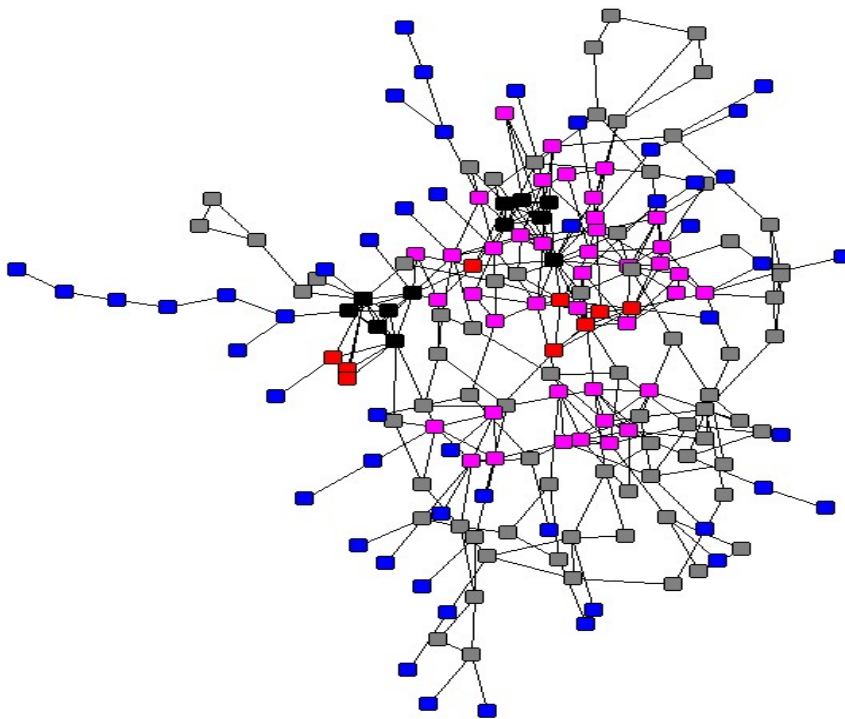


effective governance

DNA

Director Network Analysis of
New Zealand Organisations



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Introduction

This paper examines the interlock of directors in New Zealand organisations using a network analysis approach to understand the nature of how boards and directors are connected.

Our sample of 350 organisations comprised:

- 176 companies from the NZX
- 126 from the Deloitte 200 (which we reconciled against the NZX list)
- 48 Crown or Public owned entities (COEs)

This produced a list of 1428 individual directors with a total of 1714 directorships.

13% of the directors were female and they held 10.8% of the 1714 directorships.

Analysis of results

The data was analysed in three ways:

Part 1: Board Networks: This is an analysis of boards to show the interlock of directors shown in a Network Analysis diagram.

Part 2: Director Analysis: Independent of the Network Analysis, we analysed the total sample of directors and identified which directors are the most connected by virtue of the number of boards they sit on across the 350 organisations.

Part 3: Combining Board and Director Analysis: This identifies the number of boards a director sits on within the core of the network identified in Part 1.

Part 1: Board Networks

This study replicates a similar study of UK boards conducted by Ann Braithwaite (2006) who assisted with the analysis for this study of New Zealand boards. The methodology utilised a sophisticated network analysis package UCINET 6.109 to calculate director interlock metrics.

This method utilises three Centrality Measures which describe the strength of relationships between boards:

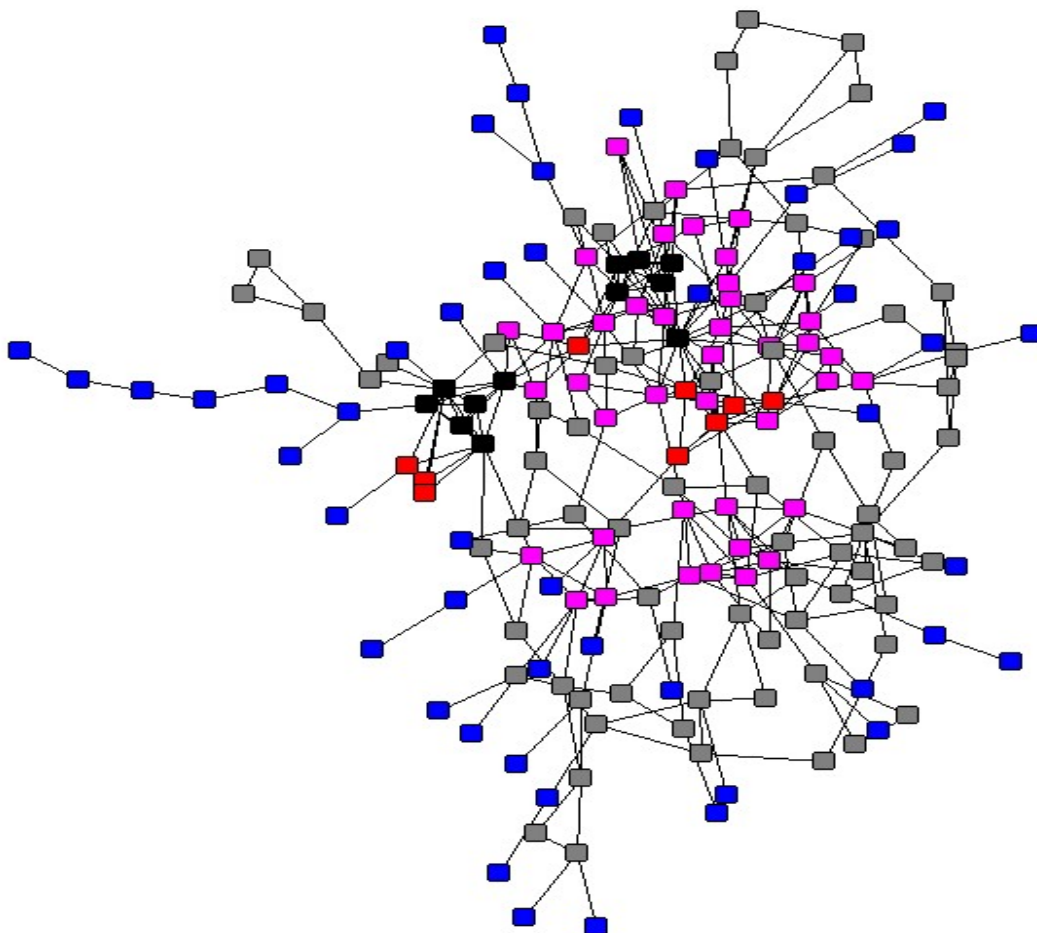
1. Degree – this is commonly known as “degrees of separation” for example the strongest relationship would be directors in common across boards.
2. Betweenness – this describes a board which connects other boards and potentially has a highly influential position

3. Closeness – this measures the “path distance” between points in the network and proximity within the network i.e. an insider or outsider which is on the edge of the network, with weak connections.

The Centrality Measures highlight the number of interlocks between firms as well as the centrality of firms in the network as a whole. It also provides information on their potential to act as a broker and manage information flow opportunities due to the affect of “path distance” on influence and connectedness.

Initial inspection of the network diagram clearly shows a single large central cluster of organisations. Within the large central component there appears to be a tight network centre of greater interconnectivity than that of the network as a whole as shown in Figure 1.

Figure 1 Total Directors Network



The descending order of Centrality i.e. most connected; by colour code is:

Black – most connected

Red

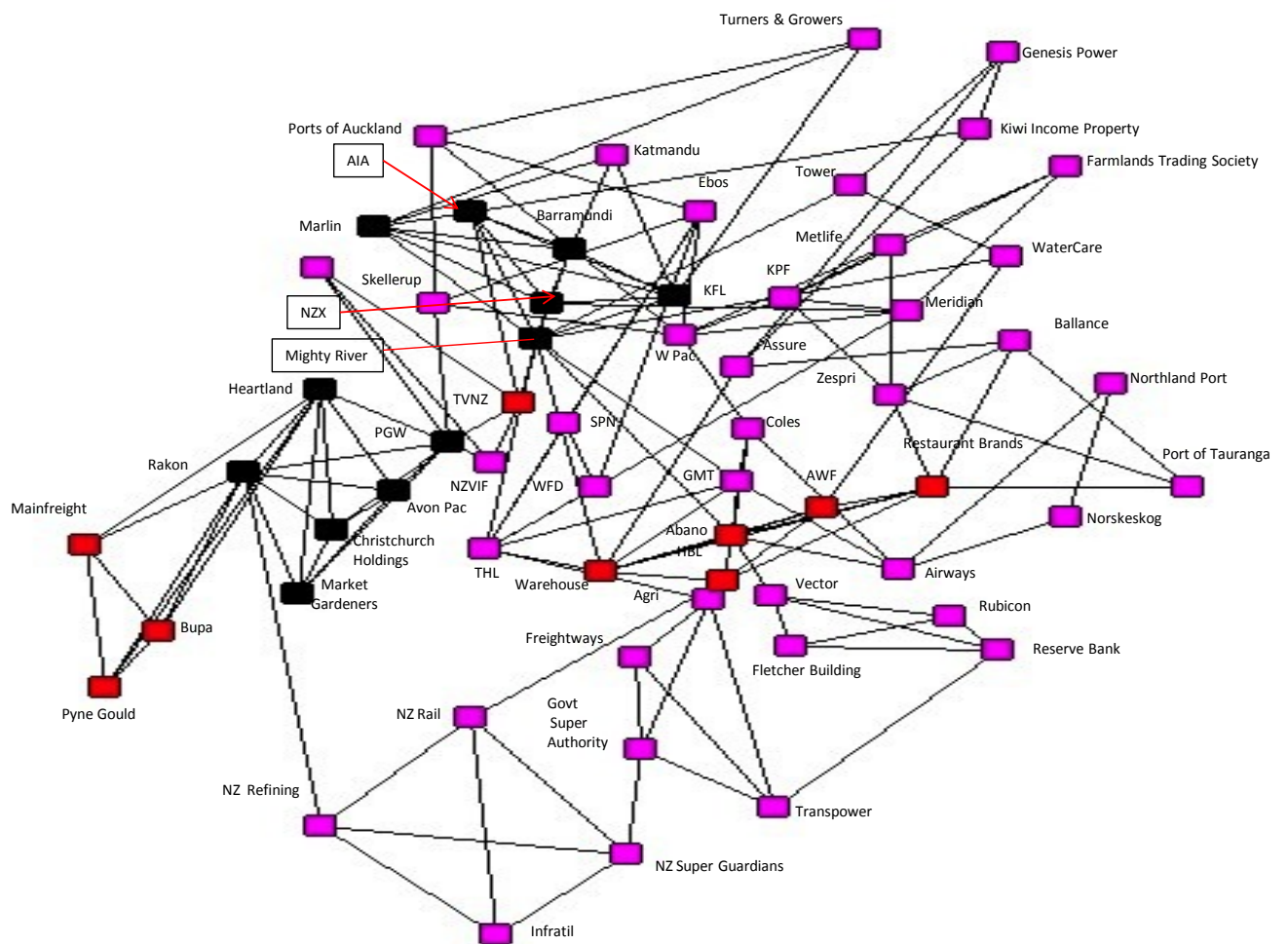
Pink

Grey

Blue – least connected

At the centre of the network is a group of 54* organisations that form the core of the DNA;
Figure 2:

Figure 2 Central Core of the DNA



* a number of organisations have common directors due to being a subsidiary or related company which reduces the sample from the 59 to 54 shown in Table 1 below.



Table 1: The Top 54 Organisations in Alphabetical order

Abano Healthcare Group Limited
Ag Research Ltd
Airways Corporation of New Zealand
AMP NZ Offices Ltd
Assure Quality Ltd
Auckland International Airport Limited
Avon Pacific Holdings
AWF Group Limited
Ballance Agri Nutrients
Bupa Healthcare NZ Ltd
Christchurch City Holdings
Coles Group Holdings NZ Ltd
Ebos Group Limited
Farmlands Trading Society
Fisher Funds: Barramundi/ Kingfish/Marlin Limited
Fletcher Building
Goodman Property Trust Ltd
Health Benefits Ltd
Heartland New Zealand Ltd
Infratil Ltd
Kiwi Rail Ltd
Mainfreight Ltd
Market Gardeners
Meridian Energy
Mitlifecare Ltd
Mighty River Power
New Zealand Venture Investment Fund Ltd
Northland Port Corporation Ltd
NZX Limited
PG Wrightson Ltd
Port of Auckland
Port of Tauranga Ltd
Pyne Gould Corporation Ltd
Rakon Ltd
Reserve Bank of NZ
Restaurant Brands New Zealand Ltd
Sanford Limited
Skellerup Holdings Ltd
South Port New Zealand Ltd
Television NZ Ltd
The Colonial Motor Company Ltd
The New Zealand Refining Company Ltd
The NZX Australian Midcap Index Fund
The Warehouse Group Ltd
Tourism Holdings Ltd
Tower Ltd
Transpacific Industries Group Ltd
Transpower New Zealand Ltd
Turners and Growers Ltd
Vector Ltd
Wakefield Health/Accurity Ltd
WaterCare Services
Westpac Banking Corporation NZ Ltd
Zespri Group



From this group of 54, selecting organisations scoring highest on Centrality Measures such as; Degree, Closeness and Betweenness, produces a group of 24 companies that form the core of the Director Network, Table 2:

Table 2: Top 24 Organisations in Alphabetical Order
Abano Healthcare Group Ltd
Ag Research Ltd
AMP NZ Offices Ltd
Auckland International Airport Ltd
Christchurch City Holdings
Ebos Group Ltd
Fisher Funds: Barramundi/King Fish/Marlin
Fletcher Building Ltd
Goodman Property Trust Ltd
Heartland New Zealand Ltd
Infratil Ltd
Kiwi Rail Ltd
Mighty River Power
NZX Ltd
PG Wrightson Ltd
Pyne Gould Corporation Ltd
Rakon Ltd
Restaurant Brands New Zealand Ltd
Skellerup Holdings Ltd
Television NZ Ltd
The New Zealand Refining Company
The Warehouse Group Ltd
Tourism Holdings Ltd
Vector Ltd

It is noteworthy that **Might River Power** is ranked significantly ahead of the rest of the group. Other very highly connected boards in the core of the Director Network are:

- NZX Ltd
- Auckland International Airport
- The Fisher group of companies
- Rakon
- PG Wrightson
- Avon Pacific
- Heartland
- Christchurch Holdings
- Market Gardens

It could be said the final list of five have a strong South Island connection.

Also of note is the role TVNZ plays as a connector board which is an indicator of their very high score on “betweens”.



From this analysis, we can draw the conclusion that these organisations form the core of the Director Network and are in a position to have greater influence than others with less connectivity.

Part 2: Director Analysis

Independent of the Board Analysis in Part 1 we took the total sample of 350 organisations and identified the number of directorships held by each director; Table 3.

Table 3 Analysis of Directorships				
Number of Boards	Female	Male	Total Directors	Total Directorships
7		1	1	7
6		1	1	6
5	3	4	7	35
4	3	11	14	56
3	10	29	39	117
2	13	114	127	254
1	157	1082	1239	1239
Totals	186	1242	1428	1714

The following observations can be made:

- 1239 directors only have one board position which means directorships are closely held within the network
- 127 sit on 2 boards of which 13 are female
- 39 sit on three boards of which 10 are female
- 14 sit on four boards of which 3 are female
- Seven other people sit on five boards of which 3 are female
- One person (male) sits on 6 boards
- One other person (male) sits on 7 boards

An analysis of gender shows:

- Of the total sample of 1428 directors 13% are female (186)
- Of the 189 directors sitting on more than one board 15% are female (29)

Taking the sample we selected all directors who sat on three or more boards which produced a total of 61 directors, of these 15 are female (24.5%)

Sorting the sample of 61 directors by gender and ranking this group produced a 1st XV for male directors. Table 4 shows this list in alphabetical order.

Table 4	
All Male Directors 1st XV	
John	Anderson
Tony	Carter
Rick	Christie
Hugh	Fletcher
Bruce	Irvine
Erich	Livengood
John	Loughlin
Bryan	Mogridge
David	Pilkington
Humphrey	Rolleston
Keith	Smith
Mark	Tume
Ted	van Arkel
Mark	Verbiest
Peter	Wilson

Sorting the sample of 61 directors by gender and ranking this group produced a 1st XV for female. Table 5 shows this list in alphabetical order.

Table 5	
All Female Directors - 1st XV	
Kristin	Brandon
Elizabeth	Coutts
Carmel	Fisher
Jane	Freeman
Susan	Huria
Kathryn	Jaggard
Rowan	Macrae
Susan	Paterson
Alison	Paterson
Joanna	Perry
Nora	Scheinkestel
Susan	Sheldon
Tania	Simpson
Sarah	Smith
Joan	Withers

It is worth noting that of the selected sample of 61 directors, 24.5% are female (15). This could indicate that female directors whilst being a smaller percentage of the total sample have a greater level of influence in the centre of the Director's Network.

Part 3: Combining Board Analysis and Director Analysis

Taking the list of 24 organisations identified in Table 2 which form the core of the Directors Network we identified the names of the directors who sit on these boards. We then ranked them by the number of boards they sit on in the sample of 24 organisations.

This produces a group of 17 directors within the core of the New Zealand Director's Network. Table 6 shows this list in alphabetical order.

Key Directors at the Core of the NZ Directors Network	
John	Anderson
Tony	Carter
Rick	Christie
Elizabeth	Coutts
Selwyn	Cushing
Hugh	Fletcher
Trevor	Janes
Bruce	Irvine
James	Miller
Bryan	Mogridge
Alison	Paterson
Susan	Paterson
Tania	Simpson
Keith	Smith
Mark	Tume
Ted	van Arkel
Joan	Withers

Conclusions

It is worthy of note that one third of Directors Network (Table 6) are female which suggests that at the heart of the Directors Network female directors may be more influential than macro statistics suggest. This does not of course explain or excuse their under representation on the 350 boards in the sample.

From a sample of 350 organisations we have identified 24 organisations which form the core of the Directors Network.

From a total of 1428 directors we have identified 61 directors who individually form the core of the Directors Network.



Within the core of the Directors Network we have identified the top 15 male directors and the top 15 female directors.

We have identified the 17 directors at the core of the Directors Network in New Zealand.

References:

Braithwaite, A. Director interlocks in the UK: an analysis of the Top 100. 2006.

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