- The *cookie-cutter* syndrome, whereby nearly all directors are male, white and come from similar backgrounds (Leighton and Thain, 1993).

These phenomena directly contradict the stated desire of most boards for balance and variety in their membership. In fact, these phenomena have proved especially disadvantageous to women.

Studies carried out in Ireland (O'Higgins, 1992; Brennan and McCafferty, 1997), the UK (Howe and McRae, 1991), the US (Clarke, 1993) and Canada (Burke, 1994) all found that women comprised less than 5% of all directors. Burke (1994) suggests that this low representation of woman on boards is due to the lack of women who mix in the same social circles as existing board members since personal contacts remain by far the most important recruitment source for NEDs. Another reason that Burke and others cite is the lack of women sufficiently experienced to fill board vacancies, creating a vicious cycle that militates against the appointment of women NEDs.

On the issue of women on boards, in an interesting social network study, Ibarra (1993) focuses on the effects of personal networks on the management opportunities

available to women and minorities in business organisations. Using social network analysis as its theoretical basis, she explains that the nature of the personal networks of women and minorities adversely affect their opportunities. However, women's networks are less dense (i.e. more dispersed) than those of men and thus can provide access to a wider range of resources. This property of dispersed networks is discussed further below.

Networks and Interlocking Directorates

The literature on networks can be viewed from three main perspectives. The *inter-organisational perspective* focuses on strategic alliances, where companies network in an attempt to enhance their fit in the environment (Lorange and Roos, 1993; Faulkner, 1995). Such companies seek out win-win situations where both parties benefit from the partnership, where companies share costs (particularly development costs) and risks, gain additional market penetration, and gain economies of scale and scope.

The *intra-organisational perspective* looks at networks within organisations. Perhaps the most prominent of these is Ghoshal and Bartlett's (1997) recent work on networked organisations, which they see as a radical step in the evolution of organisational structure. The organisation is a loose network of sub-organisations within the company, linked into a network by a cadre of differentiated business units and common interest. They propose that such a structure results in the company being optimised along the axes of innovative capability, local responsiveness (flexibility), and efficiency (through scale).

The intra-organisational perspective also includes work on informal networks within organisations. Everybody who works in large organisations will understand what the 'grapevine' means, and also that power does not necessarily flow as shown on the organisational chart. An appreciation of these informal, unofficial networks is becoming increasingly important as businesses rely more and more on teams and as companies abandon hierarchical structures (Krackhardt and Hanson, 1993; Wageman, 1997).

Finally, the *personal perspective* looks at the value of networks to individuals within organisations. It argues that success at work depends on building and maintaining a network of sources of information and advice (Burdett, 1991). It also suggests that women and minorities tend to be disadvantaged by these personal networks since they are usually excluded from them (Ibarra, 1993).

A number of models have guided studies of interlocking directorships (Scott and Griff, 1984, Scott, 1985, Caswell, 1984, Mizruchi, 1996). Scott and Griff (1984) and Scott (1985) describe five models. The first is the *finance capital model*, developed within Marxism. Hilferding (1910) argues that the concentration of banking and industry leads to their fusion and general cartelisation of the whole economy. Relatively organised groups of companies or *spheres of influence* centred round banks emerge. These clusters may be identified by the existence of multiple interlocks between the boards of these companies. Banks and insurance companies are expected to be the pivot of the network structure, with the network divided into distinct cliques around these companies. The overall network would be of moderate density due to the sparsity of interlocks between clusters or cliques. A strong relationship between interlocking and financial participation / indebtedness is assumed. Where a director retires or dies, it is predicted that the interlock will be re-instated by recruitment of another director.

The *co-ordination and control model* depicts the economy as being divided into competing groups of co-ordinated companies, with each group being subject to a specific locus of control. Two variants exist (which are not mutually exclusive): the bank-control model and the family-control model. It differs from the finance capital model in that the banks (or families) are seen as the true decision-makers in the group. The model predicts the centrality of banks (families) in individual clusters of companies, but the flow of control is directed from the banks to industrial companies. Multiple directors should be entrepreneurial capitalists and the set of multiple directors should be divisible into relatively distinct family groups.

The *resource dependence* model assumes that companies are dependent on each other for access to scarce resources and therefore seek links in order to regulate their environment. These resources are usually capital or trading advantages, but may also be knowledge resources. It predicts interlinking between companies but not into distinct interest groups like the previous two models. The network should exhibit low density, a low level of centralisation and a high degree of fragmentation. Examples of research based on this model include Allen (1974), Ornstein (1984) and Mizruchi and Stearns (1988).

The *managerial model* holds that boards have little power in companies relative to top executives: Board function is to provide environmental scan and to enhance the company prestige. This model predicts that the direction of most interlocks will be from large to small companies, and that the network structure will be the result of stochastic processes. Davis (1993) found modest support for the proposition that directors that serve managerial interests are more highly prized in the directors market.

The *class-cohesion model* holds that directors are recruited from the upper class and that the patterns of interlocks express and contribute to the cohesion of this class. It predicts an inner circle (or corporate elite) of multiple directors of similar social background.

Mintz and Schwartz (1981) tested three of these models. They find no support for the managerial model and the resource dependency model but support a modified finance capital model.

Irish institutional context

Ireland has an open economy and enjoys good trading relations with its main trading partners including EU member states and the US. Since the 1960s, Ireland has moved from being a predominantly agricultural economy to an internationally recognised developed industrial economy. Between 1965 and 1990 Ireland experienced annual growth rates of 3.3% in GNP in real terms. Industry accounts for much of this increase and has been the source of much of Ireland's growth over the last 20 years.

Irish governments have consistently encouraged foreign investment in Ireland. There has been a substantial growth in overseas firms since the 1960s which have been

attracted by generous incentive packages, together with a well-educated workforce. In 1990, exports accounted for 71% of GNP. The US is the leading overseas investor in Ireland, followed by Britain, Germany and Japan. Companies from the Middle East and Far East have also been attracted to Ireland as a manufacturing location. Overseas investment has mainly been in the growth areas such as electronics, chemicals, pharmaceuticals, healthcare, engineering, consumer products, agribusiness and international services. Electronics and information technology also provide a substantial production base.

The Irish economy is based on private ownership. Most business operates through private limited liability companies. There is a strong tradition of co-operatives in Ireland, particularly in the agricultural sector. This is particularly the case where the customers or suppliers to the business are members of the co-operative.

Ireland's stock exchange is small with only 88 quoted companies with a market capitalisation (at 30.9.1984) of IR£13,832 million (O'Neill, 1995).

The State also engages in activities to supplement and support private enterprise, providing a substantial amount of goods and services. About 80 'state sponsored bodies' carry out a wide range of tasks on behalf of the Government.

Table 1 provides some brief statistics to enable a comparison of Ireland with some of the other countries in this study. Ireland's Gross Domestic Product (GDP) is lowest, as is the number of business enterprises and the turnover from these enterprises. The proportion of total employment accounted for by Small and Medium Enterprises (SMEs – enterprises that employ between 1-249 people) is third highest – only lower than in Italy and Belgium.

An analysis of the top 200 companies in the world shows that 74 (37%) are located in Europe, 74 (37%) in the US and the balance are in Japan and other countries. Of the top 200 companies in Europe, most are in Germany, France and the UK. Ireland is the only European country in the study without any representation in the top 200 companies in Europe.

Table 1: Economic comparisons

	Austria	Belgium	Switzerland	Germany	France	Britain	Italy	Holland	Finland	USA	Ireland
GDP (million ECU) ¹	144	172	n/a	1,531	980	745	774	249	73	n/a	39
Number of enterprises $(000s)^2$	237	579	n/a	3,282	2,075	3,529	3,252	551	176	n/a	68
Turnover (Billion ECU) ²	402	426	n/a	3,844	2,146	4,493	1,586	657	950	n/a	192
Share of total employment in											
SMEs $(\%)^2$	65	73	n/a	57	66	60	80	61	57	n/a	69
200 largest companies in											
Europe by country ¹	2	4	n/a	38	45	54	12	9	2	n/a	0
Market capitalisation of the											
top 25 companies (million \$) ³	15,484	59,818	171,817	213,470	180,455	435,965	68,615	76,343	13,514	n/a	11,275
n/a: Not available											

Sources: ¹*Panorama of EU industry* 97, 1997, European Commission, Luxembourg ²*Eurostat yearbook* '97, 1997, Eurostat, Brussels ³*FT European Handbook*, 1994, Extel Financial, London

Ireland, Britain and the US operate a unitary board system, whereby all legal responsibility is vested in one board headed by a chairman. In Austria, Germany, the Netherlands, and Switzerland a form of two-board management exists, where there is an executive board and a supervisory board. The distinction between the two comes very close to the distinction between non-executive and executive directors in the Anglo-American model and therefore both have been included in the data for these countries. Belgium, Finland, France, and Italy each have two-board systems of a different type, where there is an auditing board and an administrative board. The auditing board has no responsibility for management of the company and is therefore not included in the data for these countries.

Thus, to summarise, Ireland differs from the countries studied in Stokman et al. (1985) as follows:

- There are few public companies in Ireland
- The State operates some large businesses through semi-state companies
- Multinational companies account for a large proportion of Irish economic activity
- Ireland has many family-owned businesses (some very large) in private limited companies.

Because of Ireland's small size, and the variety of organisational structure of Ireland's largest companies, the analysis of Ireland interlocking directorates is expected to yield some different results to that of the larger countries studied in Stokman et al. (1985). Given such a small economy, with a close knit business community, one might expect to find a strong, closely connected 'old boys' network. However, the composition of Ireland's top 250 companies is not as homogenous as in other countries. Larger country samples (such as the US, Germany, the UK, Italy) are likely to be dominated by large publicly quoted companies. Ireland's top 250 companies contains semi-state companies (with politically appointed boards), multinationals (with boards appointed by the parent company and mostly containing executives from within the parent group and the local subsidiary) and large private family-owned companies (with boards primarily composed of family members and few independent non-executive directors).

RESEARCH METHODOLOGY

Network analysis is based on the assumption that social systems incorporate various levels of structure – "*it offers a powerful brush for painting a systematic picture of global social structures and their components*" (Knoke and Kuklinski, 1982: p.10). Fundamental to this paper is the idea that the network of interlocking directorates is in some way structured, and not the result of random processes.

The network of interlocking directorates in Ireland is examined and analysed. It is compared with the data in Stokman and Wasseur (1985) which contains a collection of interlocking directorate studies in ten countries, based on the same sample size and selection criteria as used in this paper.

Sample

The sample consists of the top 200 non-financial, and the top 50 financial, companies in Ireland included in *Business & Finance*'s 1994 *Top 1,000* Companies (Business & Finance, 1994). *Business & Finance* is the leading weekly business magazine in Ireland. Using *Top 1,000 Companies* allowed private as well as public and state companies to be included. Sample details are summarised in Table 2. Due to lack of data, one company was dropped from the sample.

Table 2: Sample				
	Non-fin compa	ancial anies	Fina comp	ncial panies
	No.	%	No.	%
Public companies	28	14	7	14
State companies	11	5	6	12
Multinational companies	75	38	23	46
Private family-owned companies	85	43	<u>14</u>	28
	<u>199</u>	100	<u>50</u>	<u>100</u>
Source: The Top 1,000 (Business	& Finance	e, 1994)		

Similar to Scott (1985) non-financial companies are ranked by turnover, while financial companies are ranked by assets. Subsidiaries of parent companies were ignored and excluded from the sample. For example, *Dublin Bus* is not included as it is owned by *Coras Iompair Eireann*, Ireland's state transport company.

Data

The base year for this study is 1993. Wherever possible the list of directors as at the company's reporting date in 1993 is used. Where this was not available, the current or last available list of directors was used.

While the names of directors of a company are a matter of public record, in practice they can be very difficult to obtain for private and foreign companies. Some private companies are secretive about what is, after all, public information. The complex holding structure of many Irish companies, and the fact that directors are often only nominal, further complicates this. For this reason multiple sources of data were used. Wherever possible, a phone-call, another database, an annual report or some other method was used to confirm the data. However in about 10% of cases (mostly further down the ranking list), only one source of data was available. An estimate of the rate of errors in the director list, based on the reliability of the data sources, is around 1%. Among multiple directors this should be much lower.

Lists of senior management and directors of the top 250 companies were obtained from the *Dun and Bradstreet* database. However, there were many companies for which no information was available, and a number of the director lists were incomplete.

To ensure accuracy, a comparison was made of the data collected and that in *Dun and Bradstreet's Marketing Guide to Ireland* (1992). In addition, a comparison was made of the data on public companies with that available from *Extel Financial's* on-line service. This service was the most reliable of all data sources for public companies, and was used in all cases where there was a conflict. Companies for which there was incomplete or irreconcilable data were phoned individually.

A list of the directors of the top 50 financial and top 200 non-financial companies was prepared (Mac Canna, 1994). This is the first list of its kind to be produced in Ireland.

Because interlocks in the data drive the results of this type of research, individuals with more than one directorship were carefully re-checked to ensure accuracy. An authoritative body specialising in matters of boards and corporate governance, *The Boardroom Centre* helped validate the data.

Social Network Analysis (SNA)

SNA is a means of discovering and analysing social networks. It differs from standard statistical tools in that it concentrates on the strength and characteristics of the ties between the nodes (individuals or organisations) in a network (Wasserman and Faust, 1994). This allows influence, information and resource flows to be monitored, second order (friend of a friend) effects to be observed, cliques and other groupings to be found and measures of centrality to be compared. It also provides a number of numerical features of networks which can be used to describe and compare networks.

A network is defined as an object that contains points and lines, where each line is incident with two points. Two points connected directly by a line are said to be adjacent and are referred to as neighbours. They are also said to be at distance one from each other. If there is an intervening point between two points then the points are said to be at distance 2, i.e. two lines must be traversed to reach the point, and so on.

Four variables measure the characteristics or properties of a network - Multiplicity; Size; Density; Individual's centrality:

- *Multiplicity*: The term multiplicity is used for the number of parallel lines between two points. It is a measure of the strength of a link. In the context of interlocking directorates, multiple connections between companies imply a very strong link such as an ownership or long-standing institutional link.
- *Size*: Size is another important property of a network, and refers to the number of individuals within it. The size of an individual's network relates positively to the amount of information s/he can gather and the resources s/he can access.
- *Density*: Density is the proportion of the number of ties in a group divided by all possible ties (Knoke and Kuklinski, 1982). It can range between 0 (totally disconnected) and 1 (totally connected). It is an important parameter in that it measures the sparsity or connectedness of the network. Low-density networks contain 'weak ties', i.e. relationships with people not closely related in social or organisational space. These ties provide poor access to information and resources in contrast to the strong ties formed in 'cliques' where multiple paths closely link all members.
- *Centrality*: The degree of an individual is the number of individuals at distance 1 to it, i.e. the number of adjacent individuals in the network. This is not the whole story, however. How well connected the individuals that one is connected to are is also important. This is described by an individual's centrality. As discussed in Freeman (1979) and Bonacich (1987), measurement of centrality is more complex than just outlined. It is assumed that centrality is a measure of an individuals power or influence but in some cases this is not so.

The analyses was performed using GRADAP, a software package designed for SNA by the Inter-university Project Group of the Universities of Amsterdam, Groningen, Nijmegen, and Twente, and used by all participants in Stokman et al's (1985) work.

RESULTS

The results are compared with the data in Stokman and Wasseur (1985) which contains a collection of interlocking directorate studies in ten countries, based on the same sample size and selection criteria used in this paper.

The base year used in Stokman and Wasseur (1985) is 1976, while 1993 is the base year used in this research. While time will account for some of the differences between countries, a dynamic study (Scott and Griff, 1984) suggests that structural features of the network would not change so rapidly over 17 years as to make these comparisons meaningless.

Multiple Directors

Table 3 shows that the top 249 Irish boards contained a total of 1,935 director positions - the lowest of all the countries. This reflects the small size of the Irish economy and the high proportion of private and foreign companies among Ireland's top 250 companies.

Following on this, Ireland has the lowest number of individuals (1,751) represented in the sample. Ireland also has a strikingly low number of multiple directors compared with other countries. While the proportion in other countries ranges from 11% to 20%, only 8% of Irish directors sit on more than one board. The number of Irish directors is only 9% lower than French ones, while the number of positions is 26% lower. The number of Irish directors is 1% higher than in Italy, while the number of positions is 18% lower.

The *cumulation ratio* is lowest in Ireland, slightly lower than Britain's [already low] value. The cumulation ratio is defined as the mean number of positions per director, and is not solely dependent on the number of multiple directors in the sample. It is also sensitive to the number of directorships held by the multiple directors.

	Austria	Dalaium	Switzenland	Commony	France	Duitain	Italy	Hollond	Finland	TIC A	Incloud
Number of Directors	2/30	2 203	2 000		1 031	2 682	1 737	2 3 2 1	3 1 1 0	3 108	1 751
	2,450	2,205	2,999	5,945	1,951	2,002	1,757	2,321	5,110	5,100	1,751
Number of Positions	2,939	3,000	3,681	4,727	2,625	3,091	2,358	2,950	4,178	3,976	1,935
Number of Multiple Directors	271	373	405	420	378	282	322	357	564	564	138
Multiple Directors (%)	11%	17%	14%	11%	20%	11%	19%	15%	18%	18%	8%
Cumulation Ratio	1.21	1.36	1.23	1.20	1.36	1.15	1.36	1.27	1.34	1.28	1.11
Source of non-Irish data: Stokm	nan and '	Wasseur	(1985)								

Table 3: International comparison of the number of Irish multiple directors

A high cumulation ratio can be due to a high number of multiple directorships, or due to a high number of multiple directorships per director, as can be seen by comparing the results in tables 3 and 4.

Table 4 shows that Ireland is most similar to the US and Britain (which are almost identical) in terms of the distribution of positions among directors. It is notable that all three countries have a similar unitary board system.

Compared with other countries, Ireland has a disproportionately large proportion of directors who sit on two boards only, and none that sit on more than six. This has major consequences for the structure of the network, as the number of interlocks is a quadratic function of the number of directorships held by a director. Thus, as occurred in both Austria and Italy where a director has 16 positions, 120 interlocks are created, compared to the ten interlocks created by Ireland's biggest linkers with five positions.

A full list of Ireland's multiple directors can be found in Mac Canna (1994).

						11 or	
	2	3	4	5	6-10	more	Tota
	%	%	%	%	%	%	%
Austria *	65	17	9	4	4	2	100
Belgium *	57	19	9	6	6	2	100
Switzerland	67	19	6	2	5	1	100
Germany	60	20	9	5	5	1	100
France	60	19	9	6	6	0	100
Britain	69	21	6	3	1	0	100
Italy	63	17	7	5	7	1	100
Netherlands	64	17	8	6	5	0	100
Finland	61	20	6	6	7	0	100
USA	64	24	8	3	1	0	100
Ireland	76	18	5	1	0	0	100

Multiplicity

Another important consideration is the multiplicity of these interlocks which is shown in Table 5. Multiplicity is present and is calculated as one when there is one common director between two companies, two when there is two common directors, and so on. Multiple interlocks are important because they indicate the strength of links between companies, sometimes signifying ownership or a long-standing strong institutional link.

Britain scores lowest with a mean number of 1.09 interlocks per line. Ireland is next lowest with a mean number of 1.17 interlocks per line. By contrast, Belgium, Italy and Finland each have at least 1.5 interlocks per line, suggesting relatively stronger links among their top companies. A list of Irish companies with multiple links is provided in Mac Canna (1994).

Table 5:Multi	plicitie	es of]	line	es			
		Mult	tipl	icity (%	6)		
		•	•	4 or	T ()	Total	Mean no. of
	1	2	3	more	Total	Lines	interlocks per line
Austria	78	15	4	3	100	909	1.36
Belgium	67	18	7	8	100	1,219	1.68
Switzerland	81	12	5	2	100	1,002	1.31
Germany	81	14	4	2	100	1,278	1.27
France	85	10	3	2	100	1,065	1.25
Britain	94	5	2	0	100	542	1.09
Italy	70	17	7	7	100	891	1.55
Netherlands	87	11	2	1	100	980	1.20
Finland	75	15	5	5	100	1,498	1.50
USA	84	13	2	1	100	1,086	1.20
Ireland	91	6	2	1	100	207	1.17
Source of non-	Irish da	ata: S	tok	man an	d Wasse	ur (1985)	

Density

A major aspect of the structure of a communication network is its density - the fraction of pairs of points between which a line exists. Any two corporations at distance 1 are directly linked by one or more common directors. At distance 2, two companies are linked through a third company. Pairs at greater distance can hardly be assumed to communicate through these interlocks and are omitted here as in other studies.

Figure 1 shows that Ireland has the lowest percentage of pairs of corporations at distance one and two. Only 1.3% of pairs of the top 249 Irish companies are linked at board level either directly or through a third party company. This contrasts sharply with other countries where 15-40% of company pairs are linked.





Components of the network

Networks can be partitioned into components by analysing the concentration of relations around a small number of companies. Cliques of highly cohesive companies in the network can be identified.

Results in Table 6 show that, in general, each country has one large central group of connected companies in which the bulk of companies can be found, a number of smaller components and a number of isolated points. There are a large number of isolated companies in Ireland's top 250 companies (compared with other countries). This may be due to the relatively large number of multinationals and private companies in Ireland.

In general, the results in Table 6 show an inverse relation between the number of companies in the central component and density. For example, France, the USA and Finland, with over 200 companies in their large component, have a low density of 0.04. However, in Ireland this effect seems to be almost reversed. The number of companies in Ireland's largest component is smallest (compared with other countries), while Ireland's density is the lowest (shared with Britain). There is further discussion of this peculiar finding in the final section of the paper.

		No. C	ompanies:		Density in
			In small	In large	largest
	Selected	Isolated	components	components	Component
Austria	241	90	4	147	0.08
Belgium	270	80	8	182	0.07
Switzerland	250	44	0	206	0.05
Germany	259	62	2	195	0.07
France	250	30	0	220	0.04
Britain	250	61	4	185	0.03
Italy	247	53	14	180	0.06
Netherlands	250	56	4	190	0.05
Finland	237	27	0	210	0.07
USA	252	24	2	226	0.04
Ireland	249	111	32	106	0.03

Network Specialists

As mentioned earlier, a small number of 'network specialists' can carry a large proportion of the interlocks in their network. Like Stokman et al. (1985), 'big linkers' were defined as multiple directors with four or more directorships. These are very important in the formation of networks. Only Britain has a smaller number of these network specialists than Ireland, as can be seen from Table 7. All of Ireland's big linkers are male (Mac Canna, 1994).

	Interlocks	Network specialists
Austria	156	11
Belgium	270	28
Switzerland	514	31
Germany	378	32
France	378	42
Britain	37	4
Italy	272	16
Holland	380	34
Finland	423	41
USA	307	39
Ireland	66	9

Women

Though not a part of the social network analysis, the number of women on Irish boards was calculated. Women held only 4.4% of total directorships (i.e. 86 women) in Ireland in 1993 (not as low as the 2% found in O'Higgins, 1992 but similar to Brennan and McCafferty, 1997), and made up 4.3% of multiple directors.

DISCUSSION AND CONCLUSIONS

The structure of the network of interlocking directorates of Ireland's top 250 companies was mapped and analysed. Results were compared with those of ten other countries.

The composition of Ireland's sample of top 250 companies is different from those of the comparison countries and consequently the Irish network is expected to differ. A very large proportion (43%) of the sample comprises private family-owned companies. Such company boards would have few independent outside directors who would be part of the 'old-boys' network. Conversely, under the family-control model referred to earlier, a business family (such as the O'Reilly or Smurfit families in Ireland) may be central to a component or cluster of companies in the network. The next largest proportion (38%) of the sample is made up of multinational companies. These companies' boards will have predominantly executive and parent company directors who would be less integrated into Irish business and Irish society.

Similar to findings of other studies, the Irish network of interlocking directors was structured in nature and not a random phenomenon. In general, indigenous Irish public companies tended to be central in the network, while foreign and private companies were isolated on its periphery.

Inspection of the list of isolated companies (companies with degree zero) reveals a disproportionately large number of foreign and private companies. Some notable exceptions were found - a number of foreign-owned companies were central in the network. In particular, companies which started in Ireland and were subsequently taken over tend to maintain their links within the network, for example, *Guinness* and *Waterford Wedgwood*.

A striking feature of Ireland's network of interlocking directorates is its sparsity. Ireland has a loosely connected, relatively sparse and less dense, structure compared with other countries. This is reflected in the relatively low percentage of multiple directors and the relatively fewer number of directorships per multiple director.

Obviously, for interlinkages to occur to any significant degree, there must be a critical mass of outside directorships. This tends to happen only among larger, well-established domestic plcs. Ireland has disproportionately fewer such companies in its top 250 than any of the other countries. Ireland's economic infrastructure is more dependent on foreign multinationals than any of the other comparison countries. Hence, a disproportionate number of the top 250 companies in the country are Irish subsidiaries of foreign multinationals with no independent boards. Another sizeable tranche of the 250 companies consists of private and family companies which are unlikely to have many, if any, outsiders on their boards, and therefore less likely to have interlinkages with other companies at board level. This is due to the necessity for outsiders/NEDs to create the linkages among companies.

The average size of the largest 250 companies in Ireland is the smallest of all the countries within the sample. The data clearly reflects this whereby Ireland has the lowest number of director positions in its top 250 companies than any of the other comparison countries. It follows that there are fewer outside directorship, and fewer multiple directorship, openings. Hence, there are fewer directors altogether, and therefore a sparser network, given that the number of interlocks is a quadratic function of the number of directorships held by a director. However, when account is taken of the size and configuration of Ireland's economy, the mere presence of a 'natural' network structure suggests that the tendency to cohere into networks in Ireland is not so different to comparison countries.

Even when all peripheral (mainly Irish subsidiaries of foreign multinationals and private companies) companies are excluded, the central network is smaller but much less dense than those in other countries. This finding seems especially puzzling when, in general, it was found that there is an inverse relationship between group size and density. However, it may well be that this phenomenon only takes effect after a critical group size is reached. Below a certain size, the opportunities for multiple interlocks do not exist if any semblance of independence of non-executive directors is to be retained, at least in the Anglo-Saxon one-tier board model. In fact, in Ireland an inverted 'V' may better describe the relationship between group size and network density. Ireland has by far the lowest number of companies in its large core component, so the core group of companies might not have reached the critical inflection point when smaller groups provide greater cohesion.

If one assumes that business linkages can be extrapolated from board linkages, as the literature suggests, it can be concluded from the density data, that Ireland does not operate as 'Ireland Inc'. The low density that Ireland shares with Britain reinforces the explanation that when corporate governance arrangements strictly try to avoid any appearance of conflict of interests, interlocks among the business 'inner circle' are rendered more difficult.

The low density of the core has already been discussed, as has the large number of isolated companies (mostly foreign and private). The large number of small components merits some further consideration, however. These suggest either regionalisation or clustering of separate groups of companies. This would coincide with the *resource dependence* model of the five models of interlocking directorates described by Scott (1985). In this model, companies interlink opportunistically in order to access scarce physical and informational resources to obtain some sort of capital or trading advantages. The resulting network is characterised by relatively low density, low centralisation and high fragmentation - similar in nature to that found in Ireland by Mac Canna (1994).

The smaller components observed in the Irish interlock network could, in fact, be rudimentary clusters in the Porter (1990) sense of the term, i.e. industry clusters. In these cases, loose interlock networks signal industry clusters of buyers, suppliers and strategic alliances (Cooke, 1998; Gulati, 1998). This would invoke the resource dependence view of interlocks.

The fact that women represent the same proportion of director positions as multiple director positions would seem to indicate that no special effort is being made to choose women for non-executive board positions based on their gender. It appears that they are being selected from the same pool of experienced directors on equal terms with men.

It should also be noted that there are no female 'big-linkers', or even women with more than two directorships. This, combined with the above, suggests that there is considerable scope for further appointments of women NEDs from the existing pool of directors.

Women suffer from two main disadvantages when it comes to board representation. Firstly, there are few women (86 in this study) already on boards, and new directors tend to be people who have already served as directors in other companies. Secondly, as companies tend to draw directors from their personal contact network, women are disadvantaged for not mixing in the same social circles.

It is not surprising that the Irish network is most structurally similar to the UK and US ones, and that the UK and Irish networks are similar in characteristics other than density. All three countries operate the unitary board system with similar duties and responsibilities. However, the much higher degree of networking in the US suggests that the one-tier model of corporate governance does not in itself preclude stronger networking.

On a practical basis, one of the two main mathematical reasons for low density is the small number of directorates per multiple director in Ireland. As the legal responsibilities of board members have become stricter, the time the job consumes may be such that a large number of non-executive directorates are no longer feasible. It is inconceivable that any director who purports to fulfil her/his obligations to company stakeholders in the current climate of corporate governance could hold too many concurrent directorships - unless many of them are for 'appearances' only, i.e. impression management for the company in retaining high profile individuals as directors.

Not included in the sample are the boards of organisations such as the *Irish Development Agency (IDA Ireland), Enterprise Ireland* and the *Irish Trade Board.* These organisations interact with huge numbers of companies on a routine basis and wield considerable influence in Ireland. For example, *IDA Ireland* is a central organisation in Irish business as it is the state agency for attracting and supporting multinational companies to invest in Ireland. In its role, it interacts with financial institutions, legal and financial consultants, landowners, utilities, government departments, multinational subsidiaries in Ireland, their parent companies, indigenous companies linked to multinationals, other state agencies and its own suppliers. *Enterprise Ireland*, which supports indigenous industry, would have a parallel set of networks and relationships. These agencies certainly facilitate ties among companies in Ireland. A further network study including these agencies would reveal whether interlocking directorates are involved in the facilitation role played by these agencies.

In fact, meaningful business ties in Ireland may take place at sub-board levels, in conformance with the *managerial model* of interlocking directorates which cites executive decisions and actions as the real locus of strategic power. An alternative explanation, offered for the relative sparsity of the British network by Scott and Griff (1985), can also apply to Ireland. They claim that company directors in Britain are part of a business establishment – a dominant status group within the business class. These people find may social venues where they meet as a matter of course, and they use these as forums to discuss their common affairs. As such, the company boardroom is not necessary as a general business forum, so fewer interlocks are required for the smooth operation of the business system. If this is the case in Britain, it is even more so in Ireland, which is much smaller, and where the level of direct interpersonal contact is intense.

From this perspective, it is evident that there is actually intense linkage among the few companies that meet networking criteria - relatively large indigenous significant plcs. This fact, along with the scarcity and peripherality of women in the Irish network, leads to the conclusion that, within the relative limitations and constraints of Irish business, the 'old boys' club flourishes where it can.

This study invites further questions worthy of research exploration:

- To what extent does co-operation among companies come about through practical problem resolution among executives of co-operating companies rather than through director interlocks? That is, do board level interlocks really matter?
- The addition of complete job description data to allow the possibility of the direction of influence / communication flows to be examined;
- The addition of more detailed company data, including performance data, which could be correlated with network variables;
- As most interlock researchers now regard interlocks as indicators of social relations, follow up interviews and research could be done on the multiple directors themselves to see if the links between boards are strong, weak or non-existent. The opportunity might also be used to profile multiple directors. In line with this suggestion, Pettigrew (1992) argues for more process-orientated research. In fact, a more 'clinical' examination of how the social and business aspects of networking result in particular styles of business behaviour and performance outcomes is a natural follow-on to all the interesting questions thrown up by the network modelling research.
- Another potentially interesting perspective is to follow the careers of directors (especially 'big linkers') longitudinally as well as concurrently as this study has done, and to study the nature of the serial interlinkages thus created.

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