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**Networks of Power and Influence  
Board Interlocks in India 1995-2007 – An Empirical Investigation**

**S. Chandrashekar**

*Professor*

*Corporate Strategy and Policy*

*Indian Institute of Management Bangalore*

*Bannerghatta Road, Bangalore – 5600 76*

*Ph: 080-2699 3041*

[schandra@iimb.ernet.in](mailto:schandra@iimb.ernet.in)

**K. Muralidharan**

*Duisenberg School of Finance*

*Netherlands*

[muralidharan.krishnan@gmail.com](mailto:muralidharan.krishnan@gmail.com)

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## **Networks of Power & Influence**

### **Board Interlocks in India 1995-2007 – An Empirical Investigation**

#### **Abstract**

The Board interlock networks for 166 Indian companies have been studied for the period 1995 to 2007. The most well connected companies and the most well connected directors have been identified from this data set. The Indian network has also been compared with the networks of other countries for which similar data is available.

Apart from studying the trends in the evolution and the dynamics of change in this network, the continuity of relationships between companies during this period has been a special focus of our study. This reveals that 45 percent of all companies in our sample set have remained continuously connected for more than ten years indicating a very stable core network. Family, caste and to some extent geography seem to be the important factors that determine this inner core network. The education and background of the Directors of the inner core network have also been compared with those of the Board interlock network for 2007.

Based on our empirical findings and a survey of the Board Interlock literature a research agenda is suggested. This not only tries to address the specific issues that could be studied using Board interlock data but also covers the larger issues of institutions for corporate governance in the Indian context. Two theories - transaction cost theory and evolutionary game theory - that are complementary to each other show promise for addressing problems of institution evolution and change. Both of them also depend on network theory and open system dynamic models to look at evolution and change. If these domains of knowledge can be integrated a new thrust and direction can be given towards addressing the problems of corporate governance and institutional change. The Indian corporate scene could be a promising starting point for driving such a research agenda.

A brief on the origins and dynamics of the Satyam episode as seen through the Board interlock lens is also provided.

**Keywords:** Board Interlock, Corporate Governance, Institutional Change, Networks

## Executive Summary

From company annual reports a data base linking Directors with the Boards of 166 Indian companies was created. This data base was used to generate a Director to Company interlock matrix and network. From this Director to Company matrix additional Director to Director and Company to Company connectivity matrices were created. These three data sets constitute the basic networks for the findings reported here.

The various properties of these three networks were measured using standard network software. These include both macro measures such as density, cohesiveness and distances as well as various structural features such as the number of dyads, triads and higher order connections between Directors and between Companies. These were carried out for all years from 1995 to 2007. The intensity of ties between Directors and between Companies was also measured for all the years.

The trends from all these analyses seemed to indicate that the network of Board interlocks in India is a very stable network that shows fluctuations from year to year but is stable over the period from 1995 to 2007. Most of the Interlock Directors are connected to each other. In addition most of the Companies (over 80%) are also connected to each other in our sample set.

From the literature review some data on similar interlocks in the USA, UK, Hong Kong and Thailand were available. This enabled us to compare the Indian network with the networks of these countries at a macro-level.

The percentage of multiple directorships that create interlocks is much lower for India than for the US and Hong Kong. It is greater than the percentage of multiple directorships in the UK and Thailand.

However the firms that are connected in India are in general better connected (have more connections) to other firms than firms in the UK, Thailand, USA and Hong Kong.

The data set also enabled us to identify the most influential Directors and the most influential firms for the period 1995 to 2007. Keshub Mahindra of the Mahindra Group and Deepak Parekh of HDFC emerge as the most influential Directors. HDFC and Tata Steel emerge as close contenders for the most influential company. Other figures of influence include several Directors belonging to the Tata companies and other family companies like the Birla groups, the Bajaj Group, the TVS group and the R P Goenka Group. There is a high degree of correlation between the most influential Directors and the most influential firms and a preponderance of Family Firms and Directors in the influential set of Directors and Companies.

The trends that one can put together from the sequence of annual connections do not fully capture the continuity of relationships between companies over the period of our study. To enable us to identify the relatively more stable features of the Indian corporate Board interlock network, we also looked at continuity of ties between companies. Available software enables us to look at continuity relationships that start at any year and end at any other later year. The net additions and deletions to the network starting in 1995 and going all the way up to 2007 show periods of high net additions and high net deletions but an overall stable structure. This seems to suggest a large number of transient relationships superposed on a more stable permanent set of relationships.

Using a cut-off period of ten years from 2007 we were able to identify a company to company network where companies had been continuously interlocked for at least ten years.

**74 companies out of 166 (45%) of the companies have remained connected for ten years or more. This means that 164 ties of the 684 ties (24%) present in 1997 are also present in 2007. The largest component of this ten year network has 41 companies as nodes. This 41 node component can be considered to be the most powerful entity within the Indian corporate world for the period of our study based on our sample set of companies. There are several other smaller components including several dyads within this ten year continuity network.**

The ten year continuity network derived from the yearly networks exhibits several interesting structural features. Clusters of family managed companies are linked together by other companies in a looser ring structure. **10 clusters of three or more companies were identified along with a number of dyads as the more permanent peaks within the backbone of the Board network in India. There are also some geographical features to this continuity network. These structural features seem to be similar to the German and maybe the Japanese corporate interlock structure information on which was available through our literature search**

The Directors associated with these permanent connections are also identified. **There is a dominance of Marwaris, Parsis and Iyengars within this continuity network with Marwaris outnumbering other communities in a big way.** Family, caste and geography to a limited extent seem to be important drivers to permanent relations between companies based on Board interlocks.

For the 10 clusters identified from the continuity network we also estimated the percentage of interlocks required for holding the group together and the percentage of interlocks to companies outside the cluster. These have also been tabulated.

For the year 2007 we also compiled the education and professional background for all the interlock directors for whom data was available in the public domain. We compared these with the same kind of data for the Directors in the ten year continuity network.

Chartered Accountants, Lawyers and Economists account for a significantly higher percentage of interlocks in the continuity network than in the network for 2007. Engineers are significantly lower with MBAs being on par in both networks. Interestingly though directors with an IAS qualification constitute 11% of all interlocks in 2007 they are not at all represented in the continuity network. This would suggest that their role is transient and not permanent.

Family backgrounds accounted for nearly 50% of the Interlocks in the continuity network whereas they account for only about 22% of the interlocks in the 2007 network. Directors with a banking or financial background are better represented in the continuity network than in the 2007 network. Law Firms are also better represented in the continuity network. Just as in the case of the IAS, Directors with a background in working for the government are much lower in the continuity network than in the network for 2007.

These findings are consistent with the data we have on influential directors and influential companies.

Since the Satyam scandal took place during the period of our research and since we had it in our list of companies a brief account of the scandal and its interlocks is provided in our report.

We also carried out a limited literature survey of the work on interlocks in order to suggest a possible research agenda for work related to Board interlocks as well as the broad area of corporate governance.

At the most basic level of research our data set of networks from 1995 to 2007 and the related company annual reports should allow researchers easily to replicate many papers that have been published on Board interlocks. These can be related to the the resource dependence theory, the bank or financial control theory, the finance capital hegemony theory, the elite class theory or the management control theory.

At a second level that is more India centric we propose a set of research activities that are directly connected to our empirical findings.

At a third level Board interlocks can be seen as an alternative institution to market based institutions for the governance of corporate economic activity. Though at the macro level the interlock networks across different countries appear similar there seem to be several nuances to each that reflect in part a path dependent history that is different for each country. Board interlocks have been studied in different countries and in very different contexts. A deeper and more nuance understanding of the current state of the institution of Board interlocks across different countries may also be a worthwhile research endeavour. The paper on Spain as well as the paper on Germany could offers some insights on how this could be carried out.

Finally Board Interlocks are only one visible manifestation of institutions of governance. There are historical antecedents to many current governance institutions in many countries that quite often may serve useful ends especially in emerging economies like India. Institutional reform based loosely on success stories from other contexts, without truly understanding the nature and purpose of existing institutions may create more problems than solutions. This leads us logically to look at the larger problem of corporate governance across different countries that are in different stages of economic development functioning in an increasingly inter-connected and inter-dependent world. The study of how institutions have come about and how they will change in response to various forces that shape and drive them is obviously the major research challenge in corporate governance. Two theories - transaction cost theory and evolutionary game theory - that are complementary to each other show promise for addressing problems of institution evolution and change. Both of them also depend on network theory and open system dynamic models to look at evolution and change. If these domains of knowledge can be integrated a new thrust and direction can be given towards addressing the problems of corporate governance and institutional change. The Indian corporate scene could be a promising starting point for driving such a research agenda.

## **1. Objective**

The purpose of this research effort is to try and understand the linkages that exist between Boards of Directors (BOD) of companies in India. Directors who are on the Boards of more than one company provide a link between companies. Directors who are linked to several companies act as some kind of multipliers of connections. Those Directors who are linked to a larger number of Boards are likely to wield more power and exercise greater influence. Companies may also use Board interlocks to further company strategies. A study of these linkages both at the company level as well as at the level of individual directors is likely to shed some light on the motivations and purposes behind director interlocks. The patterns underlying connections and their evolution over time could also provide some inputs on governance related issues and reveal family and other considerations behind director interlocks. These could be important factors in understanding the Indian corporate scene.

This study covers the period from 1995 to 2007 - a period of turbulence and major change in the Indian economic landscape. It is our hope that this study will add to our understanding of how the corporate world functions in the Indian context.

## **2. Approach & Methodology**

After several unsuccessful attempts to get information on the composition of the Boards of Directors of the top 500 companies from existing sources we decided to create a data base from the annual reports of companies. Since we wanted to look at the evolution of corporate India through a BOD lens we needed data that went back in time to about 1991 when the Indian economic reform process was initiated. Unfortunately the sample of companies whose annual reports were available in electronic form turned out to be too small. It is only from about 1994 that the annual reports in electronic form were available for a reasonable number of companies.

From the available data sources we were able to identify a set of 166 companies for which annual reports were available from 1994-95 onwards. These annual reports were accessed largely through the Insight data base. For a few companies for a few years the reports were obtained from the CMIE data base. To fill some of the other gaps some reports were bought through Report Junction – a company that sells electronic annual reports.

The Board of Directors composition was compiled from these reports for all years from Financial Year 1994-95 to financial year 2006-07. The reports are produced for the Annual General Meetings (AGM) that companies hold every year. The year in which the AGM is held is used as the reference year. Therefore the year 1994-95 will be referred to as 1995. In some situations due to changes in the accounting year companies may delay or postpone the Annual General Body Meeting. In such situations we have tried to reconstruct the BOD list from the available information in the preceding and later Annual Reports.

The data on companies and their Board of Directors was collated. Directors who were on the Board of more than one company were identified and a base matrix of Directors with their membership of different companies was prepared. This was the basic relationship matrix that was used. Using UCINET software this matrix was converted into a director to director connection matrix as well as a

company to company connection matrix. These three matrices- the Director - Company matrix, the Director-Director matrix and the Company-Company matrix - form the basis for most of the analyses.

These matrices are available in the form of Ucinet data files. They can also be converted into an Excel Spread Sheet format if needed or reproduced as a network diagram. As other data may also be needed for later work depending on the preliminary findings from this empirical study the Annual reports for all the 166 companies for the years 1995 to 2007 are also available in our data base.

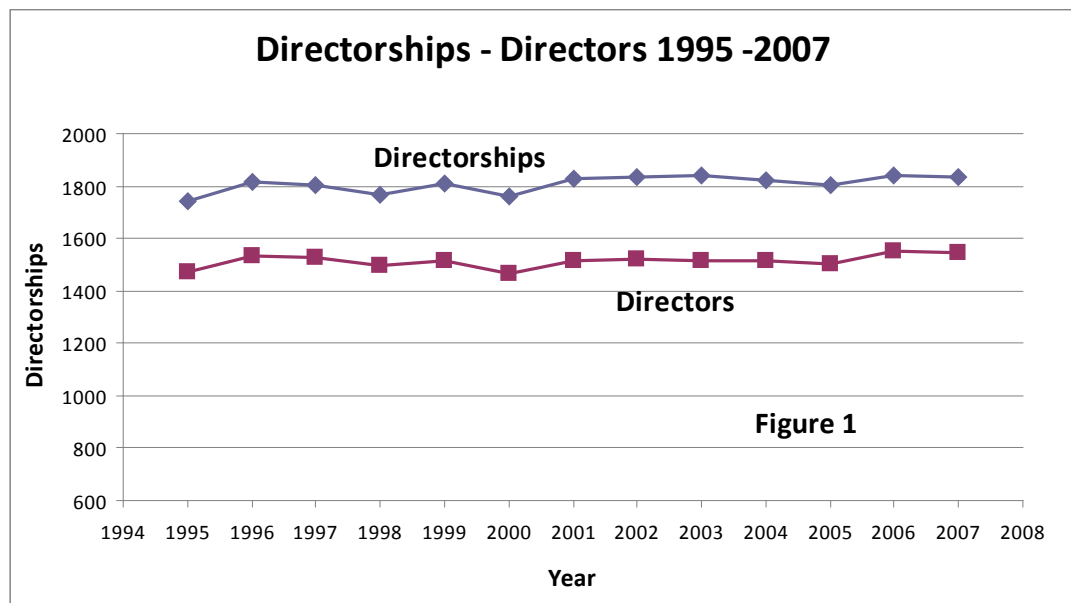
### 3. The Overall Network

**Table 1** presents the basic data for the overall two way network that looks at the connections that Directors provide between Companies.

**Table 1**

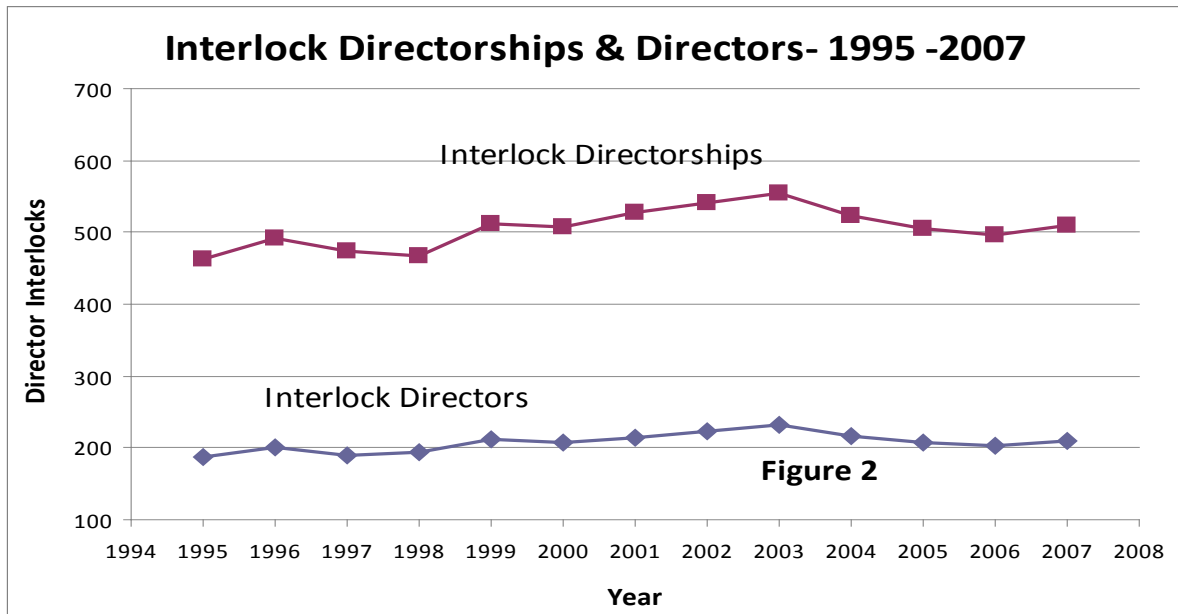
Item	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Total No of Directorships	1745	1817	1804	1769	1812	1763	1826	1836	1839	1823	1802	1840	1834
Total no of Directors	1472	1532	1525	1497	1512	1466	1514	1523	1517	1517	1505	1549	1543
No of Directorships per Director	1.19	1.19	1.18	1.18	1.20	1.20	1.21	1.21	1.21	1.20	1.20	1.19	1.19
No of Interlock Directors	187	201	190	193	212	207	214	224	231	217	208	204	209
No of Interlock Directorships	463	491	473	468	513	507	527	540	555	523	506	497	510
% Interlock directorships	26.5%	27.0%	26.2%	26.5%	28.3%	28.8%	28.9%	29.4%	30.2%	28.7%	28.1%	27.0%	27.8%
% Interlock Directors	10.7%	11.1%	10.5%	10.9%	11.7%	11.7%	11.7%	12.2%	12.6%	11.9%	11.5%	11.1%	11.4%
Directorships per common Director	2.48	2.44	2.49	2.42	2.42	2.45	2.46	2.41	2.40	2.41	2.43	2.44	2.44
Largest Board	24	22	20	19	21	21	20	21	21	22	22	24	22
Smallest Board	3	4	3	3	3	3	3	5	5	4	4	5	5
Density	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015

**Figure 1** shows the trends in the total Directorships and total Directors for our set of 166 companies



Apart from a slight increase in the number of Directorships and number of Directors between 1995 and 1996 both remained more or less constant at about 1800 Directorships and about 1500 Directors respectively with some variations over this period. There is a marginal increase in the number of Directors in 2006 and 2007 though it cannot be termed significant in terms of a trend. The number of Directorships per Director also remained more or less constant at between 1.19 to 1.21 Directorships per Director.

**Figure 2** shows the trends on the number of Interlock Directorships and the number of Interlock Directors.



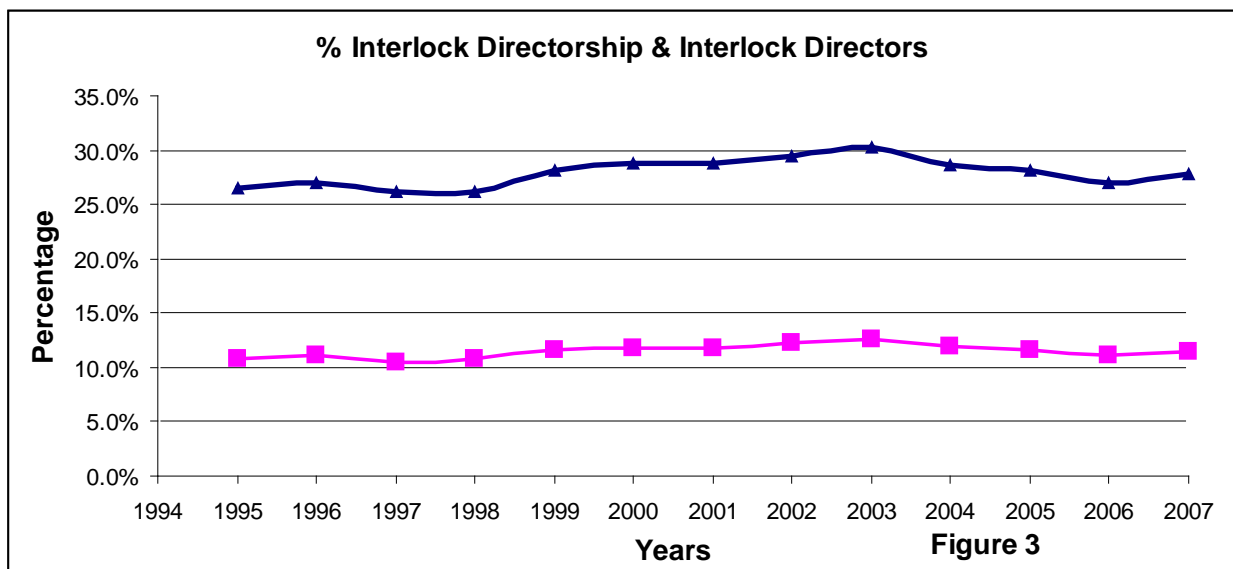
The number of interlock Directorships remained more or less constant at about 460 Directorships between 1995 and 1998, rose gradually to a peak of about 550 Directorships in 2003 and then declined to 510 Directorships in 2007. Overall there is a slight increasing trend. The number of interlock Directors also exhibits a similar trend. It remained more or less constant at about 190 Directors from 1995 to 1998, increases to about 230 in 2003 and then shows a decline to about 210 in 2007.

The percentage of Interlock Directorships and Interlock Directors are shown in **Figure 3**. There is an increasing trend in percentage of Interlock Directorships and Directors till 2003 followed by a decreasing trend till 2006. There is a slight increase between 2006 and 2007.

The number of interlock Directorships held by each interlock Director showed some variations but remained between 2.4 and 2.5 during this period. The size of the largest BOD varied between 19 and 21 and the size of the smallest BOD between 3 and 5. The density of the network also remained more or less constant at between 0.0145 and 0.0150 during the period of our study.

**The overall network appears to be stable showing some variations but no significant trends or abrupt variations.**





To examine in greater detail the linkages between Companies via Director Interlocks and linkages between Directors via companies the two way network was decomposed into two networks using UCINET. The salient data for the Director to Director linkages and the Company to Company linkages are presented in the sections that follow.

#### 4. The Director to Director Network

Table 2 presents the parameters of the Director to Director network for the period 1995 to 2007.

Table 2

Item	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
No of Interlock Directors	187	201	190	193	212	207	214	224	231	217	208	204	209
Total No of Interlock Directorships	463	491	473	468	513	507	527	540	555	523	506	497	510
Density	0.055	0.052	0.055	0.050	0.049	0.049	0.048	0.044	0.044	0.046	0.047	0.050	0.048
Distance	3.15	3.36	3.40	3.49	3.39	3.36	3.24	3.34	3.43	3.39	3.31	3.94	3.44
Cohesiveness	0.35	0.35	0.35	0.34	0.35	0.35	0.34	0.31	0.34	0.32	0.32	0.30	0.31
Largest Component (nodes)	177	195	186	188	210	203	207	211	227	209	196	198	197

The network of connections seems to have the highest density in 1995 and 1997 but fluctuates otherwise between about 0.050 and 0.044 during the rest of the period. The overall picture is that most of the interlocked Directors are connected to each other. The separation distance between directors has its lowest value in 1995 – showing a fairly compact network. Otherwise it seems to fluctuate between 3.3 and 3.4 for most of the period. In 2006 the average separation distance between Directors has increased to a maximum value of 3.94 – showing that the network has become broader and more diffused. The overall network is stable with a very slight trend towards greater diffusion.

Table 3 provides the breakup of the Directorships held by interlock directors in terms of the number of directorships that they hold. To qualify as an interlock director a director has to have a minimum

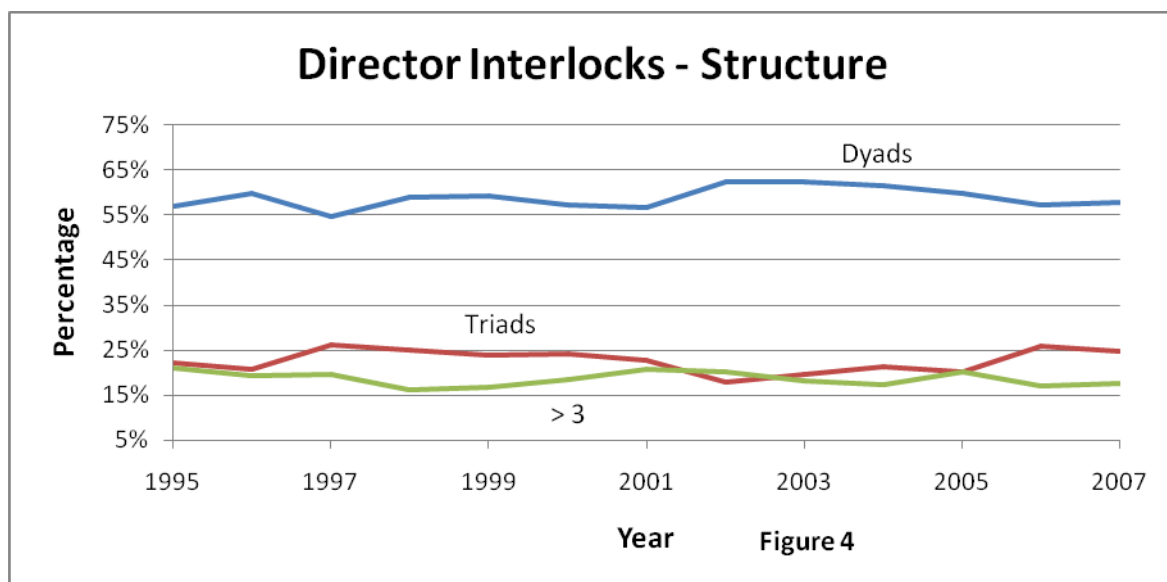
of two directorships. Directors can of course have more than two directorships. This distribution of the number of directorships held by the interlock directors is provided in **Table 3**

**Table 3**

% of Directorships	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
2	57%	60%	55%	59%	59%	57%	57%	62%	62%	62%	60%	57%	58%
3	22%	21%	26%	25%	24%	24%	23%	18%	19%	21%	20%	26%	25%
4	10%	9%	9%	9%	9%	10%	16%	11%	9%	8%	13%	11%	12%
equal or > than 5	11%	10%	10%	7%	8%	8%	5%	9%	9%	10%	7%	6%	6%

The single largest connected component of the Director network increased from 177 connected Directors in 1995 to 227 in 2003 followed by some decline between 2004 and 2007. There are really no major difference between the number of Directors linked in the largest component and the number of Directors in the network. By and large most if not all the interlock Directors in our sample set of companies are indeed connected with each other.

**Figure 4** provides the trends in structure of the network from 1995 to 2007. The number of four and more Directorships between the Directors has been merged to simplify the presentation



Over the period of study though there are some up and down variations no clear structural changes are evident from the above analysis. However the largest component of the network representing a larger number of Directors being linked with each other shows a trend of some increase. So overall there is an increase in connectivity and in the spread while there is no clear evidence of increased concentration in the more connected parts of the network.

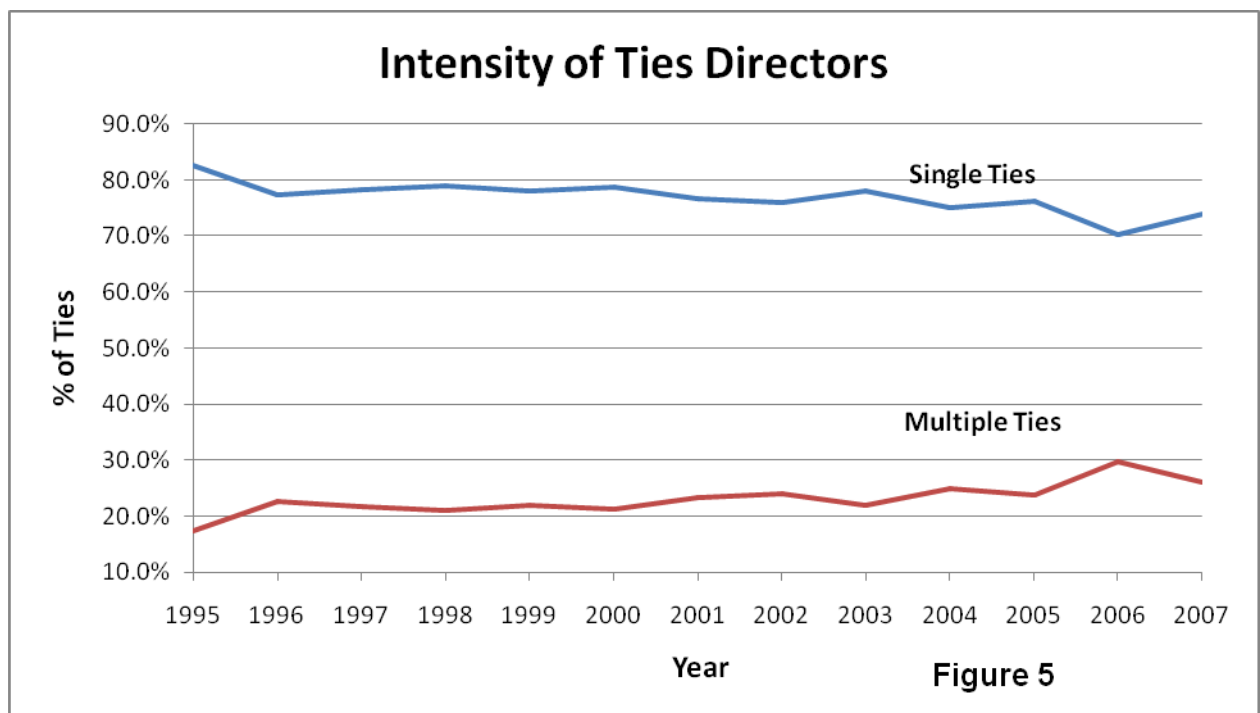
Apart from links it is also important to find out how strong are the ties between Directors. By serving on the Boards of the same companies Directors can have multiple ties. The more the number of multiple ties the stronger would be their connections. **Table 4** provides details of the intensity or the strength of the ties between the connected Directors. **This is provided by the number of direct**

connections between any pair of Directors. These are presented in terms of percentages of the total number of ties between all the interlocked Directors.

**Table 4**

Strength of Ties	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Single ties	82.6%	77.4%	78.2%	78.9%	78.1%	78.7%	76.6%	75.9%	77.9%	75.0%	76.1%	70.4%	73.9%
Double ties	15.5%	19.2%	19.5%	17.9%	17.7%	18.5%	21.2%	22.1%	19.3%	22.6%	21.4%	27.2%	24.1%
Triple ties	1.9%	3.4%	1.8%	3.2%	3.8%	2.8%	2.2%	1.6%	2.8%	1.7%	2.1%	2.1%	2.0%
More than 3	0.0%	0.0%	0.4%	0.0%	0.4%	0.0%	0.0%	0.4%	0.0%	0.7%	0.4%	0.4%	0.0%

The trends are depicted pictorially in **Figure 5** presented as single ties and multiple ties between directors.



After an increase in the intensity of the ties between 1995 and 1996 the proportions of single, double and 3 or more ties between Directors remained mor or less the same with some variations up to 2003. From 2003 to 2007 there is a decrease in the percentage of single ties and an increase in the number of multiple ties . This suggest an increase in the strength of the ties between the directors especially in the period post 2003. There is also a sharp increase between 2005 and 2006. Overall there is an increasing trend for multiple ties especially after 2003 with a relatively major increase in 2006. From the above we can conclude that the the intensity of ties (number of ties between connected Directors)as well as the number of connected directors have increased. However this seems to be a more peripheral phenomenon happening at the edges of the network rather than something that happens at the dominant nodes of the network. The Intensity of the connections between connected directors seems to show an increasing trend after 2003. **Overall it appears to be a stable slowly growing interconnected network.**

## 5. International Comparisons

During our survey of related papers we came across a study by Au, Peng and Wang on Board interlocks in Hong Kong and another study on Interlocks in Thailand. In the study on Hong Kong the authors had compared the macro network of director interlocks in Hong Kong with those of the US and UK. The Hong Kong interlock data is for 1997 while the interlock data for the US and UK are for 1985. Since we had data for 1997 in our sample set we thought it worthwhile to compare these data sets. **Table 5** below provides the details of this comparison.

**Table 5**

Item	Hong Kong (1997) top 200 firms	Great Britain 1985 Top 250 firms	United States 1985 Top 250 firms	India 1997 166 firms of top 500
Total Number of Directors	1628	2682	3108	1525
Total Number of Directorships	2105	3091	3976	1804
Total number of Multiple Directors	276	282	564	190
Total Number of Multiple Directorships	753	691	1432	473
Proportion of Multiple Directors	17%	11%	18%	12%
Proportion of multiple directorships	36%	22%	36%	26%
Number of Directorships per Director	1.29	1.15	1.28	1.18
Number of multiple directorships per Multiple Director	2.73	2.45	2.54	2.49
Number of Director seats held by a Multiple Director				
2	61%	69%	64%	68%
3	25%	21%	24%	22%
4	6%	6%	8%	6%
5	5%	3%	3%	3%
> 5	3%	1%	1%	2%
Inter organisational relationships				
Density	0.029	0.017	0.035	0.031
Multiplicity				
1	78%	94%	84%	69%
2	10%	5%	13%	16%
3	5%	2%	2%	10%
>3	7%	0%	1%	5%
Distance				
1	2%	2%	3%	4%
2	10%	12%	22%	14%
>2	88%	86%	75%	82%

The proportion of Directors who are on more than one Board for India is 12%. This is lower than 18% for the US, 17% for Hong Kong and 14% for Thailand but better than 11% for Great Britain.

Multiple directorships accounted for 26% of all directorships for India. It is lower than 36% for the US and Hong Kong but higher than 22% for Great Britain and Thailand.

The US and Hong Kong have lower two company Board Directorships and higher 3 Board Directorships as compared to India. Thailand matches India on two company directorships but is lower in 3 company directorships. The US and Thailand are ahead of India in the percentage of Directors who are on four company Boards. Hong Kong and Great Britain match India. Hong Kong has the highest percentage of directors who are on the Boards of 5 companies or more. India and Thailand are second with the US and UK slightly behind. 32 % of Directors in India have more than two Directorships as compared 22% for Hong Kong, 36% for the US and 31% for Great Britain. India

more closely resembles Great Britain and Hong Kong and the US resemble each other as far as the Director networks are concerned.

At the company level single links between companies provided by one Director constitutes 69% of all interlocks with multiple links accounting for the remaining 31%. **Indian firms that are connected are in general better connected to many other firms than firms from Hong Kong, Thailand US or Great Britain. There are more firms at the core and middle in the Indian network than at the periphery.**

From this data it appears that at the structural level India is closer to Great Britain than to Hong Kong and the United States though it is much denser and more cohesive network at the macro level that is closer to Hong Kong and the US. It therefore appears to be somewhat different.

## 6. The Most Well Connected Directors

From the list of connected Directors an overall Table of Director connectivity was prepared for the entire period 1995 to 2007. 616 Directors with 6573 links represent director links between the companies for the 1995 to 2007 period. The Directors have been ranked by the total number of connections to other interlock Directors. In addition to the above continuity of being on the Boards of Companies is also an important criterion reflecting sustained power. Using a criterion that to be on the final list of powerful directors they have to be on the Board of companies for at least 10 of the 13 years of our study period our study came up with a list of 73 Directors. Annexure 1 provides a ranking Table of these 73 individuals on the basis of the total number of connections they have with other interlock Directors. **Table 6** provides the list of the top 25 Directors out of this list.

**Table 6**

<b>Name of Director</b>	<b>Total Directorships</b>	<b>Connections</b>	<b>Rank</b>
Keshub Mahindra	62	391	1
Deepak S Parekh	94	334	2
Ishaat Hussain	46	276	3
Kumar Mangalam Birla	59	267	4
Nusli N Wadia	51	246	5
N A Soonawala	52	244	6
Suresh Krishna	43	240	7
Nasser M Munjee	55	234	8
S Venkitaramanan	31	221	9
Dr Jamshed J Irani	39	215	10
Bansi S Mehta	29	191	11
S S Marathe	50	189	12
Dr Dharam Vir Kapur	32	183	13
Nimesh N Kampani	57	182	14
Pradip Kumar Khaitan	64	180	15
Deepak M Satwalekar	40	175	16
Dr A C Muthiah	41	169	17
Saroj Kumar Poddar	38	168	18
Dr S A Dave	24	163	19

Name of Director	Total Directorships	Connections	Rank
T K Balaji	45	158	20
Mrs. Rajashree Birla	39	158	20
Mansingh L Bhakta	37	157	22
Narayanan Vaghul	40	153	23
Rahul Bajaj	35	153	23
Dhirajlal S Mehta	30	146	25

Keshub Mahindra emerges as the most well-connected Director with 391 connections for the period from 1995 to 2007. Deepak Parekh has a higher number of Directorships (94 Directorships) but only has 334 connections and is ranked second. Both of them as well as some other Directors in HDFC provide the links that make HDFC a powerful node in corporate India. Other prominent and powerful Directors include Kumar Mangalam Birla, Rajashree Birla, Nusli Wadia, Pradeep Kumar Khaitan, Nasser Munjee from HDFC, Suresh Krishna and T.K.Balaji of the TVS Group and Rahul Bajaj. Though Ratan Tata is not on the list of the top 25 well connected Directors, other directors representing the Tata Group companies are well represented. Most prominent well-connected Directors also seem to belong largely to powerful family group companies that include not only the well-known Tata, Birla, TVS family companies but many other family groups as well. Deepak Parekh, Keshub Mahindra as well as Nasser Munjee have remained on the Board of HDFC over the entire period of our study. They all seem to be powerful because of their link with HDFC.

## 7. Company to Company Network

Table 7 provides the basic data for the company to company connections.

Table 7

Item	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Total connections	826	858	838	800	858	852	922	912	946	904	872	842	882
Connections excl multiple ties	694	690	684	658	682	696	770	738	772	736	710	660	708
% Multiple ties	16%	20%	18%	18%	21%	18%	16%	19%	18%	19%	19%	22%	20%
Maximum links	19	18	18	20	23	23	23	24	22	24	23	21	25
Unconnected Companies	32	30	30	29	28	27	23	21	20	23	24	25	25
Two company links	4%	3%	3%	3%	3%	3%	2%	2%	3%	3%	3%	3%	4%
Three company links	3%	6%	8%	7%	7%	7%	7%	8%	5%	6%	6%	8%	4%
Four company links	9%	8%	8%	11%	7%	7%	9%	8%	7%	6%	10%	9%	6%
> Four company links	84%	83%	81%	78%	83%	83%	83%	82%	84%	85%	81%	80%	86%

Many companies have more than one director linking them. Multiple links between companies was highest at 22% in 2006 and also high in 1999 with 21% of ties between companies being multiple ties. Multiple ties were the lowest in 1995 when they accounted for only 16% of all ties between companies. For the period 1995 to 2007 multiple ties fluctuated between 16% and 20% of all ties between companies and show no clear trend.

The maximum number of connections that any company has (varies from a low of 18 to a high of 25), though fluctuating, shows an overall increasing trend. This would suggest that some companies have a very large number of ties and are dominant players in the network.

Among the connected companies the percentage of two company, three company, four company and greater than 4 company links were also estimated. It is clear from **Table 7** that on an average over 80% of all ties between companies involved five or more companies. This suggests a network that is connected by some dominant companies or dominant directors on many Boards. **Since the maximum number of connections by a company also show an increasing trend this suggests that the role of the well- connected companies and the role of well-connected directors on the Boards of such companies within the network is becoming more important.**

When multiple ties are excluded 9198 ties link the 166 companies of our sample set over the period 1995 to 2007.

**Table 8** provides the structural details of the company to company network.

**Table 8**

Company to company links	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Density	0.03	0.031	0.031	0.029	0.031	0.031	0.034	0.033	0.035	0.033	0.032	0.031	0.032
Distance	3.54	3.87	3.98	3.99	3.74	3.64	3.40	3.51	3.70	3.54	3.49	4.23	3.64
Cohesiveness	0.18	0.20	0.21	0.20	0.22	0.23	0.23	0.23	0.24	0.22	0.21	0.20	0.21
Unconnected companies	32	30	30	29	28	27	23	21	20	23	24	25	25

The major parameters of the network do not show much variation over the period of study. Density fluctuates around an average of around 0.3 with a maximum value of 0.35 in 2003. The average distance between companies also do not show major changes and fluctuates without any clear trends. 2006 seems to be some kind of an aberration with an average distance of separation of 4.23. The average distance is also higher in 1996, 1997, 1998 and 2003. The number of unconnected companies (companies that are not connected to even one other company) shows a slight decreasing trend indicating that the network is getting more connected.

### **8. The Most Well-Connected Companies**

From the annual number of connections a table of the total connections of each company to other companies for the period 1995 to 2007 was constructed. The 166 companies were then ranked on the basis of the total number of connections that each company had for the period 1995 to 2007. **Annexure 2** provides the list of the ranking of these companies. **Table 9** below provides the rank of the 25 most influential companies.

**Table 9**

<b>Company</b>	<b>Directorships 1995 -2007</b>	<b>Rank</b>
HDFC Ltd	262	1
Tata Steel Ltd	259	2
Mahindra & Mahindra Ltd	193	3
Tata Chemicals Ltd	186	4
Voltas Ltd	156	5
Grasim Industries Ltd	148	6
Indian Hotels Co Ltd	142	7
Larsen & Toubro Ltd	139	8
Escorts Ltd	139	8
Hindustan Motors Ltd	132	10
Titan Industries Ltd	126	11
Ambuja Cements	125	12
Ceat Ltd	125	12
Tata Motors Ltd	121	14
Hindustan UniLever	119	15
Bharat Forge Ltd	116	16
Southern Petrochemicals Inds. Corpn Ltd	113	17
Sundaram-Clayton Ltd	111	18
Bajaj Holdings	107	19
Exide Industries Ltd	106	20
Essar Shipping Ports & Logistics Ltd	106	20
ACC	102	22
Castrol India Ltd	100	23
Sundaram Fasteners Ltd	99	24
Deepak Fertilisers & Petrochemicals Corpn Ltd	96	25

**HDFC Ltd. emerges as the most well connected company in our sample with 262 links followed closely by Tata Steel with 259 connections.**

**Mahindra & Mahindra is the third most powerful company with 193 connections followed by Tata Chemicals at number four with 186 connections.**

**Apart from HDFC a large number of the more well-connected companies belong to the Family groups that include the Tata group, the different Birla groups, the TVS group, the Bajaj Group as well as other smaller groups.**

**The empirical evidence seems to suggest that power at the Director or Company level is linked to family. The exception to this is the role of HDFC. However HDFC provides finance for the business world and this function is reflected in the number of ties it has with other companies.**

However to understand the connection between companies we have to go beyond just the annual numbers of ties and look at the continuity of ties between companies over the period of our study.



Only ties that are somewhat permanent may represent real company to company relationships.

Directors who provide continuity of ties and their backgrounds may shed additional light on the nature of these connections.

Continuity of ties over a long period may also provide some idea of the basic network that holds the business world together in India. This is what we will examine in the next section.

### 9. Continuity of Company to Company Ties

If company interests are critical and board interlocks are required to preserve and protect these interests, one should expect that ties between companies continue over a period of time. Directors may be permanent or transitory but the relationship between the companies should continue. Directors may come and go but company relationships go on forever.

To look at this phenomenon for our sample we looked at the continuity of connections between companies starting from 1995 onwards. We investigated how connectivity changed from year to year. **Table 10** provides the results for our continuity analysis starting from 1995 and looking at continuity for the entire period from 1995 to 2007 on a yearly basis. The percentage of ties that are permanent (from 1995) any year is also highlighted in the table. The yearly additions and deletions to the ties between companies have also been calculated and this enables us to look at the stability of the network using 1995 as a baseline.

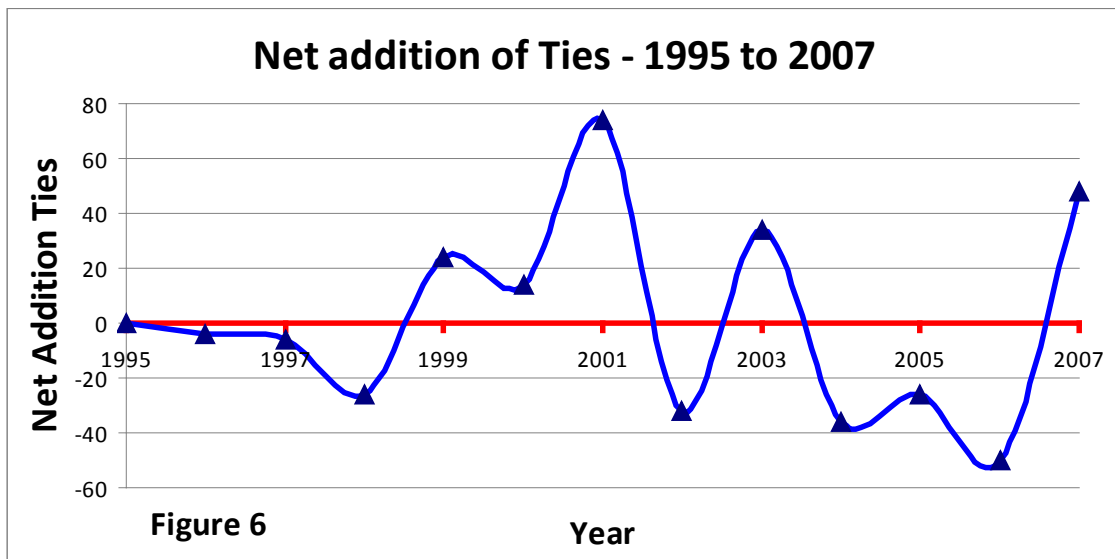
**Table 10**

Start Year	1995	1995	1995	1995	1995	1995	1995	1995	1995	1995	1995	1995	1995
End Year	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Continuity time	0 yr	1 yr	2 yrs	3 yrs	4 yrs	5 yrs	6 yrs	7 yrs	8 yrs	9 yrs	10 yrs	11 yrs	12 yrs
Start Ties	694	690	684	658	682	696	770	738	772	736	710	660	708
Continuity ties	694	548	448	352	302	276	244	224	196	176	170	142	136
% Continuity	100%	79%	65%	53%	44%	40%	32%	30%	25%	24%	24%	22%	19%
Cos. connected	134	125	114	96	89	85	84	84	75	72	70	66	64
% cos. connected	81%	75%	69%	58%	54%	51%	51%	51%	45%	43%	42%	40%	39%
Largest component	122	106	94	86	73	71	64	64	46	45	43	40	38
Ties Removed	0	146	100	96	50	26	32	20	28	20	6	28	6
Ties Added	0	142	94	70	74	40	106	-12	62	-16	-20	-22	54
Net addition ties	0	-4	-6	-26	24	14	74	-32	34	-36	-26	-50	48

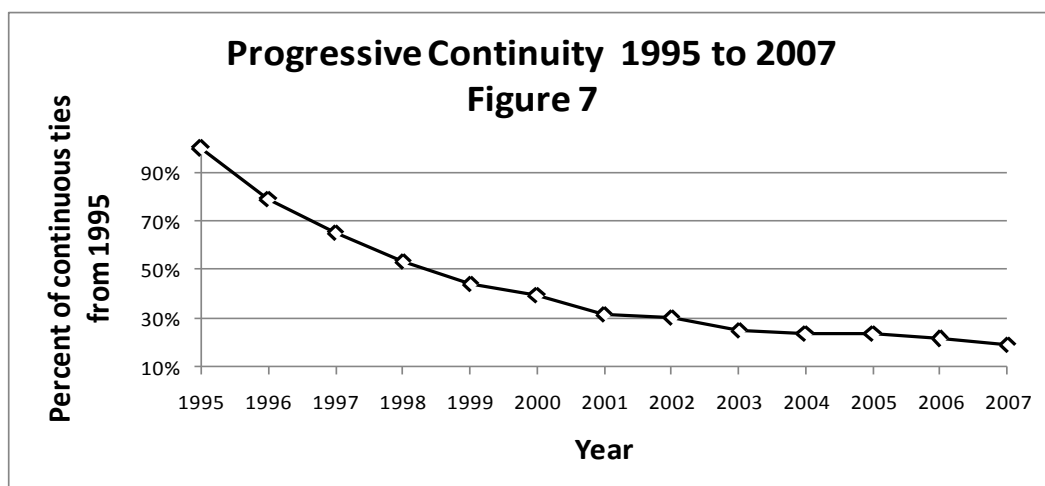
**From Table 10 we can see that only 136 ties between companies that were present in 2007 were also present in 1995. This means that only 19% of the ties present in 2007 were present in 1995. The number of companies that remain connected for the entire period was 64 or 39% of the companies.**

**The largest component of the 1995 to 2007 continuity network consists of a set of 38 companies. This continuously connected component of the company network represents some kind of the backbone of the power of corporate India and the influence it may exercise on different facets of**

the Indian economic system. Figure 6 provides the details of the ties that have been added or deleted based on continuity of ties from 1995 onwards.



The additions and deletions show fluctuations around the baseline year 1995. The additions or deletions show no clear trend – the network seems to be more or less connected as directors come and go and most of the company connections appear to change because of these. This balance between additions and deletions also appears to have some connection to the three or four year appointments to the boards of companies. The picture we can get is a lot of additions and deletions from a core set of connections between companies showing an overall stability. Apart from a permanent set of links most of the other ties seem to be transitory – directors come and directors go. The largest net addition was in 2001 and the largest net deletion was in 2006. Figure 7 traces the percent of the connections present in any year that were also present in 1995.



24% of the connections present in 2005 are ten year connections, 22% (present in 2006) are eleven year connections and 19% (present in 2007) are twelve year connections.

We also looked at connectivity starting at different years. **Table 11** provides the data for connectivity from 1995 to 2007, 1996 to 2007 all the way to connectivity for 2006 to 2007.

**Table 11**

Start Year	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
End Year	2007	2007	2007	2007	2007	2007	2007	2007	2007	2007	2007	2007	2007
Continuity time	12 yrs	11 yrs	10 yrs	9 yrs	8 yrs	7 yrs	6 yrs	5 yrs	4 yrs	3 yrs	2 yrs	1 yr	0 yr
Start Ties	694	690	684	658	682	696	770	738	772	736	710	660	708
Continuity ties	136	158	164	184	198	228	288	342	388	422	478	554	708
% Continuity ties	20%	23%	24%	28%	29%	33%	37%	46%	50%	57%	67%	84%	100%
Cos. connected	64	67	74	80	84	89	98	106	115	116	121	127	143
% cos. connected	39%	40%	45%	48%	51%	54%	59%	64%	69%	70%	73%	77%	86%
Largest component	38	40	41	45	51	55	78	83	95	98	106	120	132

It is difficult to state clearly the duration of a tie that would establish a permanent link between companies. However in our particular case we can assume that if companies have remained connected for at least ten of the years continuously the connections can be termed long term. From Table 10 we can see that 74 companies out of 166 (45%) of the companies have remained connected for ten years or more. This means that 164 ties of the 684 ties present in 1997 are also present in 2007. The largest component of this ten year network has 41 companies as nodes. This can be considered to be the most powerful entity within the Indian corporate world for the period of our study based on our sample set of companies. The details of the continuity of ties for the different periods of time starting with 1995 are separately available. The continuity discussions in this report are based on the continuity of ties between companies starting from 1997 and going on to 2007. Of course companies that have remained connected from 1995 and 1996 to 2007 are a subset of this network.

**Figure 8** shows the network of the largest component of the 1997 to 2007 continuity network.

**Figure 9** provides the details of the smaller components of the 1997 to 2007 continuity network.

From **Figure 8** we can immediately identify the major dominant companies most of which are already in our list of influential companies. HDFC and Tata Steel stand out. Other powerful players include Mahindra & Mahindra, other Tata companies including Tata Motors and Titan industries, Hindalco, the TVS group companies and the Bajaj Group. **Figure 8** makes clear that there are a number of clusters – with major nodes providing many connections. Clearly HDFC and Mahindra & Mahindra are the dominant nodes in one closely knit group of companies. The four Tata companies Voltas and Britannia form another cluster with ACC also being linked to this group through Tata Steel. The TVS group companies along with Titan Industries and Tata Steel form another cluster of continuously linked companies that are also linked to other Tamilnadu companies such as Tamilnadu Petro products and SPIC. The K M Birla Group of companies and the Bajaj companies also emerge as linked groups forming a cluster over the period of study. Bharat Forge, Force Motors and Deepak

Fertilisers form another closely linked triad of companies. CESC, Dalmia Cement, Hindustan Motors and India Glycols form another cluster.

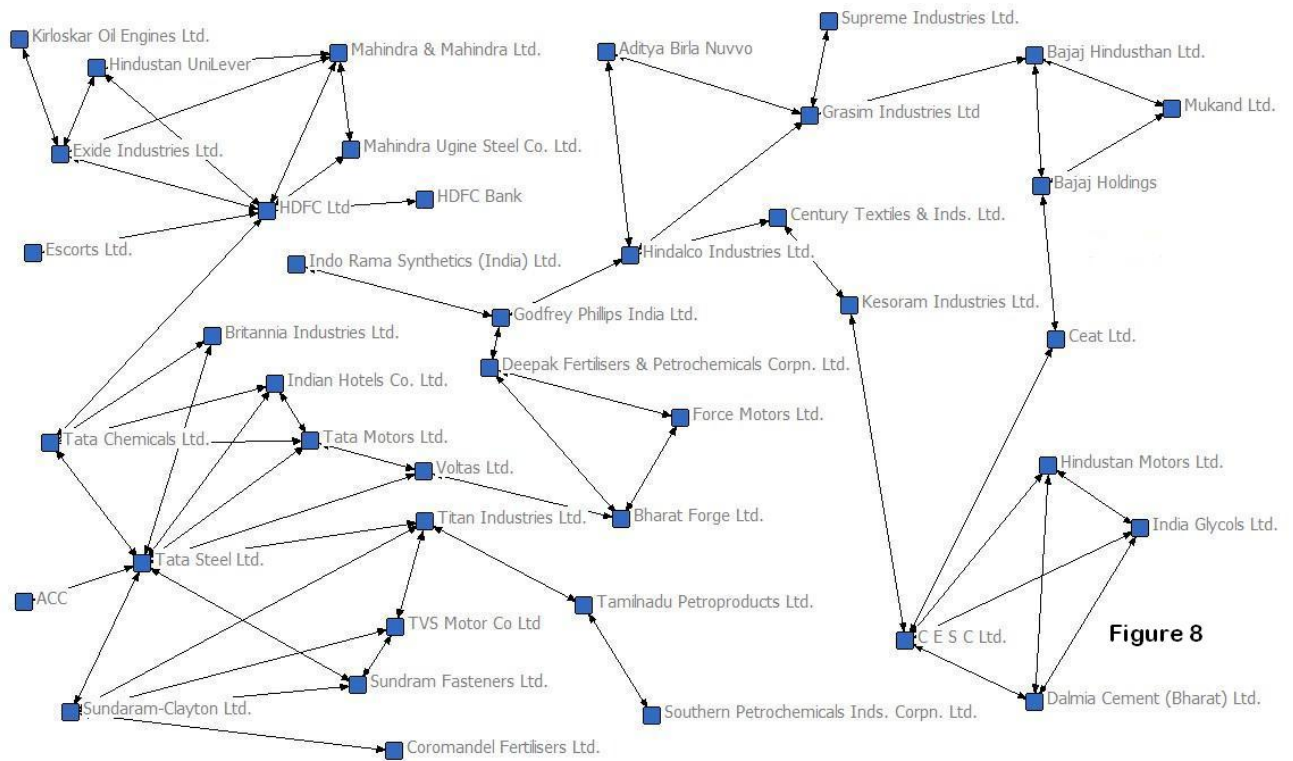


Figure 8

From **Figure 8** we can clearly see dominant clusters of firms that are connected by single connections. Some of these connections if cut, break up this large component into two smaller networks. The HDFC and Tata Chemicals connection, the Voltas and Bharat Forge connection, the links between Deepak Fertilisers and Hindalco via Godfrey Phillips, the Bajaj Hindustan Grasim connection, the Kesoram links to Century and the CESC group are some examples of these connections that link the dominant tightly connected clusters together into a larger 41 node network.

Apart from this large core – a number of smaller groups of companies have also remained connected for the period 1997 to 2007. **Figure 9** provides a representation of these links. The State Bank of India and its subsidiaries form one cluster of four companies. The Chambal Zuari K K Birla group, the Essar companies Ruia Group and the Jindal Steel cluster are also connected continuously during this period. The Brakes India and Wheels India dyad is a part of the TVS group – but is clearly separated in terms of the Board of Directors from other TVS Group companies which are part of the larger 41 node network. Though there is an Oil cluster – seen in the annual networks – we can see that continuity is there only for Indian Oil and ONGC and for Bharat Petroleum and Hindustan Petroleum. There are some State Government Public sector companies such as the two Gujarat Government fertilizer companies that are clearly connected for the period. MMTC and the State Trading Corporation are also connected – they come under the same ministry. Most of the other linkages are family dyads. DCM Shriram links Moser Baer and Samtel Colour.



**Figure 9**

From **Table 10** as well as **Figures 8** and **9** which provide a visual representation of the continuous ties between companies for the period 1997 to 2007, it turns out that 74 companies or 45% of the companies in our data set are continuously connected. About 24% of the ties present in any one year have persisted for more than 10 years (**Tables 10 and 11**).

This brings us to the second related question on continuity. Who are the Directors who provide this continuity? What are their backgrounds and affiliations and what does this tell us about Board interlocks in the Indian context.

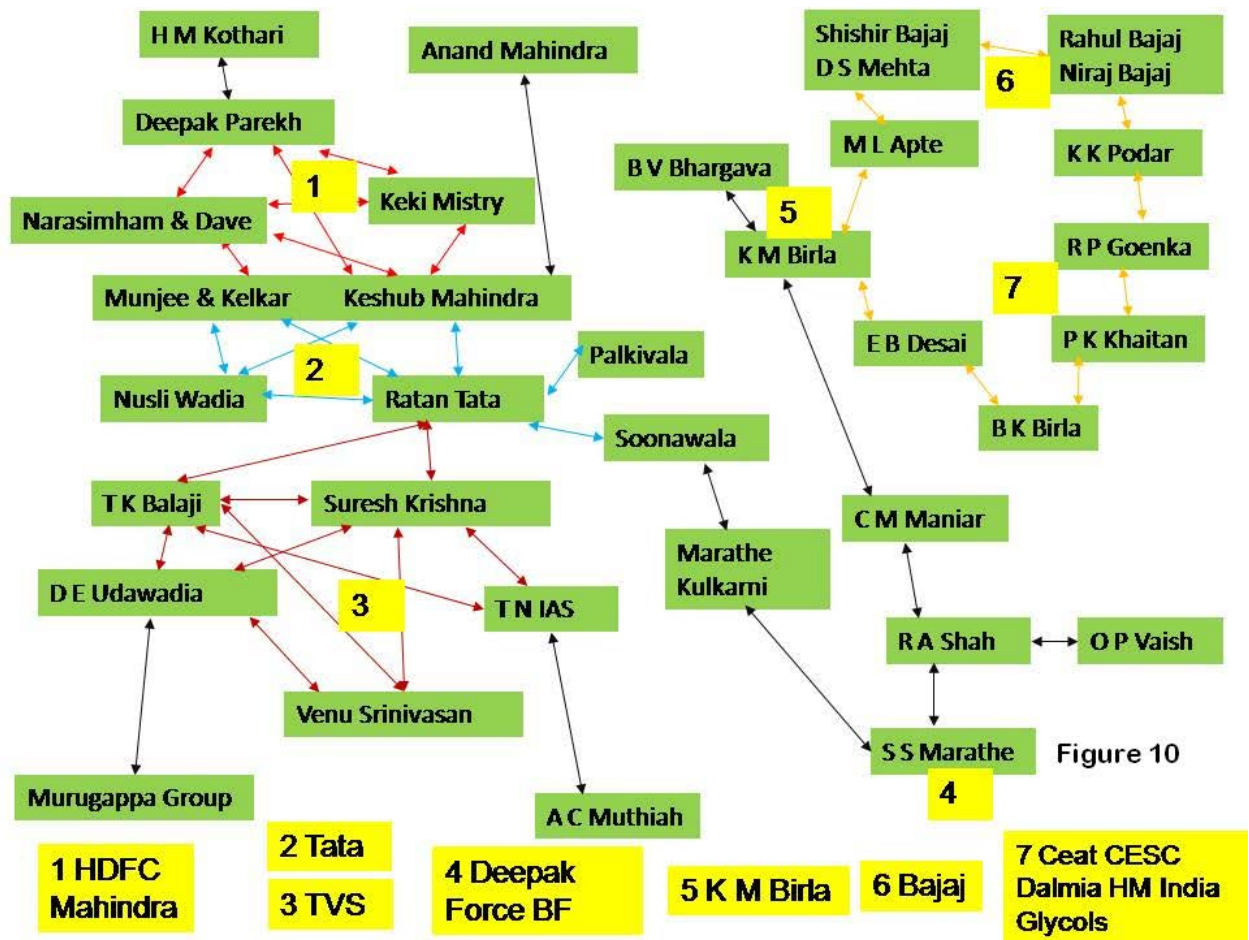
### 10. Directors and Company Ties Continuity

**Annexure 3** provides the names of the various directors that provided the continuity network for the period 1997 to 2007.

There is a large overlap between this list and the list of influential Directors based on the total number of Board Directorships and their connections (**Annexure 1**). However there are still some differences.

The largest component is of course the 41 node company network. This represent the core of the long term relationship between the companies – by inference could be considered to be a network of influence within the corporate world.

**Figure 10** represents the Directors who provide the continuing links between the 41 companies of the largest component of the network for the period 1997 to 2007.



Deepak Parekh, Keshub Mahindra and Nasser Munjee are the major kingpins in the Mahindra – HDFC network. Keshub Mahindra is the continuity link for most of the period between this network and the Tata network. This is a pretty closely connected group of directors.

Nusli Wadia, Ratan Tata, Palkivala and Soonawala are the core directors in the Tata network. Suresh Krishna and T.K.Balaji link the Tata network to the Sundaram group of companies. Marathe during the first part of 1995 to 2007 and Kulkarni in the second half of the period link the Tata network to the Deepak Fertilisers, Force Motors, Bharat Forge cluster who are all connected by Marathe.

T.K.Balaji, Venu Srinivasan and Suresh Krishna are the major nodes in the Sundaram network. Through Udawadia they are linked to the Murugappa group. Through the Tamilnadu IAS the group is also linked to the A.C Muthiah family company SPIC.

K M Birla and Rajashree Birla are the nodes that link Hindalco, Grasim and Aditya Birla Nuvo. B V Bhargava links them to Supreme industries.

M L Apte links the K M Birla group to Bajaj Hindustan headed by Shishir Bajaj. The Bajaj group that was closely linked through Rahul during the first few years has changed. Mukand has all three



**Bajaj family members but Bajaj Holdings is under Rahul Bajaj and Bajaj Hindustan is under Shishir Bajaj. Kantikumar Podar links Bajaj Holdings to Ceat. (R.P. Goenka and P K Khaitan).**

**The Bajaj Group the B K Birla companies the KM Birla Group and the CESC, Dalmia Cement, Hindustan Motors India Glycols form a loosely connected ring – which seems to last the entire duration of our period of study.**

**P K Khaitan is the critical link in the CESC, Dalmia Cement, Hindustan Motors and India Glycols grouping.**

**C M Maniar links the K M Birla Group to Godfrey Philips and R A Shah links Godfrey Philips to the Force Motors, Deepak Fertilizers and Bharat Forge cluster. O P Vaish links Godfrey Philips to Indo-Rama Synthetics.**

**Next to the 41 node component of the network there is a network comprising the Jindal group (Jindal Saw and JSW Steel), the Essar Group (Essar Shipping and Essar Steel) and the K K Birla controlled Chambal and Zuari companies. Ravi Ruia and Sashi Ruia link the two Essar companies and the Jindal family the two Jindal companies. Shyam Bhartia, H S Bawa and K K Jindal link Chambal and Zuari. R N Bansal and S K Podar link Chambal and Zuari with Essar Shipping. A J A Tauro links Chambal with Jindal Saw. Apart from immediate family that link family companies other links provide continuity between these companies.**

**Arun Bharatram, H S Bawa and H D Wahi link Moser Baer with DCM. Arun Bharatram provides the link between DCM and Samtel.**

**The Dhoot family link Videocon and Value Industries. Santhanam Viji links Brakes India and Wheels India.**

**N Srinivasan links India Cements and TAFE. Triloki Nath Kapoor links Omax and Vardhaman.**

**L M Thapar and Gautam Thapar have provided continuity between Ballarpur and Crompton Greaves.**

**Brijmohanlal Munjal provided the link between Hero Honda and Munjal Showa.**

Apart from these companies and directors that are continuously connected for the period 1997 to 2007 there are also some public sector permanent connections. These include the Gujarat government fertilizer companies, the State Bank of India and its subsidiary companies as well as STC and MMTC both coming under the Ministry of Commerce. In the petroleum and oil cluster though there are a lot of connections permanent long lasting interlocks exist only between BP and HP and Indian Oil and ONGC.

**Table 12** provides details of these clusters that emerge from our study of continuous board interlocks between companies over the period of our study. It lists the clusters and other related characteristics of these long term relationships.

**Table 12****Overview of Continuity Clusters – Board Interlocks 1995 -2007**

<b>Cluster</b>	<b>No. of cos.</b>	<b>Major Nodes</b>	<b>Family Links</b>	<b>Other Links</b>	<b>Comment</b>
HDFC Mahindra cluster	7 cos.	Keshub Mahindra Deepak Parekh	Maybe	Finance	Most influential nodes in network
Tata cluster	10 cos.	Ratan Tata, Nusli Wadia, Soonawala	Maybe	Parsi Community	Powerful cluster Links to TVS
TVS Cluster	6 cos.	Suresh Krishna, T K Balaji, Venu Srinivasan	Yes	Iyengar Community	Strong link to Tata cluster – no continuity with other TVS cos.
Tamil Nadu Petro, SPIC	2 cos.	IAS – A C Muthiah	No	Govt. company link	T N Govt. Linked to many cos. in network.
Bharat Forge Cluster	3 cos.	S S Marathe	No	Individual	Link due to S S Marathe
K M Birla Cluster	4 cos.	K M Birla Rajashree Birla	Yes	No	K M Birla group linked to other Marwari cos.
Bajaj Cluster	3 cos.	Rahul Bajaj, Shishir Bajaj, Niraj Bajaj	Yes	Marwari community	Sishir Bajaj linked to K M Birla Family
Dalmia CESC cluster	5 cos.	R P Goenka P K Khaitan	Maybe	Marwari community	Linked to the Bajaj and Birla Groups
Closed Ring structure	10 cos.	Many Chartered Accountants - loose links	Maybe	Strong Marwari links	Loosely linked network of Marwari dominated cos.
K K Birla, Ruia Jindal cluster	6 cos.	Family internal S K Podar R N Bansal links	Maybe	Marwari ties	K K Birla Ruia link strong – Jindal link periphery



Cluster	No. of cos.	Major Nodes	Family Links	Other Links	Comment
DCM Line structure	3 cos.	Arun Bharat Ram	Maybe	Marwari ties	DCM Links Moser Baer, Samtel
Munjial Group	2 cos.	BrijMohanlal Munjal	Yes	Marwari?	Family group
Videcon Group	2 cos.	Dhoot Family	Family	Marwari community	Family group
Brakes India Wheels India	2 cos.	Santhanam Viji	T S Santhanam TVS family	Iyengar community	Not linked to other TVS cos.
TAFE - India Cements	2 cos.	N Srinivasan	Maybe	Iyengar community	Amalgamations Group – Linked to TVS group via Venu Srinivasan
Thapar Group	2 cos.	L M Thapar earlier, now Gautam Thapar	Family	?	Family Group
Omax Vardhaman	2 cos.	Dr. Triloki Nath Kapoor	Family?	?	?
SBI Cluster	4 cos.	Government	Bureaucrats	Professional	Public sector
STC - MMTC	2 cos.	Government	Bureaucrats	Professional	Public sector
BP -HP	2 cos.	Government	Bureaucrats	Professional	Public sector
Indian oil – ONGC	2 cos.	Government	Bureaucrats	Professional	Public sector

**From the data on continuity ties for ten years or more, 74 companies out of 166 companies or 45% of the companies have some kind of continuity of ties. Some of these companies are public sector companies but a large majority of them are family group or community group companies. The challenges of managing family groups are different from those of managing businesses.**

**The data also reveals that apart from family, long term dependence shows the dominant role of certain communities. The Tata Group long term continuity is provided by the Parsi community. The Marwari community both via family and other ties also seem to be a major element in the often loose intermediate nodes that link up many family companies and family groups over a long period of time. This is seen in the cluster which we have called the closed ring structure. The**

Iyengar community especially in Tamil Nadu also has a significant role often via family connections.

Another special feature of the long term continuity network in Tamilnadu is the sustained links between the major family and other clusters with other companies. The State government seems to provide the required intermediation to bring this about.

The Fundamental research question that seems to arise is whether these permanent ties between companies contributes to their better performance or whether the directors who provide these sustained links between companies become more powerful players in the Indian corporate world.

#### 11. Internal and External Orientation of Connected Clusters and Companies

The long term connectivity network provides details of the companies that are connected for ten years or more during the period of our study. For clusters of three or more companies some energy is spent in achieving internal cohesion and some energy goes into reaching out to other companies. These can be termed internal and external orientations. Of the total interlock directorships that link these groups how many directorships are needed for cohesion within the group and how many directorships are needed to link the group companies to other companies could be important. From **Figures 8 and 9** there are clearly ten clusters of three or more companies that are linked together continuously. We computed the internal and external orientations for these ten clusters and also studied the trends from 1995 to 2007. **Table 13** provides some details about the external orientation of these clusters.

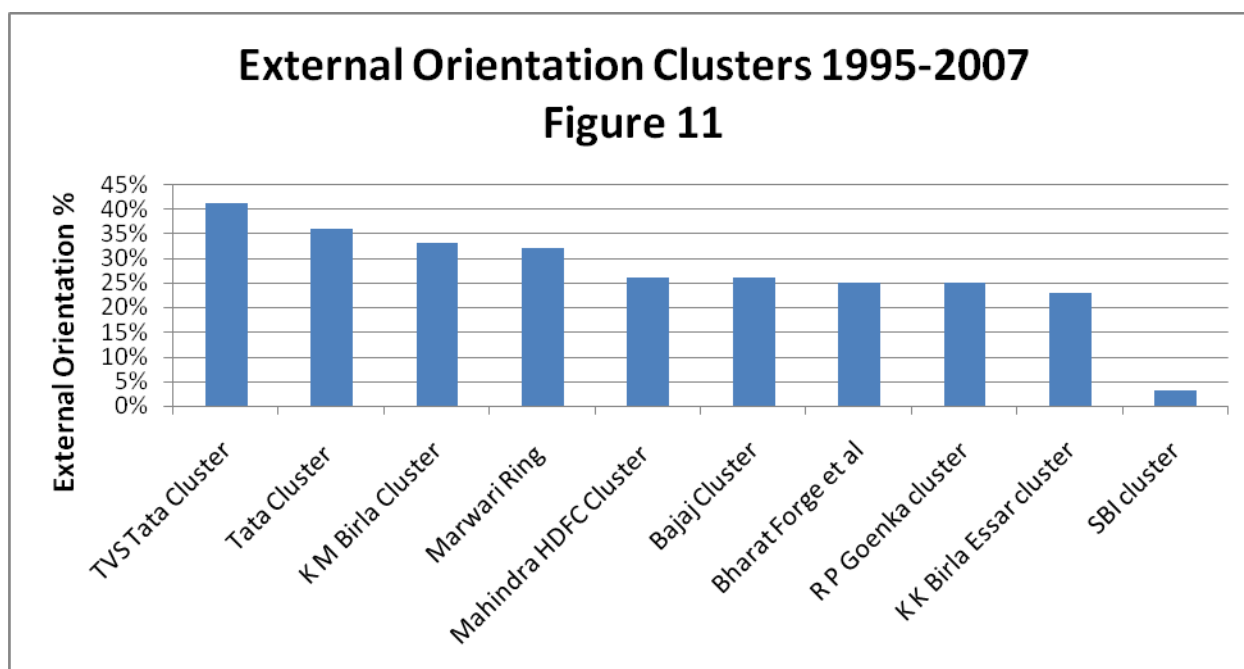
**Table 13**

**External Orientation Clusters 1995 -2007**

Cluster	No. of Companies	Major Nodes	External Orientation Avg. 1995-2007 (%)	Trend
Cluster 1	6 companies	HDFC, Mahindra	26%	Increasing
Cluster 2	6 companies	Tata Group	36%	Increasing
Cluster 3	5 companies	Tata Steel TVS Group	41%	Steady
Cluster 4	3 companies	Bharat Forge et al	25%	Declining
Cluster 5	3 companies	K M Birla Group	33%	Increasing
Cluster 6	3 companies	Bajaj Group	26%	Declining
Cluster 7	4 companies	R P Goenka companies	25%	Declining
Cluster 8	10 companies Marwari Ring	All equal	32%	Declining

Cluster	No. of Companies	Major Nodes	External Orientation Avg. 1995-2007 (%)	Trend
Cluster 9	4 companies	SBI	3%	Not connected
Cluster 10	3 companies	Zuari, Chambal, Essar Shipping.	23%	Declining

Figure 11 provides the average external orientation for the period 1995 to 2007 for these ten clusters.



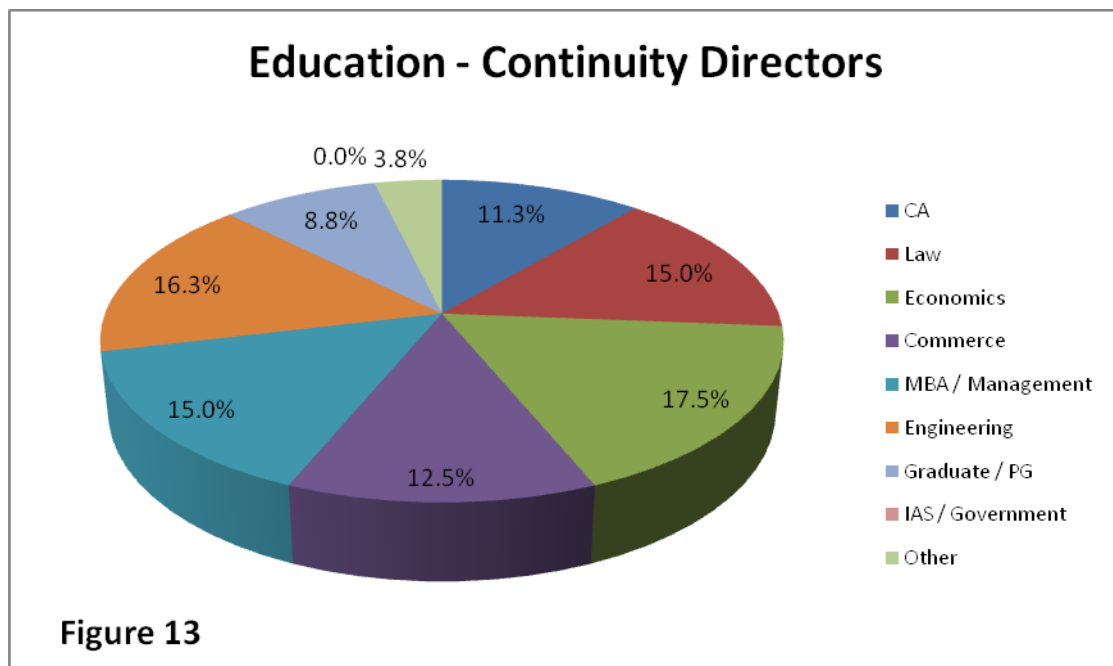
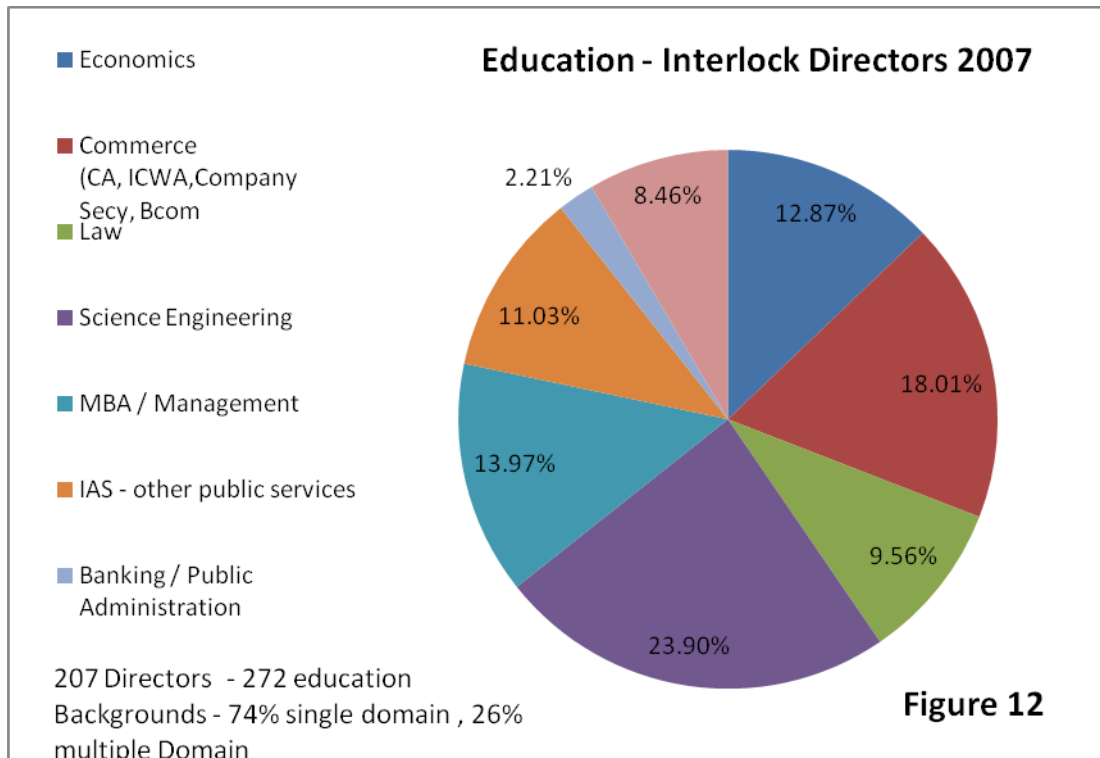
This measure could be important particularly in the Indian context since with economic reform one would expect that the external orientation of firms should decrease since firms could get resources via the market. Whether this is really so or not of course is an open area for research.

## 12. Education & Background of the Influential Directors

One of the questions of interest is the educational and professional background of the Directors who provide the interlocks between companies. The nature of the education and the working backgrounds of these influential directors will throw some light on the environment for doing business within India.

For the year 2007 we tabulated the educational qualifications and the background of all the interlocked directors for which data was available on the Internet. We also tabulated the working background of the interlocked Directors. **Figure 12** provides the educational background of all interlocked directors in 2007 for whom education data is available. **Figure 13** provides similar data

for all directors who are continuously connected through companies for the period 1997 to 2007 whom we term as continuity directors.



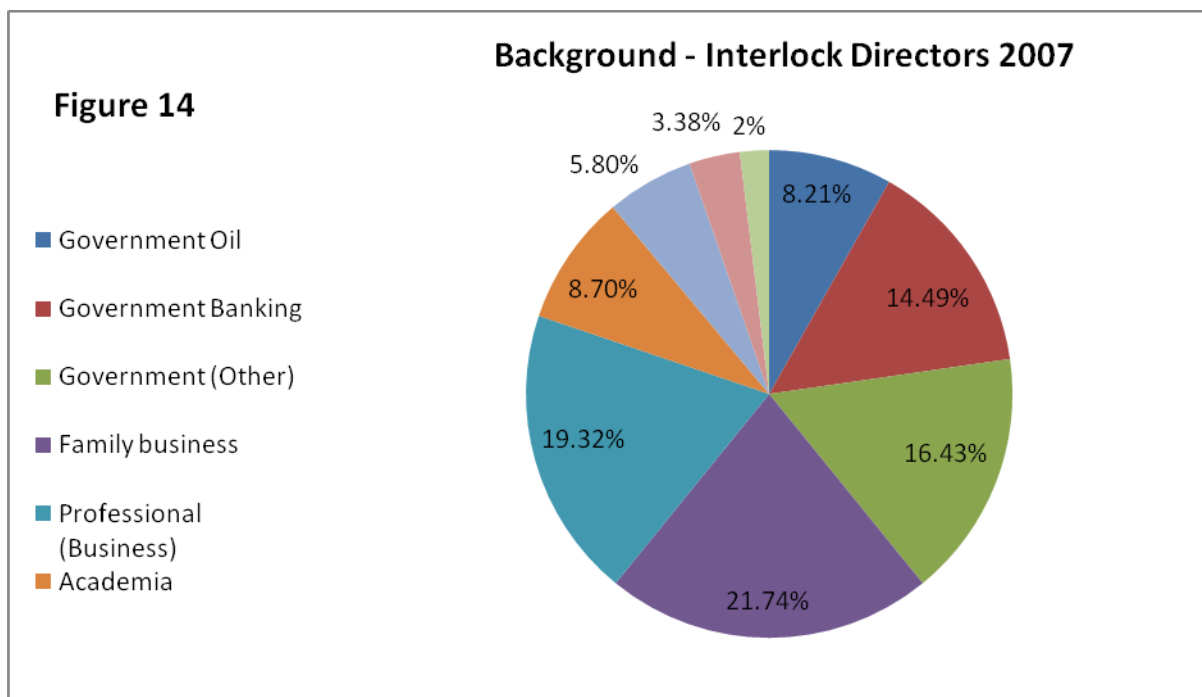
From the data we can see that the percentage of people with CA and Commerce educational backgrounds amongst the more influential continuity directors is 24% which is much higher than the 18% of CA and commerce graduates found for all director interlocks in 2007. Directors who have studied Economics constitute 17.7% in the more influential set as against 13% for all interlocked

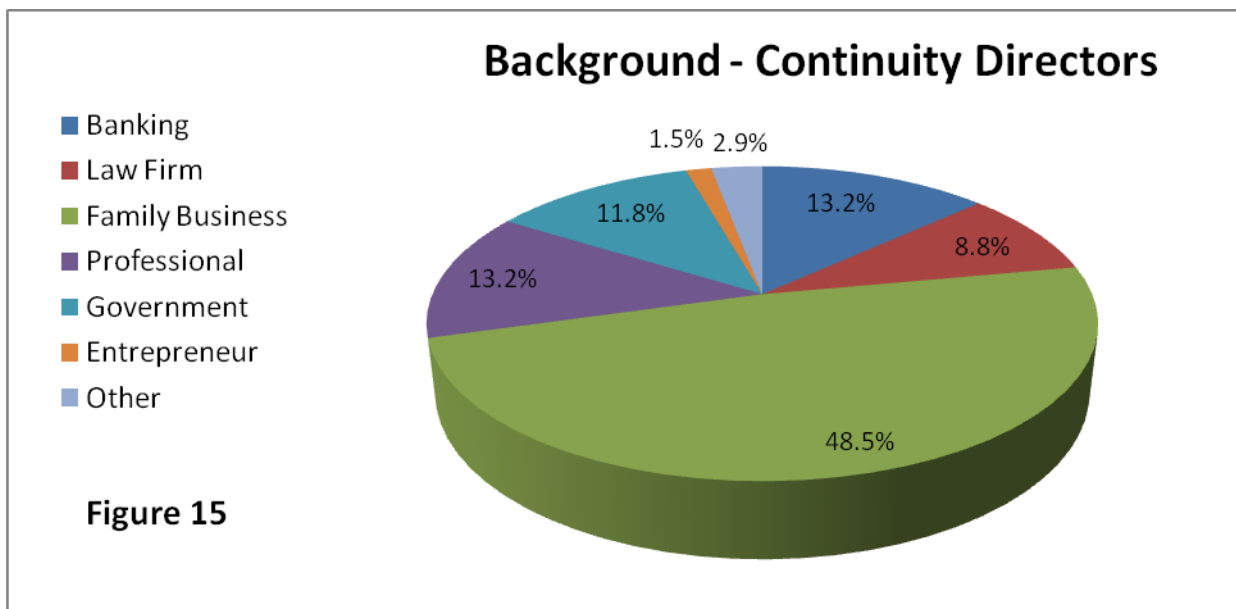
directors in 2007. Lawyers constitute 15% of Directors who are more influential as compared to 10% for the general pool of interlocked directors for 2007.

There is a difference of about 1% (15% for the influential connected set versus 14% for the general pool in 2007) for Directors with MBA backgrounds. By contrast the percentage of Engineers in the more influential set at 16.5 % is much lower than the 24% engineers who constitute interlocks in 2007. Though people with an IAS qualification constitute 11% of interlocked directors in 2007 they are not represented at all in the continuity network. This would suggest that their role and influence is transient rather than permanent.

**Figures 14 and 15** provide the working backgrounds of the directors of all 166 companies who were interlocked in 2007 and the directors who provide continuity and exert influence for the period 1997 to 2007. Family connections constitute only 21.7% of the interlocks for 2007 whereas they are 48.5% of all continuity connections for the period 1997 to 2007.

Directors who provide continuity and who come from a government background excluding the banking and financial sector constitute only 12% of the continuity interlocks as compared to 25% of the interlocks in 2007. Continuity directors with a banking or financial background of work experience comprise 13% of the continuity interlocks which is higher than the 8% of the interlocks that we see for the year 2007. Law firms provide 9% of all continuity interlocks versus 6% of the interlocks for 2007. The percentage of professionals who provide continuity interlocks at 13% is also much lower than 19% of the interlock directors that provide connectivity in 2007. There are not many first generation entrepreneurs of influence in our sample set.





### 13. Board Interlocks Governance & Scandals

During the course of our research one major scam that made news in corporate India were the happenings at the IT major Satyam Computers. Since we had the information on the Directors on the Board of Satyam we could look at the nature of the linkages that Satyam both in terms of the members of the Board as well as with other companies. **Annexure 4** provides a brief write-up based on publicly available information the nature and composition of the Satyam Board, and board interlocks based on our study. The pattern of Board interlocks that are seen along with the major events that took place at Satyam are dealt with in this write-up.

### 14. Literature Review & the Indian Scene

One of the obvious purposes of empirical studies is to identify patterns and based on these patterns suggest an agenda for future research. However for such an agenda to be meaningful it has to be anchored on work that has already been carried out. As we had indicated in our introduction one of the objectives of this research was to look at the phenomenon of Board interlocks as an institution of corporate governance.

A review of various papers we read is in **Annexure 5**.

Before we look at our empirical findings and link it to a research agenda we need to understand something about current research trends in this area of knowledge. Our literature review though not extensive does provide us with some approaches for looking at the Indian evidence.

There are four theories that provide an explanation for Board interlocks amongst firms.

These are the resource dependence theory, the bank or financial control theory, the finance capital hegemony theory and the elite class theory. An additional theory used is the management control theory that propounds that managements are autonomous and do not require resources

from outside. Interlocks if they exist are therefore a manifestation of a power elite or a lobbying force rather than a provider of resources. In this sense it is a complement to the management elite theory.

Many of the papers we scrutinised seemed to use a variety of approaches to test which of these theories provides the best explanation for board interlocks. A lot of this work is US centric. But researchers in other countries have also contributed. These include Canada, Japan, Hong Kong, Singapore, Thailand, Sweden, Spain, Germany Belgium and even one study on India<sup>1</sup> that is referred to in a paper on the Belgian network. Some of the studies including many early ones in the US and later ones in Hong Kong, Singapore, Thailand use interlock data for a single year to compare and contrast the structures of the networks of different countries. One study in Japan just uses the networks of GM and Mitsubishi Heavy industry to compare and contrast the US and Japanese Board interlock networks. The non-US studies draw upon the US studies in terms of approach with some additions and deletions related to the specific context.

Studies soon moved away from single year samples towards looking at the evolution of networks over time. Most of them look at the network at two different points in time and from the observed differences make inferences about the nature of relationships between firms based on the four theories.

Some fairly significant studies also looked at continuity of ties between firms over a period of time. By differentiating between directional and neutral ties, intentional and unintentional ties, by using broken ties that were reconstituted or new ties that were initiated in a network over time they try to put numbers on the proportion of ties that could be ascribed to each of the theories.

None of the papers seemed to use continuity of ties as manifested in a core network whose evolution can be modeled every step of the way to examine the continuity question and its implications for theory. Instead of this they use reconstitution of broken ties or initiation of new ties as surrogates for looking at long term relationships between firms.

Some of the papers also provided a historical perspective on Board interlocks especially changes in the US and Swedish networks from the early 20<sup>th</sup> century to the 1960's. The evidence seems to suggest that a Finance Capital Hegemony model or an Elite Director Club model provides a more appropriate explanation for interlocks at least at that time.

In contrast to these largely US centric approaches two papers one on Spain and the other on Germany provide a refreshingly different perspective. The Spain paper authored by Ruth V Aguilera provides an additional historic perspective for studying interlocks. It talks of three different models of economic development. The Anglo-Saxon model of entrepreneur led economic development, the European bank –led Continental model of Economic development and the Japanese Kereitsu model. Without explicitly saying so it suggests that intelocks and markets for corporate control are two alternative institutions for progressing economic development. It puts Spain squarely into the Bank-led active government European model.

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<sup>1</sup>De, B. (2003), "The incidence, performance effects of interlocking directorates in emerging market business groups: evidence from India", *Working Paper* (Indira Gandhi Institute of Development Research)

The other paper by Heinze on Germany looks at German Board interlocks for 69 of the top 100 companies at two different points in time 1989 and 2001. It makes the point that in spite of moving towards a more entrepreneurial market oriented approach to economic development the underlying structural core of the German interlock network is still strong and is still mainly a Bank - large industry hegemony structure. The author explicitly makes the point that director interlocks and markets for corporate control are two alternative methods for governing economic development.

The evidence for the dominance of any one model in the US seems at best mixed. Though in principle the Anglo-Saxon model must be dominantly seen in the US there is no clear evidence to establish this. Bank Financial control as well as family related features apart from management control features may be the norm. By contrast Germany Spain as well as Japan show clearly the Bank Large capital nexus features. Hong Kong and Singapore are more family led and dominated networks reflecting in a sense the differential evolution of institutions in that part of the world.

Though the evidence is limited the UK seems to be more entrepreneurial and market oriented than the US.

From the limited data available in the papers India which at the macrolevel has fewer connections. It seems to be closer to the autonomous management control model of entrepreneurial led development than the US. Interlocked directors as a proportion of all directors are lower. However the density and cohesiveness measures put India more into the category of the US or Hong Kong. One of the questions to ask is whether there is a difference between an individual led model of entrepreneurial economic development as in the US and a family led model of entrepreneurial economic development as in India?

Most of the studies largely look at the macro level properties of the interlock network as a whole. Very few studies tried to look at the detailed structural properties of the network. The study on Spain<sup>2</sup> and Germany<sup>3</sup>, as well as an earlier study by Allen<sup>4</sup> on the US in 1978 looks at the different cliques and loose connections between the core the middle and the periphery of the network. The German study also provides data on isolates that are not connected to the network. The Indian continuity network that we have identified seems to share similar structural features as the German network though the two are not strictly comparable due to the dual Board scheme that exists in Germany.

As emphasised earlier family groups and family companies form the core of the Indian corporate network. There is also stability at the core level. These strong interlocks connect loosely with other family related interlocked businesses. Caste and location too seem to play a part. This seems to suggest a fairly unique architecture of links that may combine internal optimisation of resources via family with political or economic influence via an elite loosely interconnected elite group. Though it

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<sup>2</sup>Ruth V Aguilera, "Directorship Interlocks in Comparative Perspective: the case of Spain", *European Sociological Review*, Vol. 14 No. 4 (Dec. 1998) pp 319-342.

<sup>3</sup>Thomas Heinze, "Dynamics in the German system of corporate governance? Empirical findings regarding Interlocking Directorates", *Economy & Society*, Volume 33, Number 2, May 2004, pp. 218-238.

<sup>4</sup>Allen, M. (1978) Economic Interest Groups and the Corporate Elite Structure, *Social Science Quarterly*, 58, 597-615.



may not be as strong as Germany Inc there does seem to be empirical evidence for some kind of an India Inc.

Though there are many studies on the role of interlocks in a particular country context the role of interlocks and their function in economic development across different contexts appears to be not well understood. Though the US seems to epitomise the market (including a market for corporate control) as an institution for governing economic development its structural features as seen through interlocks seems to be in contradiction to this premise. The review of the limited evidence suggests that the UK, even more than the US, represents a more market based approach for governing economic activity. The real world of country economies as seen through the institution of Board Interlocks is obviously a mixture of many different types of relationship that share some macro and some structural network features. However they also represent differences in terms of a historical evolutionary process of change and adaptation. These differences may still be present and influential in the current context of global change which seems to be veering towards market based institutions for governing economic activities. Unraveling this complexity across different countries to provide a more nuanced and finely structured view of governance institutions in general and Board interlocks in particular is one obvious area for research that emerges from this literature survey.

## **15. A Research Agenda**

Our data set of annual interlocks for all years from 1995 to 2007 as well as the company annual reports should enable us to replicate almost all the studies that we have seen in the literature. With some effort we could extend this to cover all the years to 2011.

Using company to company as well as director to director affiliation matrices we can easily study broken ties, the reconstitution of broken ties, the initiation of new ties and the continuity of ties. We could do these from year to year as well as across the whole period. The picture that emerges from such an exercise should enable us to differentiate between different types of ties in a much better way than many other studies. However if continuity can be clearly measured as in our case is there a need for the use of either the reconstitution of broken ties or the initiation of new ties as surrogates for continued interdependence is something to be questioned.

The literature review also reveals that historical developments leave a legacy that is reflected in the current state of governance institutions of which Board interlocks are one. This issue has not been addressed adequately in our study but needs to be emphasized. This is an area of research that may require further attention.

Our research also suggests the following specific studies:

Only one financial institution HDFC plays a role possibly a most significant role. However in another related study on women directorships on Indian corporate Boards<sup>5</sup> we found that though Board members from Indian Banking and Financial companies did not feature on private sector firm

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<sup>5</sup>Anitha Kurup, S. Chandrashekar, K. Muralidharan "Woman power in Corporate India, in conversation with Kiran Mazumdar Shaw, Chairperson & MD, Biocon Ltd", IIMB Management Review, (2011) 23 pp. 223-233.

Boards, other lower level officers from these institutions were often represented on many firm boards. The preliminary impression that one gets is that these memberships reflect bank or financial institution control which must be related to a firm's need for money. Though we have not carried out an analysis of this our data set makes it possible to shed light on this phenomenon. The creation and breaking or non-breaking of ties can also be easily linked to the financial position of the firm to establish whether such links are transients or permanent features of strategic relationships between financial and non- financial firms.

Our research suggests that there are strong links between retired government and public sector officials and corporate Boards. The resource dependency theory would suggest that such additions to the Board are important for key connections to important power centres within the government. Our data should be able to shed some light on the nature and trend of these relationships. From our continuity analyses we see that Directors with a government background are not as prominent in the long term core component of the Interlock network. This would suggest that their addition to Boards are purely tactical in nature. If reform has truly taken off one should see a decreasing trend in these connections. This also merits further investigation.

Families dominate the business landscape in India. Family ties and relationships are closely intertwined with business relationships. The key issue to be addressed is whether family businesses do better than non-family businesses.

Another promising area of research is the connection between continuity and performance. 74 companies or 45% of our sample set are continuously connected during this period. The key research question is of course whether this connectivity has improved their performance as compared to companies that are not continuously connected.

The continuity network reveals a lot of clusters. Do clusters perform better than non-cluster companies within the continuous network? Another related issue to study is whether Family clusters outperform non-family clusters in the continuity network.

The size of the cluster could also have an impact on the performance. This could also be investigated.

For each cluster interlocks are required to maintain cohesion within the group. Interlocks are also required to link the cluster to other companies from whom one may expect some resources. These can be termed internal orientation and external orientation. These orientations could also affect the performance of these group companies.

The dominant clusters belong to some of the major family business groups in India. A comparative evaluation of their performance vis a vis the role of interlocks, their orientation as well as any family related concerns could be a specific problem to be addressed through more detailed and specific case studies.

HDFC and the Mahindra Group emerge as one of the more influential power centres of the Indian corporate world. The role of the private sector banks like ICICI and financial institutions like HDFC and their impact may be worth investigating.

The research also provides a list of the major personalities who wield power and influence in the Indian business world. Business connections are revealed through this study. There may be other elements of connectivity some of which like community is also partly revealed in our research. The issue of whether position in a company or the powerful individual is the driver of connectivity is worth pursuing. The data does enable one to trace the path of an individual and his connections through various directorships on various Boards. This will complement our empirical findings on the most influential directors.

From a sociological and historical perspective the dominant business communities – the Parsis, the Marwaris and the Iyengars – are worth studying in greater detail. There is already a substantial body of work in this area. However an update of these in post liberalized India may be of interest to sociologists as well as business historians.

All the above problems are in a sense obvious and can be extrapolated from the empirical research findings and the literature. However the problems of corporate governance are much broader in scope than just Board Interlocks.

Two great challenges in understanding governance systems within any country are evident.

The first challenge is to understand the current state of corporate governance.<sup>6</sup>

Related to this is of course the question of reform and its implications for development especially economic development.

Changes to the existing regimes of rules, laws and practices via regulatory and control organisations are embedded within a very strong network of institutions<sup>7</sup> inside corporations, within the corporate world and between the corporate world and the rest of society.

Following best practices from other contexts may help but without understanding the strength and power of these connections, the process of reform may not result in desired outcomes.

This immediately leads us to the second question related to the institutions of governance within any country. How do we account for the current system of institutions for corporate governance and what were the historical forces that shaped and moved them to the current position?

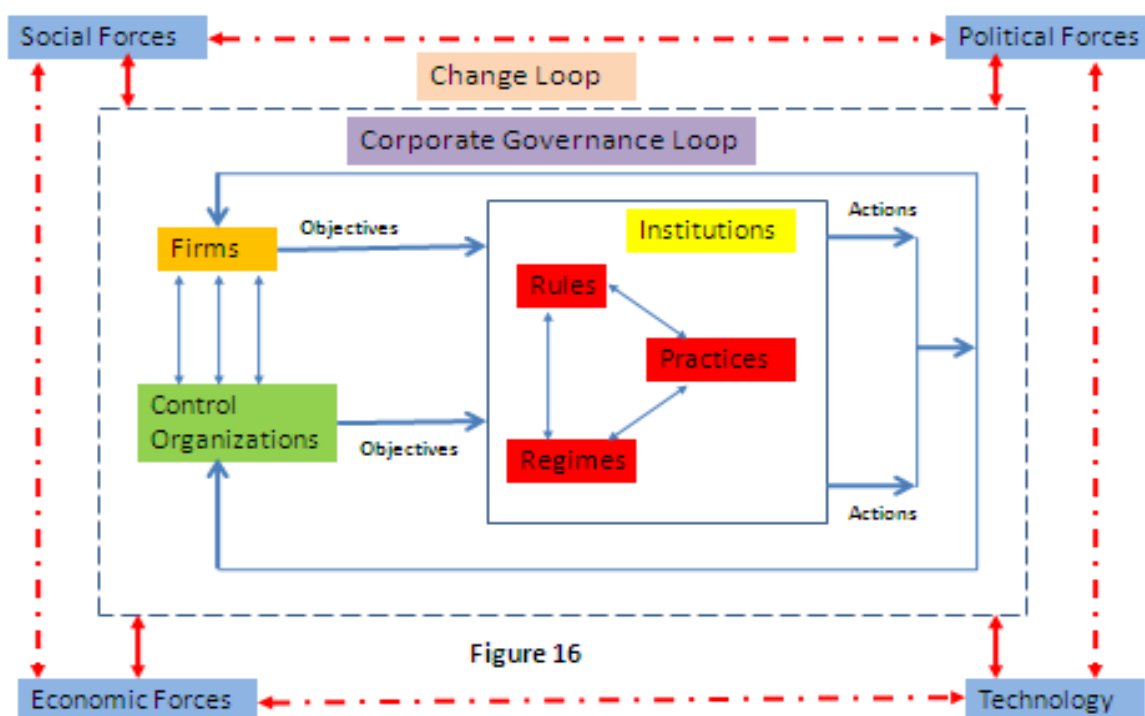
**Figure 16** provides a conceptual view of this coupling between firms, regulation & control organizations, the institutional regimes of rules, regimes and practices as well as the various forces of internal and external change.

As we can see from this figure there are two loops of actions. The corporate governance loop is influenced by and also influences the societal forces governing change.

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<sup>6</sup> Corporate Governance defined on the basis of the meaning of the word govern as “the system in place to control, direct or strongly influence the actions and conduct of corporate entities”.

<sup>7</sup> An institution defined as a significant practice, relationship or organization in a society or culture.



Our empirical investigation on Board interlocks is a very limited approach to the problem of corporate governance in India. Drawing on the papers of Aguilera and Heinze markets for corporate control and Interlocks are seen as two alternative forms of institutions for governance of corporations. These are subsets of a larger set of governance institutions for the corporate world. Changes to these institutions of governance whether imposed or emergent can only be brought about if we can understand the connections between institutions and the technological, social, political and economic forces that are shaping and moving them.

Two broad approaches to the study of institutions seem to be dominant currently.

One approach is of course the school of thought anchored in transaction cost theory.<sup>8</sup> This approach sees markets, hierarchies along with hybrid forms of organization as the outcome of a combination of different transactions that firms have to carry out in pursuit of their objectives. Markets, hierarchies (including the network form of organizations) as well as hybrid structures are manifestations of how issues of transaction costs are resolved by firms within the business environments they face. If transactions are incomplete or cannot be specified clearly a combination of controls and incentives are needed to align the interests of the different parties involved in the transaction. An understanding of how these structures, controls and incentives change in response to various internal and external forces that shape the activities of the corporate world is central to the problem of corporate governance within any country. Obviously understanding these institutions of corporate governance across different countries is also a matter of great research interest

<sup>8</sup> Oliver E Williamson, 'Comparative Economic Organization: The Analysis of Discrete Structural Alternatives', *Administrative Science Quarterly*, Vol. 36 No. 2 (Jun. 1991), PP. 269-296

especially keeping in mind current global trends of market oriented economic reform. The focus in this approach is on the softer part of organization structure within any system.

The other approach which like transaction costs is also based on the neo-classical theory is evolutionary game theory that views institutions as the stable evolutionary outcome of iterated games taking place over time. In this approach institutions and regimes emerge as the stable equilibrium in games played out by different actors in the economic drama that unfolds within each country as firms, industries and other control and regulation organisations adapt and cope with the internal and external challenges that they faces. The dominant focus in this part at least from the economic literature is on the harder economic task part of the system.

The third domain of knowledge that complements and supports both transaction cost theory and evolutionary game theory in the study of institutions is network theory. This is not very often explicitly stated but implicitly assumed especially in evolutionary game theory. **Figure 17** provides an overview of this approach to institutions of corporate governance.

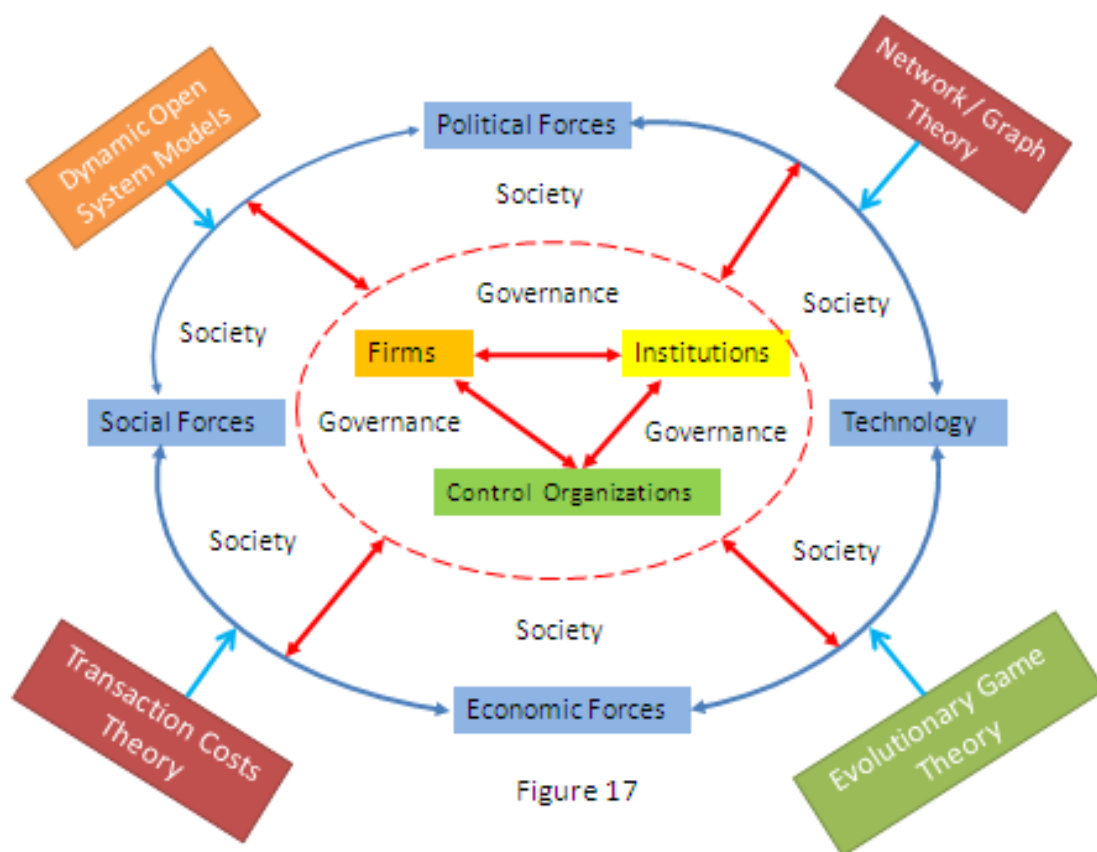


Figure 17

Though treated separately in the academic literature<sup>9</sup> these three approaches taken together in an open complex dynamic system framework appear to provide novel ways of understanding the phenomenon of governance within the corporate world. Transactions and games are basically

<sup>9</sup> This is not strictly speaking true. Some efforts in combining the three approaches seem to be under way. See Avinash Dixit, "Governance Institutions and Economic Activity", American Economic Review 2009, 99:1, 5-24 accessible via <http://www.aeaweb.org/articles.php?doi=10.1257/aer.99.1.5>

different descriptions of the same phenomenon of dependence between different nodes in a network of dependencies. They are also anchored in the neo-classical theory. They also implicitly bring into contention a network and an open system dynamic approach for addressing problems. If these elements of knowledge can be combined together they represent a more powerful approach for studying both the existence and evolution of institutions of governance within any society. The same approach can also be used to look at corporate behavior and change in behavior that can complement and supplement the extensive domain of knowledge called corporate strategy.

### **Acknowledgement**

The authors would like to thank Prof. Deepak Sinha and Prof. J. Ramachandran of the Corporate Strategy & Policy Area at IIMB for their help and support in conducting this research. The Library and support staff at IIMB helped us with the data collection effort. Our special thanks to them. The authors would also like to thank S. Anish Doctoral student at IIMB for useful discussions and help in accessing the literature on institutions and institutional change. The authors are of course solely responsible for all errors of commission and omission.

## Most Well Connected Directors 1995 -2007

Name of Director	Total Directorships	Connections	Rank
Keshub Mahindra	62	391	1
Deepak S Parekh	94	334	2
Ishaat Hussain	46	276	3
Kumar Mangalam Birla	59	267	4
Nusli N Wadia	51	246	5
N A Soonawala	52	244	6
Suresh Krishna	43	240	7
Nasser M Munjee	55	234	8
S Venkitaramanan	31	221	9
Dr Jamshed J Irani	39	215	10
Bansi S Mehta	29	191	11
S S Marathe	50	189	12
Dr Dharam Vir Kapur	32	183	13
Nimesh N Kampani	57	182	14
Pradip Kumar Khaitan	64	180	15
Deepak M Satwalekar	40	175	16
Dr A C Muthiah	41	169	17
Saroj Kumar Poddar	38	168	18
Dr S A Dave	24	163	19
T K Balaji	45	158	20
Mrs. Rajashree Birla	39	158	20
Mansingh L Bhakta	37	157	22
Narayanan Vaghul	40	153	23
Rahul Bajaj	35	153	23
Dhirajlal S Mehta	30	146	25
Keki M Mistry	26	137	26
Kantikumar R Podar	26	136	27
Madhav L Apte	26	135	28
A J A Tauro	24	134	29
R N Bansal	20	126	30
R A Shah	46	118	31
H S Bawa	26	118	31
Venu Srinivasan	47	117	33
E B Desai	30	117	33
Marco Wadia	24	114	35
M D Locke	24	113	36
Anand G Mahindra	26	112	37
Arun Bharat Ram	36	109	38
B V Bhargava	30	108	39
Shishir Bajaj	26	108	39
Shyam S Bhartia	24	105	41
N Srinivasan	40	103	42
B K Birla	27	103	42

<b>Name of Director</b>	<b>Total Directorships</b>	<b>Connections</b>	<b>Rank</b>
Dadi S Mulla	31	101	44
P Murari, IAS (Retd)	20	97	45
Anil D Ambani	22	96	46
N J Jhaveri	25	95	47
D E Udawadia	29	93	48
Amitabha Ghosh	27	92	49
C K Birla	20	90	50
Shardul S Shroff	37	86	51
Ratan N Tata	55	83	52
V Narayanan	31	83	52
Gopal Srinivasan	26	77	54
S K Birla	22	77	54
Susim M Datta	36	75	56
Bhagwati Prasad Bajoria	24	75	56
C M Maniar	26	73	58
H M Kothari	26	70	59
Dr Neelkanth A Kalyani	24	70	59
Rama Prasad Goenka	26	68	61
Atul C Choksey	28	65	62
Shashi Ruia	26	59	63
Ravi Ruia	20	59	63
K K Birla	26	58	65
Dr R Srinivasan	27	57	66
Bhaskar Mitter	20	56	67
O P Vaish	32	52	68
Brijmohan Lall Munjal	39	51	69
M V Subbiah	20	32	70
Dr Triloki Nath Kapoor	24	26	71
Anup Singh	20	25	72
Santhanam Viji	29	22	73



## Most Influential Companies

Company	Total Connections 1995 -2007	Rank
HDFC Ltd	262	1
Tata Steel Ltd	259	2
Mahindra & Mahindra Ltd	193	3
Tata Chemicals Ltd	186	4
Voltas Ltd	156	5
Grasim Industries Ltd	148	6
Indian Hotels Co Ltd	142	7
Larsen & Toubro Ltd	139	8
Escorts Ltd	139	8
Hindustan Motors Ltd	132	10
Titan Industries Ltd	126	11
Ambuja Cements	125	12
Ceat Ltd	125	12
Tata Motors Ltd	121	14
Hindustan UniLever	119	15
Bharat Forge Ltd	116	16
Southern Petrochemicals IndsCorpn Ltd	113	17
Sundaram-Clayton Ltd	111	18
Bajaj Holdings	107	19
Exide Industries Ltd	106	20
Essar Shipping Ports & Logistics Ltd	106	20
ACC	102	22
Castrol India Ltd	100	23
Sundaram Fasteners Ltd	99	24
Deepak Fertilisers& Petrochemicals Corpn Ltd	96	25
D C M Shriram Consolidated Ltd	95	26
Apollo Tyres Ltd	93	27
Ashok Leyland	92	28
Reliance Industries	88	29
Century Textiles &Inds Ltd	87	30
Hindalco Industries Ltd	86	31
C E S C Ltd	86	31
Indian Oil Corpn Ltd	85	33
Siemens Ltd	85	33
Tamilnadu Petroproducts Ltd	84	35
I F C I Ltd	82	36
Philips Electronics India Ltd	81	37
Aditya Birla Nuvvo	80	38

<b>Company</b>	<b>Total Connections 1995 -2007</b>	<b>Rank</b>
Mukand Ltd	80	38
Oil & Natural Gas Corpn Ltd	79	40
I C I C I Bank Ltd	78	41
Mahindra Ugine Steel Co Ltd	78	42
Bosch Ltd	77	43
Britannia Industries Ltd	77	43
Kirloskar Oil Engines Ltd	76	45
Mangalore Refinery & Petrochemicals Ltd	74	46
India Cements Ltd	74	46
N T P C Ltd	73	48
Hindustan Petroleum Corpn Ltd	72	49
Asian Paints Ltd	72	49
Graphite India Ltd	70	51
TVS Motor Co Ltd	68	52
Chambal Fertilisers & Chemicals Ltd	67	53
Tata Communications Ltd	66	54
Samtel Color Ltd	66	54
Godfrey Phillips India Ltd	65	56
Cummins India Ltd	64	57
Ballarpur Industries Ltd	64	57
Hero Honda Motors	63	59
Kesoram Industries Ltd	63	60
Bajaj Hindusthan Ltd	63	61
Dalmia Cement (Bharat) Ltd	63	61
Force Motors Ltd	63	61
India Glycols Ltd	63	61
Ranbaxy Laboratories Ltd	61	65
C M C Ltd	61	65
Infosys Technologies	59	67
G A I L (India) Ltd	56	68
JSW STEEL LTD	55	69
Mysore Cements Ltd	55	70
Reliance Infrastructure Ltd	55	70
Ispat Industries Ltd	53	72
HDFC Bank	52	73
ABB	52	73
Supreme Industries Ltd	50	75
Bharat Heavy Electricals Ltd	49	76
Essar Steel	48	77
Bharat Petroleum Corpn Ltd	47	78
State Bank Of India	47	78
Coromandel Fertilisers Ltd	47	78

<b>Company</b>	<b>Total Connections 1995 -2007</b>	<b>Rank</b>
Dabur India Ltd	47	78
Omax Autos Ltd	47	78
Chennai Petroleum Corpn Ltd	46	83
I T C Ltd	46	83
State Bank Of Travancore	46	83
Avaya Globalconnect Ltd	46	83
Brakes India Ltd	46	83
Gujarat Narmada Valley Fertilizers Co Ltd	45	88
Wipro	43	89
State Bank Of Bikaner & Jaipur	43	89
Apollo Hospitals Enterprise Ltd	43	89
Neyveli Lignite Corpn Ltd	42	92
Maruti Suzuki India Ltd	41	93
Tractors & Farm Equipment Ltd	41	93
N M D C Ltd	41	93
Crompton Greaves Ltd	39	96
State Bank Of Mysore	39	96
Blue Star Ltd	39	96
Munjal Showa Ltd	39	96
Steel Authority Of India Ltd	38	100
Gujarat State Fertilizers & Chemicals Ltd	38	100
Zuari Industries Ltd	38	100
Vardhman Textiles Ltd	36	103
Thermax Ltd	35	104
Indo Rama Synthetics (India) Ltd	35	104
Birla Corporation Ltd	34	106
Jindal Saw Ltd	33	107
Corporation Bank	31	108
Shipping Corpn Of India Ltd	31	108
Eicher Motors Ltd	29	110
R S W M Ltd	29	110
M M T C Ltd	28	112
Indian Railway Finance Corpn Ltd	28	112
State Trading Corpn Of India Ltd	27	114
Dena Bank	26	115
Hindustan Zinc	25	116
Dr Reddy's Labs	25	116
E I H Ltd	25	116
Finolex Cables Ltd	25	116
Adani Enterprises	24	120
Nirma Ltd	24	120
Value Industries Ltd	24	120

<b>Company</b>	<b>Total Connections 1995 -2007</b>	<b>Rank</b>
Videocon Industries Ltd	22	123
Nestle India Ltd	22	123
Elecon Engineering Co Ltd	22	123
Surya Roshni Ltd	22	123
MRF Ltd	21	127
Rashtriya Chemicals & Fertilizers Ltd	21	127
Coal India Ltd	21	127
Balkrishna Industries Ltd	21	127
Rico Auto Inds Ltd	21	127
Lakshmi Machine Works Ltd	20	132
Moser Baer India Ltd	20	132
Bank of India	19	134
Bongaigaon Refinery	18	135
Sterlite Industries (India) Ltd	17	136
Himachal Futuristic Communications Ltd	17	136
National Fertilizers Ltd	16	138
Uttam Galva Steels Ltd	15	139
Wheels India Ltd	15	139
Mirc Electronics Ltd	12	141
Bank of Baroda	11	142
H C L Infosystems Ltd	11	142
Apar Industries Ltd	10	144
Satyam Computer	8	145
MTNL	8	145
Madras Cements Ltd	8	145
Bhushan Steel Ltd	8	145
Union Bank Of India	7	149
Bharat Electronics Ltd	6	150
Jyoti Structures Ltd	6	150
Vijaya Bank	5	152
Container Corpn Of India Ltd	4	153
Nagarjuna Construction Co Ltd	4	153
Ruchi Soya Industries Ltd	3	155
Oriental Bank of Commerce	3	156
Unitech Industries	3	156
Cipla Ltd	2	158
Andhra Bank	2	158
B E M L Ltd	1	160
D C W Ltd	1	160
Nahar Industrial Enterprises Ltd	1	160
Rajesh Exports	0	163
NALCO	0	163

<b>Company</b>	<b>Total Connections 1995 -2007</b>	<b>Rank</b>
CPEC Ltd	0	163
Garden Silk Mills Ltd	0	163

Group	Ten year Continuity Clusters & Links Core Network	
<b>1</b>	<b>HDFC - Mahindra Cluster</b>	<b>Key Directors</b>
	HDFC - Mahindra & Mahindra	Deepak Parekh 1995-2007
	HDFC - Mahindra & Mahindra	Keshub Mahindra 1995-2007
	<b>HDFC - Tata Chemicals</b>	<b>Keshub Mahindra 1995 -2006</b>
	<b>HDFC - Tata Chemicals</b>	<b>Vijay Kelkar Nasser Munjee 2007</b>
	HDFC - Mahindra - HUL - Exide	Deepak Parekh through the period
	HDFC HDFC Bank	Keki Mistry 1995 to 2007
	HDFC HDFC Bank	Deepak Satwelkar 1995 -2003
	HDFC HDFC Bank	Renu Karnad 2004 -2007
	Mahindra & Mahindra UGINE	Mahindra family - Harsh, Keshub Anand
	HDFC Escorts	M Narasimham 1995 - 2000,
	HDFC Escorts	Dr.S A Dave 2001 to 2007
	Exide KOE	H M Kothari 1995 - 2007
<b>2</b>	<b>Tata Sundaram cluster</b>	<b>Key Directors</b>
	Tata Steel, Motors, Chemicals Indian Hotels	Ratan Tata 1996 to 2007
	Tata Steel, Tata Chemicals, Britannia	Nusli Wadia 1995 - 2007
	Tata Steel, Tata Motors, Voltas	N A Soonawala, S A Sabavala 1995 -1999
	Tata Steel, Tata Motors, Voltas	N A Soonawala Ishaat Hussain 2000-2007
	Tata Steel ACC	N A Palkhivala 1995 -2001
	Tata Steel ACC	S.M.Palia 2002 -2007
	Tata Steel Titan Sundaram Clayton	Suresh Krishna 1995 - 2007
	Tata Steel Titan Sundaram Clayton	T.K. Balaji 1995 - 2007
	Tata Steel Sundaram Clayton & Fasteners	Suresh Krishna 1995 - 2007
	Sundaram Clayton Sundaram Fasteners TVS	Venu Srinivasan 1995 to 2007
	Sundaram Clayton TVS Titan	T K Balaji 1995 - 2007
	Sundaram Clayton Coramandal	D E Udwardia 1995 - 2007
	Titan Tamilnadu Petro	Tamilnadu IAS link 1995 -2007
	Tamilnadu Petro SPIC	A C Muthiah family TN Govt. IAS
<b>3</b>	<b>Deepak Fertilisers Bharat Forge Force Motors</b>	<b>Key Directors</b>
	<b>Voltas Bharat Forge</b>	S S Marathe 1995 -1999
	<b>Voltas Bharat Forge</b>	S D Kulkarni 2000 - 2007
	Deepak Fertilisers Bharat Forge Force Motors	S S Marathe 1995 -2007
	<b>Deepak Fertilisers Godfrey Phillips</b>	R A Shah 1995 to 2007
	<b>Godfrey Philips Hindalco</b>	C M Maniar 1995 - 2007
	Godfrey Philips Indo Rama	O P Vaish 1995 - 2007
<b>4</b>	<b>Aditya Birla Cluster &amp; Links</b>	<b>Key Directors</b>
	Hindalco Aditya Birla Nuvo Grasim	Aditya Birla K M Birla 1995,
	Hindalco Aditya Birla Nuvo Grasim	K M Birla Rajashree Birla 1996 -2007
	<b>Hindalco Century textiles</b>	Pradeep Kumar Daga 1995 2000,
	<b>Hindalco Century textiles</b>	E B Desai 1995 -2007

<b>Group</b>	<b>Ten year Continuity Clusters &amp; Links Core Network</b>	
	Grasim Supreme Industries	B V Bhargava 1997 -2007
	<b>Grasim Bajaj Hindustan</b>	M L Apte 1995 to 2007
	<b>Century Textiles Kesoram</b>	B K Birla 1995 to 2007
	<b>Kesoram - CESC</b>	Bhagwati Prasad Bajoria 1996 - 2007
	CESC Hindustan Motors	Pradip Kumar Khaitan 1995 - 2007
	CESC Dalmia Cement	Pradip Kumar Khaitan 1996 - 2007
	CESC India Glycol	Pradip Kumar Khaitan 1996 - 2007
	CESC H M Dalmia India Glycol	1996 - 2007 Pradip Kumar Khaitan
	CESC Ceat	R P Goenka 1995 to 2007
<b>5</b>	<b>Bajaj Cluster</b>	<b>Key Directors</b>
	Bajaj Hindustan Bajaj Holdings Mukand	Rahul Bajaj all three 1995 to 2000.
	Bajaj Hindustan Bajaj Holdings Mukand	D S Mehta 2001 to 2007
	Bajaj Holdings Mukand	Rahul Bajaj 1995 - 2007
	Bajaj Holdings Mukand	Dadi Mulla 1995 2005
	Mukand Bajaj Hindustan	Shishir Bajaj, D S Mehta 1995 2007
	Mukand Bajaj Hindustan	Rahul Bajaj 1995-2000
	Mukand Bajaj Hindustan	Niraj Bajaj 2001 2007
	Bajaj Holdings Ceat	Kantikumar Podar 1997 - 2007
<b>6</b>	<b>K.K.Birla - Ruia - Jindal links</b>	<b>Key Directors</b>
	Chambal Zuari Essar Shipping	S K Podar 1996 - 2007.
	Chambal Essar Shipping	R N Bansal 1996 - 2007
	Essar Steel Essar Shipping	Ruia brothers 1995-2007
	Chambal Zuari	K K Birla D B Engineer 1995 - 2007
	Chambal Zuari	H S Bawa S K Podar 1995 - 2007
	Chambal Zuari	M D Locke W J Stevens 1995 - 2007
	Chambal Zuari	Shyam Bhartia 1995 -2007
	<b>Chambal Jindal Saw</b>	A J A Tauro 1997 - 2007
	Jindal Saw JSW Steel	Jindal Family
<b>7</b>	<b>Moser Baer DCM Samtel link</b>	<b>Key Directors</b>
	DCM Samtel	Arun Bharat Ram 1995 2007
	DCM Moser Baer	H S Bawa 1996 -1998
	DCM Moser Baer	Wahi 1999 2003
	DCM Moser Baer	Arun Bharat Ram 2004 2007
<b>8</b>	<b>Hero Honda Munjal Showa</b>	BrijmohanLal Munjal
<b>9</b>	<b>Crompton Greaves Ballarpur Industries</b>	L M Thapar 1995 2001 - Thapar family
	<b>Crompton Greaves Ballarpur Industries</b>	Gautam Thapar 2000 onwards
<b>10</b>	<b>India Cements Tractors &amp; Farm Equipment</b>	N Srinivasan 1995 - 2007
<b>11</b>	<b>Videocon Value Industries</b>	Dhoot family 1995 - 2007
<b>12</b>	<b>Brakes India Wheels India</b>	T S Santhanam 1995 to 2002.
	<b>Brakes India Wheels India</b>	Santhanam Viji from 1995 to 2007
<b>13</b>	<b>State Bank and subsidiaries</b>	Various Directors - parent subsidiary
<b>14</b>	<b>Vardhaman Omax</b>	Dr. Triloki Nath Kapoor 1997 -2007
<b>15</b>	<b>Castrol India Phillips Electronics</b>	Susim Datta 1997 - 2007

<b>Group</b>	<b>Ten year Continuity Clusters &amp; Links Core Network</b>	
<b>16</b>	<b>Hindustan Petro Bharat Petro</b>	Many directors 1995 -2007
<b>17</b>	<b>Indian Oil Corp ONGC</b>	Many directors 1995 -2007



## The Satyam Scandal - Reflections on India's Corporate Governance Standards

### Early History

Ramalinga Raju came from a family of farmers. After his graduation he went to the US and got an MBA from Ohio State University. He came back to India in 1977. Moving away from the traditional family business he set up a spinning and weaving mill called Sri Satyam. Later he entered the real estate business and started a company called Satyam Constructions. In 1987 along with his brother in law DVS Raju he started a small software services company called Satyam Computers. In 1992 DVS Raju and Ramalinga Raju parted ways. DVS Raju went on to start another software company. **Satyam Computers went public in 1992.**

### Satyam Computer – the Scam and its Aftermath

Like its rivals Wipro and Infosys, Satyam Computers has always had a relatively small Board especially so in its early days. It was only in 2003 that Satyam inducted high profile names into its Board. Till 2003, Satyam Computers was largely unconnected with the rest of the corporate world revealing only a largely internal focus. During the period 1992 to 2002, though Satyam Computers did not out perform Wipro and Infosys it was doing well in terms of growth in sales and earnings. Following rivals like Infosys and Wipro it also got listed on NYSE in May 2001.

In the second half of the 2000s Satyam Computers also made it to the billion dollar club. It became one of the top four software services export companies in India. In retrospect one is not sure whether this would have happened without the scam. Ironically as it turned out later Satyam also bagged the coveted Golden Peacock award for corporate governance in 2008.

On 16<sup>th</sup> Dec 2008 meeting of the Board, a case for acquiring Maytas Infra and Maytas Properties for a sum of \$1.6 billion was made by Director Ram Mynampati, CFO Vadlamani Srinivas and M&A head Srinivas Satti. The argument was that the growth in the software business would not be sustainable going forward owing to the slowdown in major markets like the US. Therefore such an action was necessary. The Board agreed to this proposal.

The valuation of the Maytas companies was done by a big four company though the company was not identified at the 16<sup>th</sup> Dec 2008 Board meeting.

However the markets reacted extremely negatively to this move by Satyam. The negative reaction from the markets and pressure from big institutional investors forced the Board to reconsider its decision. Pressure from foreign shareholders and possible legal action may have also contributed to this reconsideration of the Board decision.

Shortly after that one of the Board members Mrs. Mangalam Srinivasan tendered her resignation from the Board. Later in the month three other members of the Board Prof. Krishna Palepu, Vinod Dham and Prof. M Rammohan Rao also resigned.

On 7<sup>th</sup> January 2009 the Chairman of Satyam Computers Ramalinga Raju announced that Satyam's accounts had been systematically falsified and that this had been going on for several years. He also

stated that a lot of the supposed cash reserve never existed and that even the headcount was much smaller than what had been indicated in the reports of the company.

From subsequent reports it became clear that the doctoring of the accounts goes back to 2002 –just after the company started getting quoted on the New York Stock exchange.

It is also clear that starting from 2002 onwards the promoters of the company started progressively selling off their stake in the company. From 25.60 % of the equity, the stake of the promoters had progressively come down to 8.61% just before the unearthing of the scam. Foreign institutional investors held about 46.86% of the equity of the company just before the revelation of the scam.<sup>10</sup>

On 10<sup>th</sup> January, 2009 the Company Law Board decided to bar the then Board of Satyam and nominated ten directors for performing the role of an interim Board.

On 14<sup>th</sup> January 2009, Price Waterhouse, the Indian division of Price Waterhouse Coopers announced that its reliance on potentially false information provided by the management of Satyam might have rendered its audit reports inaccurate and unreliable. The authorities announced that even Price Waterhouse would be taken to task and that the reputation of the Indian IT industry would be protected.

Subsequent to these happenings, a three-member Board was unilaterally appointed by the government to oversee the rescue of Satyam and for finding a suitable buyer for the company. The three Board members were Kiran Karnik, Deepak Parekh and C Achuthan.

Kiran Karnik was an MBA from IIM A who had earlier served at ISRO and Nasscom. Deepak Parekh, Chairman of HDFC was a well known name in the corporate world who sat on the boards of a number of companies. C Achuthan was a former SEBI official who presided over the Securities Appellate Tribunal (SAT). Subsequently three more members were nominated to the Board by the Government.

A number of companies including the Modi Group, IBM, iGate, L&T and others indicated interest in acquiring Satyam. While the bidding process was going on the accounts of the company were being restated. Due to the uncertainty over the accounts and the valuation of the company, one by one most of the bidders dropped out. To facilitate the process of finding a suitable buyer, SEBI too relaxed the takeover norms so that the suitors did not have to make an open offer.

On 14<sup>th</sup> April 2009, after Deepak Parekh had recused himself from the decision making process, the Board announced that Satyam had been sold to a Mahindra subsidiary, Venturbay Consultants. This seemed to have stemmed the tide of events and the crisis was over.

Though the immediate crisis was over the emergence of the crisis itself and the way in which the crisis was resolved does throw up a number of issues related to corporate governance standards within India.

### **Satyam Board Memberships**

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<sup>10</sup> <http://www.business-standard.com/india/news/satyam-promoters-gradually-reduce-stake/52062/on>

Apart from Ramalinga Raju and his brother Rama Raju a number of people have served on the Board of Satyam over the years. A few of them have been on the Board ever since Satyam went public. Table A provides a list of such Directors and the periods when they served on the Board of Satyam.

**Table A**  
**Directors on the Satyam Board 1992- 2009**

Names	Background	Active Years on the Board
B Rama Raju	Founding Family	1992-2009
B Ramalinga Raju	Founder Family	1992-2009
C Satyanarayana, IRS (Retd)	Government Revenue Service	1992-2003
C Srimvasa Raju	Early Member	1992-2002
Mrs. Dr. Mangalam Srinivasan	Academic US	1992-2008
V P Rama Rao, IAS (Retd)	Government	1992-2006
Prof Krishna G Palepu	Academic US Business School	2003-2008
Vinod K Dham	IT – Venture Capitalist	2003-2008
T R Prasad IAS	Government Cabinet Secretary	2007-2009
V S Raju	Academic IIT	2007-2009
Prof. M Rammohan Rao	Academic Business School	2007-2008
Ram Mynampati	Satyam Nominee	2007-2009

C Srinivasa Raju was an executive director of Satyam Computers and formerly the CEO of Satyam and Dun and Bradstreet’s software joint venture.

Mrs. Mangalam Srinivasan has been an academic for long time. She had also served as a senior scientific advisor to the Government of India. She has been on the Board continuously from 1992 till her resignation following the revelation of the scam in 2008.

C Satyanarayana was a senior IRS officer who retired as Assistant Commissioner of Income Tax. He has been on the Board of a number of companies. He was on the Board from 1992 to 2003.

V P Rama Rao an IAS Officer was a former Chief Secretary of Andhra Pradesh. He was on the Board till 2006.

Prof. Krishna Palepu, a Professor with expertise in Indian Family businesses at Harvard Business School became a Board member in 2003 and remained on it till the scam surfaced in 2008.

Vinod Dham was a well known name in the semiconductor industry. He had occupied senior management positions at firms like Intel and AMD before becoming a venture capitalist. He also joined the Board in 2003 and remained on it till 2008.

In 2007 Prof. Rammohan Rao, Ram Mynampati, Prof.V S Raju and T R Prasad were inducted into the Board.

Prof. Rammohan Rao was Dean of the Indian School of Business and formerly the Director of IIM Bangalore.

Ram Mynampati was a senior executive who joined Satyam as Executive Vice President in 1999. Over the years he was promoted to become the COO of Satyam Computers. He was responsible for a number of verticals of Satyam's software business.

Prof.V S Raju was another academic who became a member of the Board in 2007. He had earlier been at IIT Madras before becoming Director of IIT Delhi.

T R Prasad a former Cabinet Secretary also joined the Board in 2007. He seemed to replace V P Rama Rao who retired from the Board in 2006 as the new link of the company to various power centres within the government.

### **Satyam Connections with Corporate India**

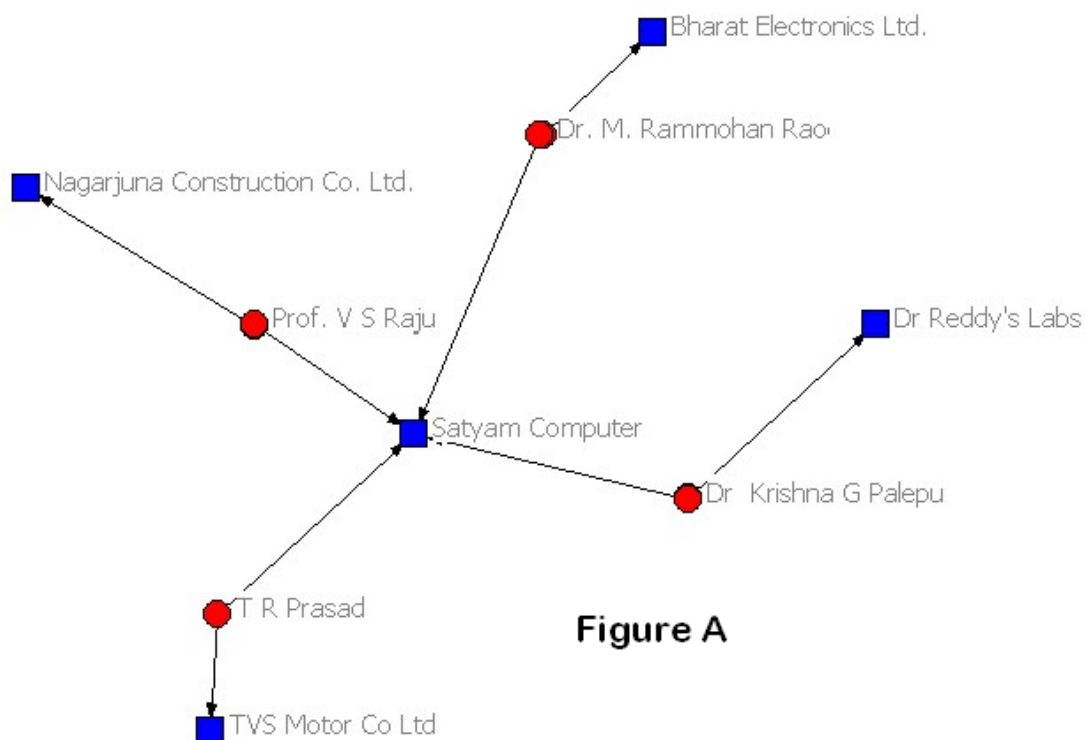
Till 2002 the Satyam Board had only 6 members. The non family members include Mangalam Srinivasan, C Satyanarayana (retired IRS) and V P Rama Rao (retired IAS). None of the Board members are connected to any of the other 165 companies in our sample set.

In May 2001 Satyam got listed in the New York Stock Exchange (NYSE)

Starting from 2003 some high profile names both from Academic World as well as Silicon Valley were inducted into the Board. Their entry also signaled the exit of some members -Srinivasa Raju and former Indian Revenue Service bureaucrat C.Satyanarayana.

When Prof Krishna Palepu became a member (along with Vinod Dham) in 2003 he was already on Board of Dr. Reddy's. Through him the two Hyderabad based companies got connected in 2003.

The Board membership and the connections remain more or less static till 2006. In 2006 V P Rama Rao the retired IAS bureaucrat leaves the Board. The new additions in 2007 include T R Prasad former Cabinet Secretary, Prof M. Rammohan Rao, Prof. V S Raju and Ram Mynampati internal Satyam nominee. The new Board members provide additional links with Nagarjuna Construction another Hyderabad based company, Bharat Electronics and TVS. These connections continue till the unearthing of the scam. Figure A below provides the links that Satyam had with other companies via Interlock Directors in 2007.



### Patterns

Prior to being quoted on the NYSE the Satyam Board is not very different from other Family-run companies in our sample set. Government bureaucrats on the Board facilitate links with the political and bureaucratic entities needed for business transactions. These links via the bureaucracy need not be permanent but could be transient. In some cases depending on the position and stature of the bureaucrat the tenure on a company's Board could be longer. The choice of the bureaucrats on the Satyam Board – one from the revenue service and two from the IAS with one of them a former Cabinet Secretary - may be nothing but a manifestation of this reality of doing business in India. **Though there are fundamental governance and ethical issues in allowing such practices, this seems to be “best practice” in India from our sample set. Satyam is no different in this regard from other Indian companies.**

The situation seems to have changed once the company gets quoted on the NYSE and its shares are traded there. Since the origins of the scam go back to 2002 one year after being quoted on the NYSE, the new appointments of Prof. Krishna Paleppu and Vinod Dham to the Board in 2003 seem to be linked to the scam. **The company is trying to reassure its new shareholders that governance oversight within the company is good. The induction of a noted academic and a respected venture capitalist from Silicon Valley seems to be directed at providing this governance reassurance to shareholders.**

Once quoted on the NYSE the pressure on the company to deliver is high. If a company is perceived to deliver it derives undoubted benefits from the positive spiral of share prices and valuation. This is

an advantage for future growth. As long as the gap between the perception and reality is not too wide this does not create major problems. However once performance falters, the company needs to massage its accounts. If it does not do so it is caught in a vicious downward spiral caused by market forces that see the companies share prices and value plummet with many adverse consequences. There is pressure to show performance and derive benefits from higher share prices in multiple ways. These might have been the reasons for the beginning of the scam in 2002.

The higher market prices linked to the massaging of the accounts of the company also make it profitable for the promoters to sell off their stake and make money. The reduction in the promoter share of the equity from 25.60 % in 2001 to about 8.6 % just before the scam was unearthed, clearly establishes this link. Apparently foreign institutional investors who held a high of 56% of the equity in 2005 and about 47% in 2008 were completely taken in by the manipulation of the accounts by the promoters and managers of the company.

To be able to doctor the accounts you need a suitable audit partner. As the scam obviously reveals, it is not very difficult to find such a partner in India. This does raise the issue of how auditing functions can be made truly independent of other relationships that auditing companies have with major corporations.

From this pattern one can make the inference that the scam might have continued for some more time but for the trigger event which was the acquisition of Maytas by Satyam. That this acquisition was cleared by the Satyam Board establishes clearly the weakness of the current governance mechanisms within corporate India. It also lends substance to the theory that these Directors were carefully chosen or manipulated in such a way that they would follow the company line. The independent Directors are chosen not for their independence but for their ability to go along with the management. If the family had not been greedy in trying to move money out of Satyam in such an obvious way it is quite likely that the scam would have gone on for some more time. This does raise the issue of whether the notion of an “independent director” is only a theoretical concept and can never happen in practice especially in a country like India.

The additions to the Board in 2007 reflect the continuing trends of managing government through retired bureaucrats and managing shareholder perceptions through respectable appointments.

From our analysis there are no obvious links between the interlocks that the Directors of the Satyam Board have with other companies and the scam. There is little doubt that the scam has been engineered and managed solely by the family management of the company. The interlocks that some of the Satyam Board members – Prof. Krishna Palepu, Prof. Rammohan Rao and Prof. V.S Raju have with other companies like Dr. Reddys, Bharat Electronics and TVS Motor – may have actually helped the markets perceive Satyam as “respectable”.

The other significant finding is that most members of the Satyam Board during the period of our study are from Andhra Pradesh and speak Telugu. This is consistent with our other findings from the study that apart from family, caste and community factors play a role in Board compositions and their links with other Boards. This may be linked to issues of “trust” for doing business or as in the case of Satyam may facilitate manipulation of the Board to suit the promoter’s family interests. The

link between Satyam, Nagarjuna Construction and Dr. Reddy's via Telugu speaking Directors suggests that this is common practice.

### **Other Concerns**

Even after the scam had been unearthed the way the crisis has been managed also raises a set of issues. Ideally the appointment of a crisis team to manage the affairs of the company should be such that there is no conflict of interest between such members and the connections that they have with companies interested in acquiring Satyam. While this may not always be possible to anticipate at the beginning, as soon as such events happen the original appointments should be annulled and new ones made. Alternatively one could search for relatively unconnected independent people to manage the crisis.

The award of Satyam to a Mahindra subsidiary does raise such "conflict of interest" issues. Deepak Parekh a key interim Director appointed to the Satyam Board has been on the Mahindra Board right through our period of study – from 1995 to 2007. While in the final award stage he did excuse himself from the decision it would be far better procedurally for a really independent Director to perform the function of finding the best solution. Similarly other Directors appointed to oversee the sale of Satyam assets would have to pass the test of "no conflict of interest" for the process to be seen as truly transparent. This should not be such a difficult thing to implement given the pool of people with the requisite knowledge and background is fairly large

### **Governance Issues**

At least in the Satyam case there are no clear links between Board interlocks and the emergence of the scam.

However the scam does raise a number of governance and related issues.

Can we design an audit system that is truly independent in a corporate world that seems to pretty well-connected or is at an impossible task? How do we make sure that audit companies are truly independent of the pulls and pressures of corporate India?

Does the notion of an independent Director make any sense? If it does how do we make sure that independent Directors actually sit on the Board of traded companies?

Should we create completely independent entities with public funding to oversee and manage the audit and independent oversight functions without leaving it to the company or other private bodies? Is such an approach workable given the current interests of various stakeholders within the Indian business system?

There are clear patterns that we can see between offloading promoter shares and the massaging of the accounts. This is very similar if not identical to insider trading. Can such trends be anticipated and tracked? Are there any other ways that force promoters or family run companies to disclose trading activities in their shares? Can we come up with a scheme of early warning signals that are symptomatic of a potential scam?

### Literature Review

To facilitate our understanding and place our empirical findings within some research context we also did a very brief review of some of the research literature.

**Bunting & Barbour ““Interlocking Directorates in Large American Corporations 1896-1964”, the Business History Review, Vol. 45, No. 3, (Autumn, 1971), pp. 317-335**

This study looked at Board Interlocks over three periods 1896 to 1905, 1935 and 1964. It revealed that while the percentage of Board interlocks increased from 1896 to 1905, it had declined significantly by 1935 and declined even further by 1964. The authors speculate though without clear proof that these changes may have come about because of some specific anti-interlock Act called the Clayton Act. The paper also raises the question of the purpose behind interlocks – whether interlocks facilitate operations or whether they are a manifestation of the power of the Directors who are interlocked.

**Mark S. Mizruchi and Linda Brewster Stearns, “A Longitudinal Study of the Formation of Interlocking Directorates”, Administrative Science Quarterly, Vol. 33, No. 2 (Jun., 1988), pp. 194-210**

The study tries to relate the initiation of new ties via board interlocks between firms and other financial firms. It tries to relate changes in these interlocks with financial firms to the need for capital by the firm as well as the need and demand for capital in the business environment that the firm faces.

There have been a number of studies especially in the US that have tried to look at interlocks and changes in interlocks as being related to the needs of a corporation for capital. These studies going back to 1969 are briefly touched upon. One limitation that is specifically highlighted with respect to these earlier studies is that they all use cross-section data. It also cites other studies that use longitudinal data but have looked at the re-constitution of broken ties rather than the initiation of new ties. These studies go back to 1979. This paper focuses on initiation of new ties rather than the restoration of broken ties. It looks at the initiation of new ties in 22 of the largest US manufacturing Corporations between 1955 and 1983 and links these to the circumstances under which they happened.

The firm capital needs are linked to size, long term solvency of the firm and profitability. The business context is reflected by variables that measure demand for capital, scarcity of capital, the stage of the business cycle. The study uses the pooled time series cross section econometric approach and includes possible interaction effects between the variables. The dependent variable whether a new tie has been initiated with a financial company is treated as a dichotomous one or zero variable.

The findings are consistent with a situation where firms facing solvency problems are more likely to appoint representatives from financial institutions on their Boards. Long term debt is also positively related to directors from financial institutions but is not significant. The value placed on capital as a resource in the economy also plays a role in firm behaviour as regards induction of directors from financial institutions on their Boards. The observed behaviour is also consistent with the behaviour that financial institutions may also chose to infiltrate companies in need of capital. Both cooptation and infiltration may be valid interpretations.

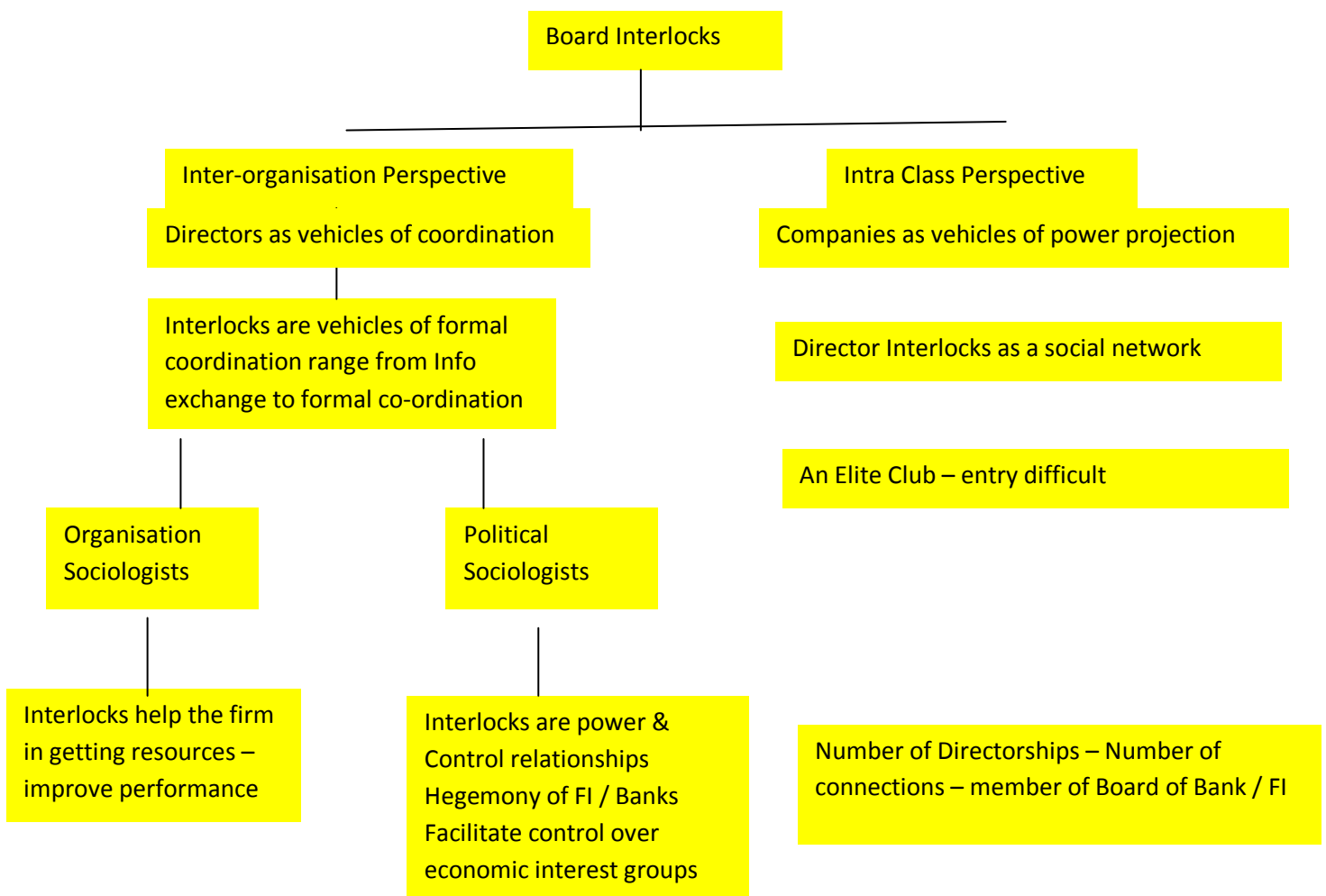


We have data on all companies their Boards and affiliations. Firm variables can be obtained from annual reports. Context variables capital scarcity, value of capital expansion contraction cycle data can be obtained. We could replicate such data. Informal scrutiny during our study on women directorships indicates strong impact of ICICI and other financial institutions and some dynamics. Whether it is worth doing such a study or not is the moot question?

Donald Palmer, "Broken Ties: Interlocking Directorates and Intercorporate Coordination", *Administrative Science Quarterly*, Vol. 28, No. 1 (Mar., 1983), pp. 40-55.

This study looks connective and directional continuity of ties disrupted accidentally among 1131 large US Corporations between 1962 and 1964 and 1964 and 1966. Through this it tries to establish the relative likelihood that different types of interlock ties facilitate relationships of formal coordination.

This paper also provides an overview of the different reasons why Board interlocks exist.



The paper makes a difference between directional interlocks and non-directional interlocks. Makes four hypotheses Ties that are directional in nature are likely to be continued more often than ties that are non-directional.

Ties disrupted by the elimination of a directional interlock is more likely to be renewed than non-directional ties that are eliminated.

Multiple interlock ties will be continued more frequently than single interlock ties.

Ties that are directional in nature when continued (assumed after disruption) will be continued in the same direction as the original tie.

238 ties that existed in 1962 but not in 1964 were considered broken. What happened to them was tracked

Ties are categorized into different types

Broken ties there in 1962 not there in 1964 and not there in 1966

Disrupted – if all multiple ties are broken there in 1962 – not there in 1964 and not there in 1966

Ties are categorized as reconstituted if there in 1962 and there in either 1964 or in 1966.

If no new interlocks were created and at least one tie remained called maintained.

A new tie created by a new director even if firms were earlier connected is termed new.

The intensity of ties whether single or multiple, the interlock content type whether directional or non-directional and the continuity of ties whether discontinued, maintained or reconstituted are the three variables of interest

All ties were categorized based on this.

For testing hypothesis a three dimensional table of Reconstitution versus intensity versus content type was created. Different log linear models were fitted for the different hypothesis.

The author then goes on to discuss the results.

The findings not absolutely clear – but adds to the understanding of the phenomenon.

**R. Jack Richardson, “Directorship Interlocks and Corporate Profitability”, *Administrative Science Quarterly*, Vol. 32, No. 3 (Sep., 1987), pp. 367-386**

The paper starts by reviewing different theories of inter-corporate relationships – linking it to one easy measure – Board interlocks.

The two broad perspectives are dependence on resources between interlocked firms or interlocks are manifestations of mutual interests defined more broadly than resources.

These perspectives give rise to four specific theories about the purpose of Board interlocks.

**Financial control theory** – Banks lend money to other firms. They want to protect their money and interlocks are one way to protect their interest. Such control become relevant when firms getting the money have heavy debt loads. Banks control over such firms inhibits their free performance and therefore will be negatively related to profitability.

Another variant of financial control theory focuses not on relationships between firms but rather looks at complexes of relationships between financial and other industries as a complex set of connections that maximize the performance of the group. This is similar but may not be identical to the Finance Capital Nexus theory outlined below.

**Inter-organisational Co-optation theory**

This theory advocates that Board interlocks between firms are a Co-optative mechanism for averting threats to a firm’s existence and preserving its stability or continued existence.

A firm will pursue this as a strategy only if it sees the resources that co-optation brings in as being critical.

Since money is one of the most critical resources a logical extension would be that Non-financial companies will co-opt Directors from Banks. If companies have heavy debt loads they may choose this to access capital. Empirical results both support and refute this

Another possibility is that interlocks between financials and non-financials will enhance performance and profitability of the non-financial company depending on its degree of debt. Once again empirical evidence does not support this fully – the effect may be actually the reverse as stated at the beginning.

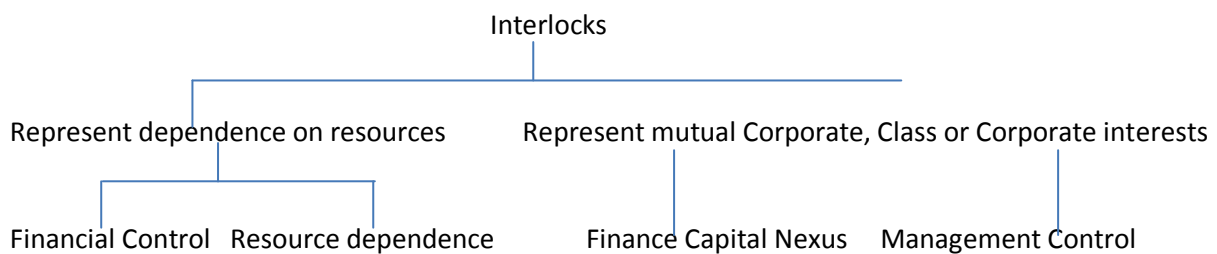
Another variant argues since supply and demand for capital is cyclical – firms co-opt financial institutions as a generalized or long term long term strategy. This should over a longer period of time improve their performance. Longitudinal studies suggest that ties that are broken are rarely replaced and therefore do not validate this variant. Lack of continuity in ties also invalidate control function and support the integrative function of mutual interests that are transient rather than permanent.

**Finance Capital Theory** – Financial and Non-financial corporations are a hegemonic network bound together by both money and capital in form of assets. These cannot be linked to financial profitability in a narrow sense. Board interlocks are not about financial control or co-optation but rather about integrating the connection between finance and capital in a broad sense.

**Management Control Theory**

All managements want to retain control over their operations. Board interlocks therefore have no relationship to either finance or resource dependence. Thus both financial control and co-optation are not important. The formation of interlocks therefore has nothing do with any resource dependence or finance but is rather due to the personal characteristics of the Directors – an elite club.

A summary overview of the theories as stated in the paper is provided below.



The paper also reviews briefly efforts to create some kind of a synthesis of these different theories. Based on a review of the findings most corporate interlocks seem to perform a function of corporate, class or elite integration while a minority of them perform inter-organisational functions. But what ties are integrative and what ties are inter-organisational still remains. Are inter-organizational ties those of control or co-optation or are they more inter-organisational in nature representing broader strategy interests.

Using the direction of interlocks and the replacement of broken interlocks the paper tries to address some of these issues.

Direction is defined by the primary affiliation organization of the interlocked director. If his affiliation is to neither of the two parties the interlock is considered non-directional. Though both kinds of interlocks can perform either integrative or cooptation functions only Directional interlocks could facilitate cooptation or control. This separation according to the author may not be of much value – both are part of a larger resource dependence framework – the direction specifies the direction of power and control in the network.

Based on this way of defining direction the paper puts across several hypotheses

#### Hypothesis 1

The more profitable a major nonfinancial corporation, the more likely it will send an interlock to a financial and the less profitable, the more likely it will receive one.

Both the direction of the tie and its replacement determines whether it is a tie of influence or not.

#### Hypothesis 2

The relationship between nonfinancial corporate profits and the presence of identical ties will be stronger than the relationship between profits and the presence of all interlocks (including those that have not been replaced).

An identical tie is a replacement tie that retains the original direction of the broken tie.

The paper then asks the question whether interlocks are the causes or the consequences of a Non-financial company's performance. Bad performance – need for money – cooptation of Bank Director – broken tie – identical replacement – control lower profits or Good performance of Non financial company – higher profits - cooptation of Director from company to Board – broken tie – identical replacement.

Financial control or Cooptation are subsets of larger resource dependence perspective – the direction of the tie and its replacement with an identical tie – reflects the dependence and must be related to the profitability of the Non Financial company. This leads on to hypothesis 3.

#### Hypothesis 3

The profitability of nonfinancial corporations will have causal priority over the presence of identical ties.

#### Data

204 Canadian corporations over a period of thirty years

Directional interlocks data between Financial and Non Financial companies extracted from this.

Ties were broken if the Director did not appear on the Board – they were considered replaced if a new tie appeared within two years of the breakage. These were checked to find identical ties.

Standard measures of profitability – also some integration into one measure tried.

Analysis of the relationship between directional interlocks and profitability uses Multiple Classification Analysis.

Results and link to hypothesis addressed – seems to suggest that profitability of non-financial company is a driver of an identical tie

Hypothesis 1 supported

Hypothesis 3 supported.

#### **Kevin Au et al "Interlocking Directorates firm strategies and performance in Hong Kong: Towards a Research Agenda" Asia Pacific Journal of Management Vol 17 29-47 (2000)**

The paper looks at interlocks within 200 of Hong Kong's largest listed companies just before takeover of Hong Kong by China in 1997. It suggests without any proof however that interlocks could help cope with this change by reducing uncertainty through bringing mainland China directors on to their Boards.

The paper decides to focus on the resource dependence perspective for explaining interlocks though it talks about other approaches like an agency theory perspective or a legalistic perspective or a class hegemony perspective.

The 1996 interlock data and the network is compared with data from the US and Great Britain using Stokman's study of 1985 which had data on Board interlocks in the US, Great Britain and 9 other European countries. However since the structures of the Board in the European countries is different he compares the Hong Kong data only with the US and Great Britain. This paper does not specify the dates for the US and Great Britain but refers to it as the mid 1980's.

The various properties of the Hong Kong network are compared with the networks of the US and Great Britain. The percentage interlock directors amongst all interlock directors, the number of Directorships per director, the percentage of single and multiple interlocks amongst the directors, the density of the network, the intensity of ties between companies the distance between companies are all compared.

Since we had data for a comparable year 1997 we also thought it would be a good idea to compare these results with our 1997 data. This has been included in our report. (Please see section of report )

The paper goes on to classify Hong Kong firms into different distinct groups based on their origins. While origins may differ many of them are family run businesses also largely owned by Family

The paper then suggests a set of hypothesis based on the assumption that Hong Kong firms may co-opt Mainland Directors to cope with the merger of Hong Kong with mainland China and how this pattern of cooption may differ between the various groups of companies in Hong Kong. It also reiterates the importance of Board interlock research.

**Peng, Au & Wang "Interlocking Directorates as Corporate Governance in ThirdWorld Multinationals: Theory and Evidence from Thailand", Asia Pacific Journal of Management, 18, 161–181, 2001**

This paper looks at multi-national enterprises operating out of Thailand and raises a set of issues related to whether Board interlock structures for MNE and non-MNEs differ from each other. Based on the resource dependence theory it postulates a set of four hypotheses

MNE's have more densely connected interlocks than non-MNEs

MNE occupy more central positions in the network

MNE have more ethnic Chinese Directors

MNE also appoint more military Directors

Using data from the top 200 companies they find that three of the four hypotheses are supported.

200 top firms were studied. Annual reports 1994 to 1996 were the basis for the data set.

The overall network of Thailand is also compared with those of Hong Kong the US, Great Britain following the earlier Au paper on Hong Kong. We can also compare it with the Indian data which we have done and included it in the report.

Density, centrality (betweenness, closeness and degree variables using UCINET) data from the data set on ethnicity and military background are variables of interest – means tested for each controlling for firm size and Board size.

Apart from the ethnic Chinese composition of the Board for MNE and non-MNE all other hypotheses including the military addition the MNE boards were validated.

Study limited to only one period – causality issue of what is responsible – performance decides interlocks or interlocks arise because of performance.

**Chin-Huat Ong, David Wan and Kee-Sing Ong “An Exploratory Study on Interlocking Directorates in Listed Firms in Singapore”, CORPORATE GOVERNANCE, Volume 11 Number 4 October 2003, pp. 322-334**

After reviewing the four theories related to Board interlocks – Management Control theory, Resource dependency theory, Bank control theory and Bank hegemony theory – the paper looks at interlocks within 295-45-16 companies in Singapore.

**Before going into specifics it provides a very good overview of major research work on Board interlocks that starts with a paper by Dooley in 1969 up to a paper by Geletkanycz in 2000.**

The paper tests four hypotheses related to the role of interlocks.

The first hypotheses links the number of interlocks to the size of the company – sees whether size has a positive or negative relationship with the frequency of interlocks. If management control theory is true the size of the firm may have no relation to the number of interlocks it has and this is also tested

The second hypotheses relates to bank control theory. Financial companies may have more interlocks than Non-financial companies.

The third set of hypotheses link interlocks to long term and short term debt of the firm and suggests a positive relationship between debt and interlocks – more debt more interlocks.

The fourth hypothesis tests the resource dependency theory by postulating a positive relationship between board interlocks and performance.

Both company to company interlocks as well as Director to company interlocks have been used as the dependent variable.

The data is for 1997 only

Firm size measurements use both market cap and total assets.

Debt uses both debt ratio (long term debt) and solvency ratio (short term debt).

Performance is measured using ROE, ROA as well as ROS.

In addition whether a firm is a financial or non-financial firm is also used as an independent variable.

The statistical analysis is divided into three parts. In the first part Pearson’s correlation test is used to check the relationship between Board interlocks and the independent variables.

The second step involves a sample test to check whether financial companies have more interlocks than Non-financial companies.

The third step involves building a step wise regression analysis to check the relationship between interlocks and the various independent variables.

The Pearson’s correlation test supports the hypothesis that the frequency of interlocks is positively linked to size. For both company to company interlocks and Director to company interlocks this is positive and significant.

Hypotheses 3a and 3b linking interlocks to long term and short term debt are not supported.

Hypothesis 4 linking interlocks to profitability is only partially supported.

The t test on the differences in interlocks between financial and non-financial companies is supported – meaning financial companies have more interlocks than non-financial companies.

It provides a best fit regression model that links Director to company interlocks with Board size, financial company, ROA and ROS.

It goes on to discuss future research that needs to be done.

Since this reviews the literature on Board interlocks at least till 2000 the Table below provides a brief overview of this review. The papers are referred to in this paper and we are not reproducing these references but just include the author and the year. The wordings are extracted directly from the paper.

Author / Year	Brief overview of paper
Dooley 1969	Links the number of interlocks to five factors – size, extent of managerial control, financial connections of the firm, relationship with competitors and existence of local economic interests. 250 companies between 1935 and 1965 compared. The study found that more companies were interlocked in 1965 as compared to 1935. Managerial autonomy is therefore limited to the extent that external interests are represented on the Board
Mace 1971	This paper sees interlocks as information exchange mechanism. They are not seen to be significant in other ways. Managerial control is the dominant trend.
Levine 1972	This paper looks at the interlocks between banks and corporations. Uses the notion of a sphere of influence. The network of interlocks is one where industrial organizations are more strongly linked to financial institutions than to each other.
Pfeffer 1972	The BOD is an instrument to cope with the organisation’s environment. For 80 Non-financial companies Board size and Board compositions were shown to be systematically related to factors measuring organisation’s requirements of resources to be co-opted from outside. Organisations that tended to deviate more from an empirically estimated from a Board structure equation tended to perform more poorly.
Allen 1974	It duplicated Dooley’s study with one additional feature. It also used

	<p>the theory of inter-organisational elite as its conceptual foundation. He argued firms always tended to reduce uncertainties as well as control their relationships with others through interlocks. He linked interlocks to size, to whether a firm was a financial company or not, the link between financial requirements of non-financial companies and interlocks with financial firms, to location dependence. He also seemed to think that interlocks between financial and non-financial firms should have declined over time especially among large industrial organizations.</p>
Allen 1978	<p>Allen re-examined corporate interlocks based on the same samples used in the 1974 study. Using direct factor analysis and the varimax method he identified 10 principal interlocked groups. He then examined financial ties among them. From this he could classify a group as a financial, family or a geographic group. By comparing the 1935 and 1970 groups he noticed the following differences:</p> <p>The 1970 interlock groups are smaller and less cohesive than those in 1935.</p> <p>A decline in the number and strength of financial interest groups.</p> <p>An increase in the number of geographic interest groups</p> <p>A more diffused and less concentrated corporate elite structure</p> <p>The principal interlock groups in 1970 are more independent from one another than in 1935.</p> <p>Allen suggested that the theory of management control helped provide a more accurate description of evolving trends but failed to supplant entirely the role of family and financial control.</p>
Pennings 1980	<p>This uses resource dependency as the foundation. Used the notion of directional and non-directional interlocks to create a new typology of interlocks. Makes the point that directional interlocks are likely to be more important than neutral interlocks. The tests appear to support the resource dependency model.</p>
Mintz & Schwartz 1981	<p>This uses data on interlocks to test three theories – management control theory, reciprocity theory and finance capital theory. Their conclusions – corporations are not autonomous, they do not form flexible alliances that pursue mutual interests, and that capital industry groups do not characterize the network of the 1960's</p>
Useem 1982	<p>Looked at interlocks as a network of corporate elites. These arise primarily for ensuring conditions favourable for growth in profits. He identifies three principles that affect the way in which business enters politics to ensure profits. These are</p> <p>The upper class principle which defines membership in the elite. Wealth and membership in networks of social elites are the key.</p> <p>The corporate principle – where membership in the elite is defined by a person's position in the firm and the firm's position in the economy.</p> <p>The class wide principle which defines membership in the elite through positions occupied in a set of related networks transacting virtually all large corporations.</p>
Mizruchi & Stearns 1994	<p>This paper already reviewed – suggests that financial requirements of companies affect interlocks with financial companies. See paper.</p>
Haunschild & Beckmann 1998	<p>Studied 327 medium and large firms in four industries to test</p>



	relationship between interlocks and acquisitions. They also examined different alternatives for acquiring information on possible acquisitions. They found CEO membership in business round table, business press coverage and interlocks with banks as all having implications for acquisitions
Gulati & Westphal 1999	Looked at the relationship between Board interlocks and alliances. Study shows a negative relationship between Board monitoring and alliances. It also shows a positive relation between CEO cooperation and alliance formation.
O'Sullivan 2000	The study looked at 175 large U K Corporations in which company executives held non-executive board positions in other firms. The interlocks held by such directors are positively related to company size. According to the author bigger firms operate in a more complex contractual environment and therefore there will be a need and an opportunity for their executives to hold multiple directorships.
Geletkanycz 2001	Used 460 Fortune companies to test relationship between CEO external Directorships and CEO pay. The result is a weak relationship. However if a firm is more diversified external directorships and CEO compensation are strongly related.
Zang 1999	This is the study on Singapore that precedes the author's study. 106 companies investigated. The size of the company and its solvency affect the number of interlocks. The Author suggests that size and solvency are connected to reputation of the firm and that a higher reputation would lead to a larger number of interlocks.

**Michael Ornstein, Interlocking Directorates in Canada: Intercorporate or Class Alliance? Administrative Science Quarterly, 29 (1984): 210-231**

This is an early paper –also fairly comprehensive in what it wants to do.

Do interlocks reflect corporate interests or the interests of the elite class of corporate owners?

Which of these is more important?

Study looked not at individual corporations but the ties of corporations that were broken between 1946 and 1977. Over 5000 broken interlocks were studied to find out whether they were reconstituted or not.

The author's conclusion was that about half the ties reflect class solidarity and about half reflect corporate interests. Interlocks between corporations that involved two or more ties were more likely to be reconstituted. The effect of location industry and foreign ownership was weak. The author concludes by saying that both perspectives inter-organisation and inter class are needed to explain interlocks.

One of the key features of this paper is the understanding that intentional interlocks also come with unintentional interlocks in the case of multiple directorships held by an individual.

For example a Director who holds three directorships may only want to provide two links from company A to company B and from company A to company C. However in this process he also provides a weaker unintentional link between company B and company C. thus only two of the three links is intentional. This paper in its analysis covers for this by treating multiple directorship positions and their intentional links in terms of their equivalent single director link between two companies. Using such an approach and using the reconstitution of broken ties as a manifestation of an inter-

corporate relationship it estimates inter-corporate links as about 42%. The remaining 58% of the broken connections that are not restored reflect the links arising from the elite class of corporate owners. He says since some of the ties that are broken and not reconstituted could also be because of changes in corporate interests and that the 58% may include some ties that were originally inter-corporate that may no longer be relevant. The figure of 40% of the ties as reflecting inter-corporate interests according to him is a lower estimate.

The reconstitution of ties looks at ties two years prior to ties two year after the break and thus improves on earlier studies including that of Palmer who claim only 15% of the ties represent inter-corporate interests.

The convergence to the 40% number comes from both single ties between companies – 42% of which are reconstituted from the data – as well as the equivalent two company single ties computed for the five position directorship data. Other values like three and four position directorships may not provide this convergence. This aspect needs investigation. Do companies rely only on one or two key directors to provide all the linkages and is this the same as replacing one director who is linked to three boards including the company's board with two directors linked separately to two Boards.

**Jan Ottoson, "Interlocking Directorates in Swedish Big Business in the Early 20<sup>th</sup> Century", *Acta Sociologica*, Volume 40 pp 51-77.**

This study looks at the pattern of interlocks and the role of banks in Swedish Big Business between 1903 and 1939. The study looks at the networks at five different times – 1903, 1912, 1918, 1924, 1939. The measure of power used is degree – simply the number of interlocks that a company had. The data generated over the five periods reviewed shows major and increasing position of dependence between banks and industry. Bank control may not be clearly established but clearly a stronger coupling between banks and industry seems to have emerged in Sweden during this period.

**Fumitaka Iwanami, "The structure of interlocking Directorates and corporate power in the US and Japan through social network analysis", *The Ritsumeikan Business Review* Volume XLV No. 4 pp. 1-13.**

The author uses social network analysis to compare the interlocking directorates of GM in the US in 2003 with the interlocking Directorates of Mitsubishi Heavy Industry in 1994 and 2003. He uses degree to measure centrality, density to measure cohesion and nesting components to look at the hierarchy of structure. Banks, Financial companies and large industrial corporations occupy central positions in the US (as seen through GM) network. General Trading Companies large industrial companies and banks hold central positions (as seen through Mitsubishi Heavy Industry) in the Japanese network. In both countries companies holding central positions conduct business across the globe. These networks constitute a sphere of influence that could constrain decision-making within the corporate world.

**Ruth V Aguilera, "Directorship Interlocks in Comparative Perspective: the case of Spain", *European Sociological Review*, Vol. 14 No. 4 (Dec. 1998) pp 319-342.**

The paper studies inter-corporate relations in Spain and how these differ from those in more advanced capitalist economies. Using a historical evolutionary lens it classifies these patterns of relationship through three different kinds of inter-corporate relationships – the Anglo-Saxon model, the Continental European Model and the Japanese Model.

In addition to the above broad historical perspective the paper provides substance by looking at interlocks as a visible manifestation of this trend. Using data from 190 of Spain's largest Financial and Non-financial corporations for 1993 it shows inter-corporate relationships put Spain as belonging to the Continental European Model of relationships. The three main findings from this study are:

Spanish banks along with utility companies are at the core of the inter-corporate network

Capital intensive industries belong to the inner circle of this network

Foreign owned and light industry are isolates in this network.

The paper also suggests that interlocks take place across different industries rather than within them. Bank led development, high state intervention and delayed but intensive foreign capital penetration explain the current structure of inter-corporate relationships. By combining historical structuralism and social network analysis the paper contributes a new empirical case to the existing literature.

The paper provides an elaboration of the different kinds of models. The Anglo-Saxon model - exemplified by the US and the UK - is an entrepreneurial model of development. The combination of individual shareholders, institutional shareholders and market based financial system determines the inter-corporate structure. Capital markets play a vital role in this system. Separation between commercial and investment banks, anti-trust regulations, and restrictions on interlocks between competing companies also restrict ownership affiliation between banks and non-banks. US laws constrain banks.

In the European Continental model the economic development process largely led by the Banking system. Banks along with allied industries form relationships for a financial system that supports low risk, and long term financing. In this structure Banks exert significant influence. Banks combine commercial and investment activities into what can be termed universal banking. State intervenes directly often to support and buttress priority activities. Capital markets are comparatively under developed.

The third model that he talks about is the Japanese Kereitsu model. Japanese firms linked together through reciprocal share holdings credit relationships as well as trade relationships. Though the traditional Zaibatsu structure was broken during the US occupation the model of industrial financing via banks is the prevalent model. The state has also played an active role and in this sense the Japanese model is very similar to the European model. However there is a small difference. Stock markets in Japan provide opportunities for groups of investors to get involved as common shareholders. As such some of these investors are not directly represented on the Boards but still exert influence from outside. Thus outwardly though the Japanese and US structures may look similar if seen through interlocks the influence of Kereitsu or the informal network still very much there.

While banks are central to all models their centrality or importance varies. In Germany Banks are dominant along with big industry in a Finance - Capital hegemony model. In the US and UK the network structure is looser and though banks and financial institutions are important maybe less so. Japan is similar to Europe though there are differences too.

This study is similar to what we have done in India barring the fact that it looks at only one year rather than the thirteen years of our study.

It uses degree to measure centrality and also looks at business groups. It also has a specific section on the role of isolates and reports 48% of the 190 companies as isolates for 1993. For the year 1995 – the closest year – the number of isolates for the Indian network is 32 companies out of a total of 166 companies or 19%. In Germany isolates are 32%. Thus it would appear that the Indian network is more connected than the German or Spanish networks. Maybe worthwhile to look at these different models in terms of this parameter too to understand a little bit more about why the networks are the way they are.

The use of a historical perspective and viewing inter-corporate networks as an institution to cope with the national business environment may be useful framework in looking at both institutions and governance issues within a particular national business environment. Comparative studies using the macro network of inter-corporate networks along with historical factors may also help us get a better fix on institutions and governance issues in different national contexts. Macro network papers from Thailand, Japan, Hong Kong, Singapore, US, UK, Germany and Sweden are already there – along with different theories about why interlocks happen. This can be combined with data from India to come up with a more nuanced and comprehensive understanding of the inter-corporate network as a current institution that has evolved through an evolutionary process.

**Phan, Lee & Lau, “The performance impact of interlocking Directorates: the case of Singapore”, *Journal of Managerial Issues*, Vol. XV Number 3, Fall 2003, pp. 338-352**

This paper uses the class integration theory and the resource dependency theory as alternative explanations for Board interlocks in Singapore.

If resource dependence is a valid explanation for Board interlocks then:

The ratio of outside directors to board size must be positively related to the number of interlocks

The institutional ownership concentration must be positively related to the number of Board interlocks.

The paper also classifies interlocks into intra-industry, inter-industry and regulatory interlocks and postulates:

If class integration theory is right there must be no relationship between intra-industry inter-industry and regulatory interlocks with firm performance.

If resource dependency theory is right there must a positive relationship between these types of interlocks and firm performance.

The study covered 191 firms listed on the Singapore stock exchange. Though not clearly specified the study seems to have used data for the year 1997.

ROE used to measure performance. Control variables for size, age financial crisis used.

The results show that the outsider ratio is positively related to the number of interlocks.

However the institutional ownership concentration is not positively related to the number of interlocks.

Inter industry is positively related to firm performance but neither intra-industry nor regulatory interlocks are positively linked to firm performance.

The results are mixed Inter industry interlocks are significant but intra-industry and regulatory interlocks are not significantly related to performance.

**Thomas Heinze, "Dynamics in the German system of corporate governance? Empirical findings regarding interlocking Directorates", *Economy & Society*, Volume 33, Number 2, May 2004, pp. 218-238.**

Debate over whether Germany is moving away from the Finance capital hegemony model of development towards an outsider driven Anglo-Saxon model is still going on. This paper makes the point that the case for convergence of the German system towards the Anglo-Saxon model is still not strong. Interlocks of 69 companies of the top 100 firms were examined for 1989 and 2001. **The paper makes the case that though there has been some quantitative dilution in the network characteristics there has not been a change in the basic underlying structural characteristics of the network itself.**

The paper also says that the market for corporate control is underdeveloped in Germany. Over three quarters of the bids for takeovers were for the consolidation of existing holdings. There was also not a big enough critical mass of existing companies for trade in this market.

The paper concludes by saying that that current institutional change cannot be interpreted as a system change or convergence towards the Anglo-Saxon model of corporate governance.

One difference in the German system of directorships is that there are two Boards – one Board provides direction and the other provides supervisory control over day to day operations. This in effect translates into two networks seen at a people firm level or four different networks if seen as people to people or firm to firm networks.

The paper makes one crucial important conceptual point regarding corporate governance. It views the Anglo-Saxon model or an outsider model of corporate governance as one where market for corporate control exists. The prospects of takeover provide the basic motive for good governance. The alternative it postulates is the German model built around organized production systems in which transactions are governed by relational contracting. Corporate control is embedded in a network form of organisation.

The network form of organisation that results loosely called Germany Inc is an alternative to the other institutional form of market for corporate control.

The notion of a star network, a pyramid network, a clique and a circle are used as a way to figure out the underlying structural characteristics of the network.

An increase in the number of isolates which are all receivers in the 1989 star and pyramid network is evidence of dilution. The number of directorships held by the players especially the central players is also a measure of dilution. However the central core as per the paper has not been significantly changed in spite of reform. The argument of a non-existence of a market for corporate control is buttressed through some data.

Comparing the two networks of 1989 and 2001 – similar to what we have done. We have better data and continuous data. India appears to have a lower density than the German directional network. It also has a higher percentage of isolates – companies not linked to the network at all. This would

suggest that India Inc is not as strong as Germany Inc. though of course the two networks are quite different in the way they are organized.

Between the extremes of the Anglo-Saxon and the European Continental Model exemplified by Germany there could be many alternative ways in which governance practices have evolved.

This paper along with the Aguilera paper provides a useful framework to look at corporate governance practices in different countries.

**Chua, Steier & Chrisman, 'How Family Firms Solve Intra-Family Agency Problems Using Interlocking Directorates: An Extension', Entrepreneurship Theory & Practice, November 2006 pp. 777-783.**

This paper extends Lester & Canella (2006) work on how interlocking directorships can address intra-family agency problems using the concept of community level social capital. The extension is in the form of including agency costs in family firms which non-family firms may not incur. They extend the propositions put forth by Lester and Canella by adding this component for testing them. The propositions are theoretical without any actual data for validating or invalidating the propositions themselves.