THE NATURE, EXTENT AND POSSIBLE IMPLICATIONS OF DIRECTOR INTERLOCK IN SOUTH AFRICAN LISTED COMPANIES

by

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ABSTRACT

Recently, corporate scandals rocked the South African financial landscape, prompting the re-examination of existing corporate governance practices and renewed scrutiny of corporate governance institutions and mechanisms. One of these practices, a phenomenon called “director interlock”, was scrutinised in this study. A quantitative and inductive approach was used in this research to scrutinise companies listed on the Johannesburg Stock Exchange, as well as the directors who served on their boards during the periods researched, namely, 2010 and 2016, with the purpose of considering the consequences of director interlock in a South African context. Appropriate sources on corporate governance, director interlock and network analysis were accessed. Social network analysis was applied to analyse and map the extent, nature and structural dynamics of director interlock statistically in all South African listed companies in respect of 2010 and 2016 with a view to considering the causes and consequences of identified changes between 2010 and 2016, and possible implications of those changes for corporate governance in South Africa. Both periods occurred shortly after times of financial turmoil or contracting economic growth, where, in line with global trends, financial consolidation and a possible decline in economic activity and board sizes of companies would be expected. The concept of centrality, comprising three components, was used in the statistical social network analysis. These components were degree centrality, which is an indicator of the number of connections and the degree of activity of a company or a director, closeness centrality, which is an indicator of the closeness of a company or a director to other companies or directors within a network and the number of steps from that company or director to other companies and directors in the network, and betweenness centrality, which is a measure of the centrality of a company or a director and the extent to which the company or the director acts as a bridge between and connects with other well-connected companies and directors in the network. The following striking findings emerged from this research: a massive increase in the average board size between 2010 and 2016, a resultant increase in the density of networks between 2010 and 2016, and an apparent shift away from the dominance of mining houses described in earlier studies to financial services companies in 2010 and retail companies in 2016. In the literature review the existence of a global elite in the structure of company boards was pointed out, and the question was asked whether there is any evidence of the existence of a similar elite in South Africa and, if so, whether there have been any changes in the makeup, characteristics or nature of such an elite from 2010 to 2016. Further, the question was asked whether any changes can be observed regarding the central actors of company boards in the local economic power network. The research results indicate that there was an apparent reversal of transformational gains towards the re-establishment of white male dominance in the ultra-elite echelons of directors in the South African network by 2016. In the absence of conclusive evidence emanating from this research, the value of director interlock is still hotly debated. Is the practice of director interlock beneficial or damaging to corporations and the wider economic landscape, or could it be both beneficial and damaging? This study provides conclusive evidence that the value of interlock depends on the way in which it is applied, taking into account how the causes, consequences and dynamics of director interlock are manifested in individual companies. While evidence suggests that director interlock, if applied correctly, can be beneficial, the recent Steinhoff debacle was used to illustrate that it can also be detrimental, depending on how it is applied. This study emphasised the value of social network theory, resource-dependence theory, agency theory, small-world theory and power dynamics, specifically in research into corporate governance and related fields of study. This research undoubtedly contributes to the body of knowledge on corporate governance in general and the structure and functioning of company boards, inclusive of director interlock, in particular. The guidelines that emerged from this study could be used to identify board structures and strategically positioned directorship candidates for board appointments and to avoid potentially destructive patterns that may even lead to corporate failure.

Key words: Board process, board dynamics, board demographics, director interlock, interlocking network, isomorphism, social network analysis (SNA), social networks, social relations, social network analysis software, statistical analysis system (SAS)

Isifinyezo esiqukethe umongo wocwaningo

Maduzane nje, kuvele amahlazo ezinkampani ezinkulu zezezimali eNingizimu Afrika, lokhu okwenze ukuthi kuhlolwe kabusha inqubo nenkambiso yamanje yolawulo lwezinkanpani ezinkulu, kanti futhi lokhu kwavuselela ukuhlaziywa kwezikhungo zezolawulo lwezinkampani ezinkulu kanye nezindlela zokwenza lokhu. Enye yalezi zinkambiso, ukuhlala nokungenelelana kwabantu kumabhodi ezinkampani ezehlukene okuyinto ebizwa ngokuthi yi-"director interlock" iye yahlolisiswa kulolu cwaningo. Kusetshenziswe inqubo ye-quantitative ne-inductive kulolu cwaningo ukuhlolisisa izinkampani ezifakelwe kuhla lwe-Johannesburg Stock Exchange, kanye nodayirektha abakumabhodi azo ngesikhathi sokwenziwa kocwaningo, okusho ukusukela ngo 2010 ukuya kua 2016, ngenhloso yokubhekisisa imiphumela yenqubo yodayirektha abahlala kumabhodi amaningi ehlukene i-director interlock kwisimo seNingizimu Afrika. Kuye kwatholwa imithombo yolawulo

lwezinkampani, inqubo ye-director interlock kanye nokuhlaziya ukuxhumana okwaziwa njenge-network analysis. Uhlaziyo lwama-network okuxhumana kwabantu kwe-social network analysis kwasetshenziswa ukuhlaziya kanye nokubheka ukujula nokwenza imephu yenhlobo kanye nobudlelwane bezakhiwo kunqubo ye-director interlock, namastatistiki kuzo zonke izinkampani ezifakelwe kuhla zaseNingizimu Afrika ngesikhathi esiphakathi kuka 2010 no 2016 ngenhloso yokubheka izimbangela kanye nemiphumela yezinguquko ezibhekiwe phakathi kuka 2010 no 2016, kanye nemphumela yalezi zinguquko kwinqubo yolawula lwezinkampani eNingizimu Afrika. Zombili izinkathi zenzeke maduzane ngemuva kweziyaluyalu zezezimali nokuncipha kwesimo somnotho, laphokhona, ngokuhambisana nobekwenzeka kuwo wonke umhlaba, kuye kwaba nokuqoqana kwesimo sezezimali kanye nokwehla kwezimo zomnotho kanye nosayizi bamabhodi ezinkampani okwakulindelwe. Umqondo wokuqoqela ndawonye, onemikhakha emithathu, wasetshenziswa ekuhlaziyweni kwamastatistiki okuxhumana kwabantu okwaziwa nge-statistical social network analysis. Le mikhakha kwakuyizinga lokuqoqana ndawonye okwaziwa nge-degree of centrality, okuyinkomba yamanani okuxhumana kwezinto kanye namazinga emisebenzi yenkanpani noma udayirektha, ukusondelana qokuqoqana ndawonye okwaziwa ngokuthi yi-closeness centrality, okuyinkamba yokusondelana kwenkampani noma udayirektha nezinye izinkampani noma abanye odayirektha kwi-network, kanye nenani lezinyathelo kuleyo nkampani noma udayirekha kwezinye izinkampani kanye nabanye odayirektha kwi-network, kanye nanokuxhumana phakathi kwabo, okuyisikali sokuxhumana kwenkampani noma udayirektha, nezinga lendlela inkampani noma udayirekha athatha ngalo izinyathelo njengomxhumanisi phakathi kokuxhumana nezinye izinkampani kanye nabanye odayirektha kwi-network. Imiphumela eyisimanga etholakele ngalolu cwaningo: kuye kwaba nokwenyuka kakhulu kosayizi bamabhodi esikhathini esiphakathi kuka 2010 no 2016, lokhu okubangele ukwenyuka kokujula kwama-network phakathi kuka 2010 no 2016, kanye nokugudluka ukusukela kubukhulu bezimayini ukuya kwizinkampani zezezimali ngo 2010 kanye nezinkampani zama-retail ngonyaka ka 2016. Ekubuyekezweni kwemibhalo ubukhona bama-elite kumhlaba wonkana kwizakhiwo zamabhodi kuye kwabona, kanti umbuzo owabuzwa ukuthi ngabe bukhona ubufakazi bobukhona bama-elite efanayo eNingizimu Afrika, uma kunjalo, ngabe kube khona ushintsho ngendlela ahleleke ngayo, ubunjalo noma inhlobo yalawo ma-elite ukusukela ngo 2010 ukuya ku 2016. Omunye umbuzo, owabuzwa, wukuthi ngabe noma yiziphi izinguquko ziyabonakala yini mayelana nababambiqhaza ababalulekile kumabhodi ezinkampani kuma-network anamandla kwezomnotho. Imiphumela yocwaningo ikhombisa ukuthi kwabanokuhlehla ngokuzuziwe kwezezinguquko, kwabuyelwa emuva ekubuseni kakhulu kwabesilisa abamhlophe kwimikhakha ephezulu yama-elite odayirektha kuma-network aseNingizimu Afrika ngo 2016. Ngokusweleka kobufakazi obuphethakele obuvela kulolu cwaningo, ukubaluleka kwe-director interlock kusaxoxwa ngakho kakhulu. Ngabe i-director intelock inenzuzo noma ilimaza izinkampani kanye nesimo somnotho ngokunabile, noma kungenzeka ukuthi kwenzeka kokubili, ukubanenzuzo kanye nokulimaza? Lolu cwaningo luhlinzeka ngobufakazi obuphelele bokuthi ukubaluleka kwe-director interlock kuncike kwindlela okusetshenziswa ngayo, ngokubonelela izimbangela, imiphumela emibi kanye nama-dynamic endlela i-directoer interlock ebonakala nokuvela ngayo ezinkampanini ezehlukene. Ngisho noma ubufakazi bukhombisa ukuthi i-director intelock, uma isetshenziswa kahle, ingaba yinzuzo, kodwa ihlazo lamaduzane le-Steinhoff lisetshenziswe ukukhombisa ukuthi, lokhu kungaba ngokulimazayo, kuncike ngokuthi kusetshenziswa kanjani. Lolu cwaningo lukhombise ukubaluleka kwe-social network theory (ithiyori yobudlelwane bokuxhumana kanye nokwabelana ngolwazi), i-resource-dependence theory (ithiyori yokuthi ngabe imithombo yosizo yangaphandle ichapha0zela kanjani ukuziphatha kwenhlangano), i-agency theory (ithiyori yobudlelwane phakathi kwama-ejenti kanye nabaphathi), small-world theory (ithiyori yokuxhumana kwabantu bexhunyaniswa ngabanye noma eminye imikhakha yabaxhumanisi) kanye nama-power dynamic (ndlela amandla umuntu anawo nokuba nomthelela kwabanye abantu nokuchaphazela ubudlelwane babo), ikakhulukazi kucwaningo ngokulawulwa kwezinkampani ezinkulu kanye nemikhakha ehambelanayo yocwaningo. Ngaphandle kokungabaza, lolu cwaningo lunomthelela kwingqikthi yolwazi ngezolawulo lwezinkampani ezinkulu ngokunabile kanye nezakhiwo nokusebenza kwamabhodi ezinkampani, okubandakanya ukukungenelelana kodayirektha kwamanye amabhodi ezinye izinkampani, ikakhulukazi. Imikhombandlela evelile kulolu cwaningo ingasetshenziswa ukuphawula izakhiwo zamabhodi, kanye nobudayirektha obusemkhakheni ethize, ngokuqokwa kwamabhodi ukugwema ukuba namaphatheni anemiphumela emibi, engaholela nasekwehlulekeni kwezinkampani ezinkulu.

Amagama abalulekile: Inqubo yebhodi, ukuchaphazelana kobudlelwane nemithelela kumabhodi, ukuhleleka ngezinhlobo kwamabhodi, ukungenelelana kwabantu kumabhodi ezinkampani ezehlukene, ubudlelwane phakathi kwabantu abakumabhodi ehlukene, i-isomorphism, i-social network analysis (SNA), ama-network obudlelwane babantu, ubudlelwane babantu, i-social network analysis software, i-statistical analysis system (SAS)

Khutsofatšo

Malobanyana, mahlabišadihlong a koporase a wetše tikologo ya ditšhelete ya Afrika Borwa, yeo e hlohleletšago go sekwasekwa leboelela ga ditlwaedi tša pušo ya dikgwebo le nyakišišo ye e mpshafaditšweng ya mekgwa ya diinstitšhušene tša pušo ya koporase. Se sengwe sa ditlwaedi tše, ke ponagalo ya go bitšwa "tlhatlaganyo ya molaodi", mahlabišadihlong a nyakišišitšwe ka nyakišišong ye. Mokgwa wa khwalithethifi le taelo o šomišitšwe ka gare ga nyakišišo ye go nyakišiša dikhamphani tše di ngwadilwego lenaneong la Johannesburg Stock Exchange, le balaodi bao ba šomilego dibotong tša yona dinakong tše di nyakišišitšwego, e lego 2010 le 2016, ka morero wa go šetša ditlamorago tša tlhatlaganyo ya molaodi mo maemong a Afrika Borwa. Methopo ya maleba mabapi le pušo ya koporase, tlhatlaganyo ya molaodi le tshekatsheko di fihleletšwe. Tshekatsheko ya neteweke ya leago e dirišitšwe go sekaseka le go beakanya bogomo, tlhago le diphetogo tša sebopego tša tlhatlaganyo ya molaodi ka dipalopalo ka gare ga dikhamphani tša Afrika Borwa ka moka tše di ngwadilwego lenaneong mabapi le 2010 le 2016 ka kgopolo ya go ela hloko ditlholo le ditlamorago tša diphetogo tše di hlaotšwego gare ga 2010 le 2016, le dikhuetšo tše di kgonegang tša diphetogo tšeo tša pušo ya koporase ka Afrika Borwa. Dinako ka bobedi di diragetše kgauswinyana morago ga dinako tša mathata a ditšhelete goba kgolo ya ikonomi ye e phuhlamago, fao, ka go sepetšana le mekgwa ya lefase ka bophara, kopantšho ya ditšhelete le kgonagalo ya phokotšego ya ditiro tša ikonomi le bogolo bja diboto tša dikhamphani di tla letelwa. Kgopolo ya bogare, ya go bopša ka dikarolo tše tharo, e šomišitšwe ka tshekatshekong ya neteweke ya leago ya dipalopalo. Dikarolo tše e be e le bogare bja bogolo, tšeo e lego taetšo ya palo ya dikgokagano le bogolo bja tiro ya khamphani goba molaodi go dikhamphani tše dingwe ka gare ga neteweke, le bogare bja kelo, tšeo e lego kelo ya bogare bja khamphani goba molaodi le bokgole bjoo khamphani goba molaodi a šoma bjalo ka leporogo mo gare le go kgokagana le dikhamphani tše dingwe tše di nago le kgokagano ye botse le balaodi ka gare ga neteweke. Dikutullo tše di latelago tša go goga šedi di tšweletše go tšwa nyakišišong ye: koketšego ye kgolokgolo ya bogolo bja boto bja palo gare ga 2010 le 2016, koketšego ye e hlotšwego ka pitlaganong ya dineteweke gare ga 2010 le 2016, le tšhutišo ya go hlaka go tšwa go taolo ya dintlo tša moepo tše di hlalositšwego ka dinyakišišong tša pele go dikhamphani tša ditirelo tša ditšhelete ka 2010 le dikhamphani tša retheile ka 2016. Ka tshekatshekong ya dingwalo go ba gona ga bahuetši ba lefase ka sebopegong sa diboto tša khamphani di laeditšwe, gomme potšišo e botšišitšwe ge eba go na le bohlatse bofe goba bofe bja bahuetši ba go swana ka Afrika Borwa gomme, ge go le bjalo, ge eba go bile le diphetogo dife goba dife ka gare ga popego, dipharologantšho goba tlhago ya bahuetši ye

bjalo go tloga ka 2010 go fihla ka 2016. Gape, potšišo e botšišitšwe ge eba diphetogo dife goba dife di ka bonwa mabapi le diketapele tša diboto tša khamphani ka netewekeng ya maatla a ikonomi ya tikologo. Dipoelo tša dinyakišišo di laetša gore go be go na le poelomorago ye e hlakileng ya dipoelo tša phetošo go ya go tlhomo leswa ya taolo ya banna ba bathobašweu ka gare ga maemo a go feta tekanyo a bahuetši a balaodi ka netewekeng ya Afrika Borwa 2016. Ka go hlokega ga bohlatse bja mafelelo bja go tšwa nyakišišong ye, boleng bja tlhatlaganyo ya molaodi bo sa ntše bo ngangišanwa kudu. Setlwaedi sa tlhatlaganyo ya molaodi se na le mohola goba se senya dikoporase le ponagalo ya ikonomi ye e nabilego, goba se ka ba bobedi sa mohola le go senya? Nyakišišo ye e fa bohlatse bja mafelelo bja gore boleng bja tlhatlaganyo bo laolwa ke tsela yeo bo šomišwago ka yona, go akaretšwa ka fao ditlholo, ditlamorago le diphetogo tša tlhatlaganyo ya molaodi di bago gona khamphaning e tee ka e tee. Mola bohlatse bo šišinya gore tlhatlaganyo ya molaodi, ge e šomišitšwe ka nepagalo, e ka ba le mohola, bothata bja malobanyana bja Steinhoff bo šomišetšwe go laetša gore gape bo ka ba kotsi, go ya ka fao bo šomišitšwego. Nyakišišo ye e gatelela boleng bja teori ya neteweke ya leago, teori ya boikanyo bja methopo, teori ya etšentshi, teori ya lefase le lenyane le diphetogo tša maatla, gagolo ka dinyakišišong tša pušo ya koporase le makala ao a amegago a nyakišišo. Nyakišišo ye ntle le pelaelo e kgathatema go tsebo ya mmele go pušo ya koporase ka kakaretšo le sebopego le go šoma ga diboto tša khamphani, go akaretšwa tlhatlaganyo ya molaodi, gagolo. Melawana ya tshepedišo ye e tšweletšeng go tšwa nyakišišong ye a ka no šomišwa go hlaola dibopego tša boto le bonkgetheng ba bolaodi ba go beelwa go thwalwa ga boto ka maikemišetšo le go efoga diphethene tše di nago le kgonagalo ya go senya tšeo gape di kago iša go palelwa go koporase.

Mantšu a bohlokwa: Tshepetšo ya boto, diphetogo tša boto, dintlha tša boto, tlhatlaganyo ya molaodi, neteweke ya tlhatlaganyo, aesomofime, tshekatsheko ya neteweke ya leago (SNA), dineteweke tša leago, dikamano tša leago, softewere ya tshekatsheko ya neteweke ya leago, sestemo ya tshekatsheko ya dipalopalo (SAS)

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Ultimately, all power and all control are with God.

DECLARATION

All the work that follows below is my own work, and that all the sources that I have used, or quoted, have been indicated and acknowledged by means of complete references.

I further declare that I have not previously submitted this work, or part of it, for examination at Unisa, for another qualification, or at any other higher education institution.

LM Neuhoff

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CHAPTER 1 – INTRODUCTION

1.1 INTRODUCTION TO THE RESEARCH

An understanding of the concept of social structure is integral to this research, contributing to an understanding of the forces that not only effect change in society, but also the forces that effect change in societal structures such as business enterprises and government.

1.1.1 Social structure and change

In Book II of *The Republic*, Plato's Socratic dialogue written almost 400 years BC, Plato described the satisfaction of human needs as the root cause for people to associate; the basis for the creation of societies. In 1830, Auguste Comte was the first philosopher who called for unity in knowledge about human activity, calling the science sociology. One of the earliest references to a structural environment and social structure was made in 1857 by Karl Marx in his *Grundrisse*, and his work was followed by that of Herbert Spencer in 1875, Spencer being the first scholar to formally define the concept of social structure. Britannica.com further defines social structure as the "distinctive, stable arrangement of institutions whereby human beings in a society interact and live together." Freeman (1979) described research on social structure as the development, exploration or testing of theories or ideas about reality and the existing world. In a sociological analysis, social change is one of the central concepts and the change that occurs refers to the forces that interplay to change the social structure and the organisation of society (Cook and Whitmeyer, 1992). According to Scott (1991) business enterprises are central in the structure of a capitalist society and, when conducting a sociological analysis, it is of interest to examine how they are governed.

1.1.2 Corporate governance

Corporate governance involve the rules, practices, and processes that direct and control companies. After several financial scandals in the early 2000's in the United States, involving publicly trading companies such as Enron, Tyco International Plc, and WorldCom, the United States Congress passed as law, one such governance mechanism or instrument, the Sarbanes-Oxley Act of 2002, which aims to protect investors from fraudulent financial reporting by companies. South Africa is seen as one of the countries in the world which implemented the most comprehensive governance codes with the development of the various King reports (West, 2006a). Corporate governance essentially involves both protecting and balancing the interests of a company's various stakeholders. These stakeholders are the shareholders, management, customers, suppliers, financing institutions, government and the wider community. Corporate governance also provides the framework for ensuring that structures are created for companies to achieve their objectives, to create action plans and establish internal controls, and with that the introduction of performance measurement and management. Corporate disclosures are also part of what is regarded as a system or practice of good and transparent corporate governance (Garratt,2005).

The board of directors is responsible for the execution of corporate governance practises. Boards are responsible for several critical decisions (for example, decide on executive compensation), and consist of a mix of inside and independent (outside) members. Insiders normally consist of a combination of major shareholders, founders, and executives. The outsiders are regarded as independent professional directors, who are appointed to bring objectivity to the board decision making process. In theory, the objectivity is ensured by a gate keeping and monitoring function, and with their appointments these independent and outside professionals dilute and prevent any concentration of power (Carpenter & Westphal, 2001).These independent outside directors supposedly have significant experience in managing or directing other large companies and bring a new dimension to the decision-making process. An additional function of the independent outside directors is to align shareholder interest with the internal stakeholders, which comprise internal directors and management. A company’s reliability, integrity or commitment to its shareholders are being questioned when poor corporate governance practises are being observed, whereas a display of strong corporate governance practises, attract investors who value transparency and accountability (Van der Walt amd Ingley,2003).

1.1.3 Economic power and director interlock

As early as 1905, Jeidels identified a concentration of economic power which was nested in the form of several German bankers who reciprocally sat on various company boards, creating a social network, of well-connected directors. In 1932, Means and Berle sparked the idea of a corporate revolution and control by managers in their work *The Modern Corporation and Private Property*, a concept that was formulated by Burnham in 1940. In the United States, Brandeis found the same pattern of concentrated power in 1941, where a few bankers served on several boards. In both 1956 and 1958, Mills described a power elite which tied together United States business, government, and the military, while Useem (1984:222) was the first author to identify this power formation of well-connected directors as an inner circle of the elite. The work of Mintz and Swartz (1985) showed the central position of financial institutions in the United States at the core of the United States network.

The managerial mechanisms and practices within institutions and business enterprises, include corporate governance which seeks to protect and balance the interests of a company's various stakeholders and may very well exert an influence on the way in which it ties into each other as well as into greater social structures such as government and the military. Fennema and Schijf (1978:298) indicated that these influences which are created by the organisational ties can manifest in many forms, as, for example, gentleman's agreements, the formation of cartels, quota regulation or joint ventures. Another example is a practise where directors sit on the boards of various companies which inevitably results in what is called an interlock between these companies. Chu and Davis (2013:3) held that corporate board interlock is the most studied network in the social sciences. This study will be limited to the formation of interlocks only.

Mizruchi (1996:274-280) list reasons for companies to engage in an interlock. Companies seek to appoint directors who would add prestige to their company through the association with the prestigious positions they hold in other prominent companies, if they are capable of providing input and advice, often related to specific pre-existing strategic issues, and if they are known as "good citizens" with reputations that clearly reflect that they are conscientious and non-controversial. It would be important to understand, from a director perspective, their rationale why they form or engage in interlocks? Useem (1984:209) concluded that by a director sitting on two (2) or more boards, their horizons widened in a practice which was called "business scan". To this Useem (1984) added an important tangible and several intangibles. He defined the important tangible as the financial reward the additional appointment brings and the intangibles as the prestige they bring for the individual director involved, the access to a wide range of information a director never had access too before, and the multiple new connections that are made. In earlier work Useem (1980:107) showed that those directors serving on two (2) or more boards are more likely to be invited to policy-discussion groups and to receive appointments to government advisory committees, and that interlocking could assist to move a director into the middle of the power structure of the interlocked network. Davis *et al*. (2002) is of the opinion that with the exception of bank ties, companies recruit experienced directors with little strategic intent although their appointments have a major influence on board decision making and ideas can diffuse via these directors from one company to another fairly easily. The prior experience of directors is part of their attractiveness in the additional value they bring, insofar as they have been involved in acquisitions, alliances, adopting takeover defence mechanisms, creating investor relations offices, or even recruiting other directors.

In this study, existing empirical research was reviewed to scrutinise the roles and effectiveness of the board of directors as a governance mechanism and director interlock was examined in detail. The influence of interlocking directorates had been debated for some time, and various studies over the last 20 years had produced mixed results (Mizruchi, 1996:274; Haunschild & Beckman, 1998:815). The question around the influence of interlocks on corporate governance, whether negative or positive, is of much debate (Barzuza & Curtis, 2015). Some research yielded positive results, whereas others reported negative results.

Barzuza and Curtis (2015) were concerned with the capacity of interlocks to spread negative contagious practices. Haniffa and Cooke (2000) listed a number of such practices including collusion, excess control exercised by debt investors, especially banks, and of course the promotion of the special interests of particular corporate elites. This latter was also highlighted by Useem (1984:207). These interests might include the interests of management themselves, finding expression through inflated remuneration (O'Reilly, Main & Crystal, 1988) through practices like backdating employee stock options (Bizjak *et al*., 2007). Beyond this, special interests may also be served through corporate restructuring (Palmer, Jennings & Zhou, 1993), as well as merger and acquisition activities (Davis, 1993; Haunschild,1993). In short, social influence 'flows' through interlocking directors creating an informational and normative context within which board decisions can be manipulated (Granovetter, 1985). Reciprocal interlocks in which senior executives reciprocally sit on one another's boards has been flagged as being of particular concern. According to Fich and White (2005) these CEO reciprocal interlocks seem to be correlated with depressed corporate performance and excess compensation, potentially due to what they call back-scratching.

Some research, as for example by Larcker, So and Wang, (2013) suggests that interlocks can be associated with the benefits they bring and in new fast growing companies interlocking is associated with better operational performance. For example, studies such as those by Larcker *et al*. (2013) have reported superior risk adjusted returns (Larcker *et al*., 2013). According to Schonlau and Vir Singh (2009) interlocks contribute to better post-merger performance. Interlocked companies are more likely to make an acquisition, for which they would use cash, and the likelihood for them to be acquired themselves, is higher. The interlocked networks influences decision making with regards to acquisitions, the choice of the potential or possible targeted company, the method of payment that will be used, and ultimately the financial performance of the company around the merger (Schonlau & Vir Singh, 2009)

Several studies investigated the pattern of interlocks in various countries across the world. Studies by Levine (1977); Elouaer (2006); Barnes (2015); and Chu and Davis (2013), are examples of how these patterns of interlocked networks have changed over time. In this study, an inductive approach was used which started by statistically mapping the interlocked network of companies and directors who serve on their boards, for listed companies on the Johannesburg Stock Exchange for 2010 and 2016. After the revelation of the network structure for both time periods, observations were made to search for similar, or different, structural changes in the patterns of the interlocked networks from 2010 to 2016. The inductive approach generated meaning and allowed for the interpretation of the data and in order to identify any structural change in patterns of the interlocked networks, and to see if similar changes like in the case of Levine (1977); Elouaer (2006); Barnes (2015); and Chu and Davis (2013) for the 2010 and 2016 networks occurred. An empirical generalisation was that for the authors and studies above, structural changes to the networks did occur, and the networks became less dense.

This study investigates the structure of director interlock within South African listed companies, reveals the companies and directors involved, and shows that a similar change in pattern occurred as found by Levine (1977); Elouaer (2006); and Chu and Davis (2013). The study found a change in the pattern comparing the network of interlocked companies and directors of listed companies in 2010 and 2016. Both periods occurred shortly after times of financial turmoil or contracting of economic growth, where, in line with global trends, financial consolidation and a possible decline in economic activity and board sizes of companies would be expected. The study investigates if that was indeed the case and if the same pattern was found. The comparison of patterns is part of the inductive approach and validates, and provides credibility to the possible change in patterns that were observed. The observations and findings assist to clarify if contracting did take place, and if board sizes did decrease, and if the network became less dense? Similar structural changes were observed, but with an important difference. From 2010 to 2016, the South African network of interlocked companies and directors serving on their boards, and structural pattern of the interlock increased in both size and density.

The inductive approach not merely investigated if the same reasons for the change in pattern applied for what Levine (1977); Elouaer (2006); and Chu and Davis (2013) found, but investigated if some other factors, variables, or contributors, could have potentially played a role to explain the change in the local structure from 2010 to 2016.

1.1.4 The existence of a corporate elite

Globally the makeup of board structures in the late 1980’s and 1990’s somewhat changed and banks began to lose some of their centrality, although they were still more central within the network structures than most other companies (Davis & Mizruchi, 1999). Ownership was no longer dominated by single big owners and boards and board positions were no longer dominated by big financiers. Board structures disclosed that an important change took place in that top-level executives were starting to sit on each other's boards. It started in the 1960’s, and picked up real steam in the 1980’s, as global companies were under pressure to diversify their boards in terms of adding women and people of colour. Unlike in the past, the women and the previously disadvantages individuals appointed to boards were no longer major financiers. The careers of these individuals reflect exposure to government, politics, or sports. Some board appointees had their own small businesses before and some celebrities were appointed to boards due to the magnitude of their social status (Zweigenhaft & Domhoff, 1998; Zweigenhaft & Domhoff, 2003; Zweigenhaft & Domhoff, 2006).

Despite all the diversification that has occurred, most prevalent on corporate boards are white males. Zweigenhaft and Domhoff (2006) found that in 2004 in the United States the highest diversification occurred in the top 100 companies, where white men held 71%, of the directorships, women of any colour held 14%, African-Americans held 10%, Latinos 4%, and Asian-Americans 1%. For 2004 they found that that diversification was concentrated around the biggest and most visible American companies and that 67% of the top 100 companies had at least one African-American director and 99% had at least one female director.

After the birth of democracy, South African companies experienced similar pressures to diversify and through the introduction of legislation like the Employment Equity Act, and the Broad Based Black Empowerment Act, the transformation agenda was prioritised. The study found evidence of the existence of a changing elite. If evidence were found of the existence of a changing elite, how did the make-up of this elite change? It was of interest to see if the change was in line with the global changing patterns towards more diversification and in line with what the transformation agenda intended?

1.2 BACKGROUND TO THE STUDY

In the literature review, seven (7) factors could be identified as having an influence on director interlock. These factors formed the background to the study: 1) The managerial revolution and changing patterns of ownership and control; 2) The managerial revolution and the influence of world events; 3) The managerial revolution and the new deal; 4) The managerial revolution and the failure of regulatory frameworks; 5) The managerial revolution and law; 6) The managerial revolution and power formation; and 7) The managerial revolution and changes to network and board structures. However, before discussing the seven (7) factors that influence director interlock, the causes and consequences of director interlock in the context of corporate governance is highlighted as a frame of reference for the remainder of the study.

1.2.1 Causes and consequences of director interlock

The causes and consequences of director interlock generally provide a basis to explore the dynamics of director interlock. With regard to ***causes*** in a broader context, the combination of the 2008 financial crisis and several corporate scandals, of which the Steinhoff debacle is the most recent, resulted in questioning the effectiveness of directors' monitoring role in the corporate environment. Much of the criticism against director interlock stemmed from shareholders who argued that board members should have been far more assertive in their oversight role. Keeping in mind that South Africa has one of the best corporate governance frameworks in the world, especially shareholders and other financial stakeholders question and criticise some corporate governance practises. Questions are being asked on the effectiveness of directors holding multiple board positions and their ability to effectively fulfil their monitoring roles. In addition to that, more than before, questions are being asked as to the possible causes and consequences of director interlock, and whether it is a good or a bad thing? (Haunschild and Beckman ; 1998: 815)

Devos, Prevost and Puthenpurackal (2009) mention the first of two (2) strategic viewpoints inunderstanding why interlocks may exist. They are supported by Pfeffer and Salancik (1978); and Bazerman and Schoorman (1983), and these authors are all in support of the resource dependency theory where companies are reducing uncertainty and risk, and are resource dependant in doing so. In a 2018 study by Mans-Kemp, Viviers and Collins, in exploring the causes and consequences of director overboardedness in an emerging market, they also identified the same two (2) main streams. The first relates to the resource dependency theory in that companies engage with other companies to gain access to resources such as capital, material or labour. Mans-Kemp *et al*. (2018) call that the experience hypothesis. By serving on more than board at the same time, directors expand their social connections. With the links and ties companies then pursue director expertise and strengthen their bargaining position (Pfeffer & Salancik; 1978). Director interlock has the advantage that it enlarges the social network for the interlocked companies and the interlocked directors and, because resources become more freely available with advantages for both the interlocked companies and the directors that are interlocked (Carpenter & Westphal, 2001). Directors that serve on more than one board are deemed to be more influential as they are better connected and potentially more experienced. These well-connected directors with more experience and multiple industry contacts act as excellent advisors to a company (Mans-Kemp *et al*., 2018).

On the counter side, there is the agency theory relating to conflict of interest between shareholders and managers, resulting in a separation of ownership and control. Mans-Kemp *et al*. (2018) call it their busyness hypothesis. To mitigate the conflict inherent in the agency theory related to separation of ownership and control, emphasis is placed on the monitoring role of the board. The primary role of directors is that they are seen as monitors or gate keepers.

Bazerman and Schoorman (1983) assert that while companies reduce uncertainty as one of their main aims, it simultaneously creates the opportunity for coordination. This includes both horizontal coordination, which will be across industries, as well as vertical coordination, which will basically be in the same industry. An Interlock is how this coordination manifests itself. Mizruchi (1996: 273-280) put forward six (6) main reasons for or causes of interlocks: “career advancement”, “social cohesion”, “strategic intent”, “collusion”, “co-optation and monitoring” and “legitimacy”.

Career advancement is described by Zajac (1988) is when skilled individuals join a board for the power and the financial benefit the new position would bring, the potential new contacts and business connections, and/or opportunities that will come with the new position. Social cohesion, according to Allen (1974) happens when companies, through the mutual ties of interlocking, share expertise and scarce resources. The ties create stability and a conduit for the sharing of information. Interlocks are indicative of business political cohesion, and increase corporate political power. Carpenter and Westphal (2001) emphasise the strategic intent, when companies appoint directors with the relevant strategic knowledge. These directors are appointed within a strategic context on the basis of how influential they could be within their network and by using their network ties.

Competition is in the interest of society, but Section 8 of the Clayton Act of 1914 in the United States was deployed to prohibit interlocks for companies that compete in the same markets and which could potentially restrict competition (Mizruchi, 1996:273). These interlocks facilitated communication between competitors but could very easily not only be a cause, but also as a consequence of interlock, resulting in collusion. Koenig, Gogel, and Sonquist (1979) and Burt (1983) believe that in mitigation of the agency problem interlocks are created to act as a mechanism for inter-organisational co-optation and monitoring, where, for example, financial institutions would seek to control the risk, return, sustainability and profitability of their investments. This could, however, constrain the operational effectiveness and efficiency of the company being monitored (Mizruchi, 1996:280). The aim of co-optation is to strive for and gain legitimacy, and to facilitate the process for companies to seek, and on-board credible resources in the form of sought-after directors, to serve on their boards (Scott, 1991). Legitimacy occurs when investors decide to invest in a company because of its strength and the perceived calibre and quality of the management it employs. The directors and their ties provide justification and credibility, and make it attractive for investors to invest in such companies. The interlocks thus create the legitimacy (DiMaggio & Powell, 1983).

Mizruchi (1996:280-286) summarises four (4) main consequences of company and director interlocks. Firstly he sees the primary consequence of interlocks as acting as a mechanisms for corporate control and that, secondly, interlocks are indicators of network embeddedness. Thirdly, that interlocks as communication mechanism for gaining information, and that lastly interlocks involving outside directors, play an important part in the adoption and execution of certain corporate strategies. Concerning consequences, the most important consequence of interlocks is the exercise of corporate control confirmed by Berle and Means's work, The Modern Corporation and Private Property institute introduced what is known as managerialism in 1932. In the 1970's, companies grew, stockholding was more widely spread and daily company activities were controlled by their managers. Mariolis (1975) was the first to explore interlocks in the United States to trace the centrality of companies' boards, and found that banks in the United States were the most interlocked with other companies, disproportionately linked through their interlocked ties with other companies in the United States. That gave banks the highest centrality and which also made them the most powerful from a corporate perspective.. Through stock ownership, investment in pension funds and control of loan capital, banks were able to exercise significant influence on and exercise control over companies. If a company had strategically placed representatives on the boards of a range of other companies it created the opportunity for that company to exercise considerable power in the corporate world, even if these board memberships did not ensure control over the other companies (Mariolis, 1975). Interlocks act as indicators of network embeddedness and Granovetter (1985) with his argument that economic behaviour like human behaviour is socially embedded, triggered the need to study the behavioural consequences of interlocks. Economic actors have an effect on other economic actors which means that a company's strategy, behaviour, structures and performance could be influenced and affected by the company's relationship with other companies. Interlocks are an example of relationships between companies which could impact on and affect and influence both the companies that are interlocked as regards their individual behaviour, structures and performance.

Interlocks act as a communication mechanism and enable companies or interlocked directors to gain information and Useem (1984:209) and Mintz and Schwartz (1981a:856) have indicated that in recent years, the emphasis on interlocks has largely shifted away from a mechanism of control to increasingly emphasise their value as a communication mechanism. Granovetter's embeddedness model also implies that the behavioural consequences of interlocks resulted in a communication mechanism rather than as a means of control. With director appointments with several external ties, the result is the creation of a network that acts as a general communication system which provides valuable information about industry conditions and investment opportunities across a range of industries (Mintz & Schwartz, 1985).

Interlocks are associated with a wide range of corporate strategies. One such strategy could be the number of outside directors on a company's board. Outside directors are normally the directors with several ties to other directors and board composition is an important part of the behaviour that could influence interlocked companies (Mizruchi, 1996). The presence of outside directors who are interlocked and with a proportionally higher representation than inside directors appear to encourage the execution of specific corporate strategies. Cochran *et al.* (1985) and Davis (1994) found that companies with a high ratio of outside directors versus inside directors were more likely to provide top managers with lucrative severance agreements,called golden parachutes. Kosnik (1987) found that companies with a high ratio of outside directors versus inside directors were less likely to repurchase their own stock at an above market price, a takeover-prevention strategy known as greenmail. Whereas Davis (1991) found that companies were more likely to adopt takeover defence strategies which are called poison pills and which would counter changes in bylaws explicitly preventing the company from being acquired. Companies are also more likely to adopt these poison pills if they are interlocked with companies who adopted similar poison pills before. In takeover attempts, when the bidder and target companies are interlocked there are also less resistance towards the take-over (D'Aveni & Kesner, 1993). Lastly, Mizruchi and Stearns (2002) found a positive association between bank representation on a non-financial company's board and the amount of external financing the companies employed. These attributes of director interlock are explored in greater detail in Sections 2.16 and 4.7.

1.2.2 The managerial revolution and changing patterns of ownership and control

Karl Marx proposed a theory of class society, in volume I of *Das Capital* (1857), Marx focused on the relation and exploitation of labour by capitalism. For Marx, this relation was based on the power that capitalism has over the working class, reinforced by the dominant political, cultural and ‘ideological institutions of this economic and political system (Kotz, 2016). In 1910, Rudolf Hilferding described Marx’s concept of finance capital as the next stage of capitalism and his work was followed in 1917 by that of Lenin, who was of the opinion that capitalism had entered a new stage, that of imperialism. In 1932, Berle and Means claimed in *The Modern Corporation and Private Property*, that managers pursue broader corporate goals, even at the expense of short-term profitability. What Berle and Means observed was that family ownership, and the individual capitalist, was becoming less important in contemporary capitalism.

Investigations into the business enterprise inevitably needed to establish how business enterprises are governed. Corporate governance essentially concerns itself with the challenges of both effective leadership and that of good management. These challenges are perceived as a deeper strategic issue of a managerial revolution[1] which involves the changing patterns of ownership and control of business enterprises and the resulting implications for business behaviour (Scott, 1991:181). This managerial revolution facilitated a shift within the modern corporation away from the capitalist society with dominant owners, to a managerial society with the professional manager as the controlling entity. The shift was visible in the 19th century when the industrial capitalism of the factory owner changed to the managerial capitalism of the 20th century. McLaren (2011) describes Burnham’s 1941 book, the *Managerial Revolution*, as the leading work to identify the factors which formalised management theory. In this book, Burnham differentiates between capitalist and socialist societies and introduces a third, the managerial society. The leading class, the class who holds the power, has shifted to the managers. McLaren (2011) quoted Burnham, having agreed with Berle and Means that power resides with whoever decides on the use of production and the coordination of preferential distribution of products.

Following the stock market crash of 1929, McLaren (2011) wrote that, at the time of Burnham’s writing, President Franklin Roosevelt introduced several measures to stabilise the United States economy. These measures resulted in wide-spread bankruptcy after the collapse of international finance systems, which led to the Great Depression. According to

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[1] **James Burnham** (November 22, 1905 – July 28, 1987) an American philosopher and political theorist made the first reference to this term, and is best known for publishing “*The Managerial Revolution*, in 1941.

Burnham, next came the introduction of a managerial society with the launch of relief bills, federal agencies, and acts that controlled farming, banking, the stock exchange and social securities. Federal power continued to grow, and welfare programs were extended, further supporting a move away from a capitalist to a managerial society.

With the emergence of the managerial revolution, a better understanding of the changing patterns of ownership and control is needed, as well as an understanding of the impact thereof on business enterprises (Spangenberg & Theron, 2005). Even more so, as the shift from industrial capitalism to managerial capitalism may be speculated upon. This might have been the possible motivating factor for Marx to state in *Das Capital* Vol 3:

“On the basis of capitalist production, a new swindle with the wages of management develops in connection with joint-stock companies, in that, over and above the actual managing director, a number of governing and supervisory boards arise, for which management and supervision are in fact a mere pretext for the robbery of shareholders and their own enrichment” (p. 514).

Burnham understood that the United States (US) remained a capitalist society, but that control moved away from capitalist owners to corporations. In this environment, private ownership and free enterprise are, however, still encouraged with government remaining in charge of the national defence, education, and justice systems as well as overall management of the economy. Without coming to any pre-emptive conclusion, it would be of importance to understand these changing patterns of control and ownership seeing as the influence of the modern business enterprise’s management appears to be posing challenging questions. Garratt (2005) believed that the understanding of these challenges is dependent upon an understanding of the motivation, knowledge and skill of the board of directors who must drive the company forward effectively.

With the managerial revolution, and the continuous need for knowledge, skilled professionals were employed as managers, with an increased amount of authority. Burnham (1941) predicted that these managers would have the power over, and control a large amount of society’s economic, and social resources. Directors’ power holds that they assume a gatekeeping function to keep managers accountable. Bazerman and Schoorman (1983) stated that directors oversee the managerial ability to deal with several potential sources of uncertainty and risk. With the acceptance of the power came the inevitable responsibility within the company, the community, and the broader society (McLaren, 2011). The responsibility of mangers also shifted from managing processes, schedules, and assembly lines, to managing creativity, innovation, and assumed or implied knowledge. With this, managers still held authority within their companies, but as the demand for knowledge grew even further, managers could no longer meet this demand. Skilled individuals with a certain amount of education and experience, came to the fore and either became managers, or were offered directorships.

Scott (1991) examined the implications of changing patterns of ownership and control on board behaviour, especially since the structure of a board is an essential function of the way in which that board operates, and how they would deal with the challenges of uncertainty and risk. In the modern corporation, corporate performance and business sustainability are reliant on directors who lead by means of designing the companies' strategy and by embedding ethical and moral behaviour to establish values that will influence and guide practices within a company. Van der Walt and Ingley (2003); Nadler (2004); and Pye and Pettigrew (2005), believed that long-term shareholder value is created when management is held accountable to shareholders and, society. Similarly, McLaren (2011) held that managerial ownership needs to create an environment within which opportunities are created, while they simultaneously minimise the risks.

1.2.3 The managerial revolution and the influence of world events

Further to the managerial revolution, the changing patterns of ownership and control seem to have been influenced by world events, corporate failures, and credit crunches. Research into workplace efficiency which started in the United States following World War I, was further defined and became scientific management, and resulted in the formal development of management theory (McLaren, 2011). Vladimir Illich Lenin[2] believed that scientific management could benefit the workers by controlling the production process. Burnham's book, "*The managerial revolution"*, was written in 1940, before the United States joined World War II, however he postulated then already that those who understood and controlled the entire manufacturing and production process were Burnham's new class of managers.

The effective management processes, specialised skills and knowledge required to supply the military during World War II, facilitated the expansion of the managerial revolution. The cold war between the United States and the former Soviet Union which followed World War II, played a role in the rise of the managerial class which was predicted by Burnham (McLaren, 2011). The creation of such a managerial society was supported by American officials and business owners who executed a strategic plan to support their anti-communist

[2] **Lenin** was instrumental and a prominent force leading up to the Russian Revolution of 1917 and became the first great dictator of the Soviet Union. When the revolution ended, he led the Bolsheviks to control the government, and executed Marx's ideas in practise.

orientation and to strengthen capitalism. McLaren (2011) also reported a sharp increase in enrolment in business studies post-World War II, this field becoming the most popular undergraduate major in the United States.

Other world events that played a role in the managerial revolution were globalisation and changes in the political environment, which were highlighted by the fall of the Berlin Wall and Communism in the former Soviet Republic. Supporting the managerial revolution was an increasing trend to move away towards managerial capitalism where salaried managers with no equity in the modern privately-owned corporations, played a more controlling role (McLaren, 2011).

Following on an increase in globalisation, the rise of neo-liberalism occurred from the 1970's, predominantly in the western world and most prominently propagated by Margaret Thatcher and Ronald Reagan. The greater enterprise autonomy contributed to a crisis among leading financial institutions which resulted in increased scrutiny of the role and structure of boards of directors (van der Walt & Ingley, 2003). The following questions then spring to mind: is the change between ownership and control a contributing factor to corporate failures, or potentially even the reason why corporate failures still occur? Does corporate failure occur because of the changing pattern in ownership and control, or because of greater enterprise autonomy? Are boards structured correctly? Research in the field of board structure and control of modern companies was influenced by the managerial revolution which considered changing patterns of ownership and control. Spangenberg and Theron (2005) called for a new approach to leadership, the implementation of good governance within business and a better understanding of board behaviour.

1.2.4 The managerial revolution and the new deal

With the growing need for more skill and knowledge, managers have become the ruling class in administering capital, completely in control of the entire production process. Kotz (2016:3) refers to the work of Chandler (1977) which supported the transformation with his work *Scale and Scope: The Dynamics of Industrial Capitalism I* in which he stated that the transformation from imperialism to "monopoly capital" was brought about by World War 1 and World War II. The post-war period was characterised by organised labour that worked for the largest companies, coinciding with the formation of national corporate networks during an organised capitalism phase. Authors like Useem (1984), Carroll and Fennema (2002) and Heemskerk and Fennema (2009) have studied networks of corporate elites in Western industrialised capitalistic economies. The corporate elite facilitated consensus formation and used the boards of banks as a platform for collective action. Industrialised companies from the United Kingdom (UK) and Western Europe invested in businesses across the Atlantic. David Rockefeller, the famed United States banker, set up the Trilateral Commission in 1973, for example, to encourage closer cooperation between the United States, Western Europe and Japan. Chandler (1984), in his “Emergence of Managerial Capitalism”, stated that a new form of capitalism appeared in the late nineteenth and early twentieth century, driven by salaried managers who had little ownership in the business enterprise.

1.2.5 The managerial revolution and the failure of regulatory frameworks

Regulatory frameworks, of which corporate governance codes are a good example, are instituted to provide guidance on how companies should conduct business. These codes also provide guidance on how directors are supposed to behave. However, despite all the regulatory frameworks, poor or improper decision-making still occurs. The process of decision-making is, of course, an integral part of the complex dynamics of boards and will always involve all directors on the board (Pye & Pettigrew, 2005; Nadler, 2004; van der Walt & Ingley, 2003).

With qualified directors sitting on company boards, one could wonder why companies still fail and why directors and boards still fail to make the correct decisions. Battiston, Bonabeau and Weisbuch (2003); and Rogers and Blenko (2006) pointed out that, despite all the regulations and compliance requirements, this question can still be asked: are boards and the directors who serve on them performing the duties intrinsic to their role? In the literature review, it becomes clear that corporate governance as a regulatory framework only assists to create structures, processes and mechanisms to direct the conduct and activities of companies - and how these companies are controlled and managed. Regulatory frameworks, however, cannot control how a company’s board or the directors who serve on them behave.

The rationale for the failure of governance arrangements that had emerged in response to the managerial revolution is that directors are simply human. That creates an opportunity to re-look the structure and composition of boards to determine if a supposedly correct structure cannot mitigate some of the uncertainty and risk. By looking at the structure within and across boards, patterns can be identified. If patterns can be identified, are there any changes to the patterns over time, and if so, what were the possible causes of or influences on the changes?

1.2.6 The managerial revolution and law

Brandeis[3] published his book, *Other Peoples' Money*, in 1914, and pointed out that a handful of bankers we able to dominate the United States economy because they served on several boards, thereby becoming powerful instruments to access capital. In the same year, the Clayton Act was adopted in the United States, prohibiting interlocking directorates among competing corporations (Dooley, 1969). Brandeis, addressing executive loyalty and anti-trusts concerns with the United States senate, stated that the practise of interlocking directorates is the root of many evils. It offends the law, tends to encourage disloyalty, and violates the fundamental law that no man can serve two (2) masters (Dooley, 1969:369). The listing requirements of both the New York Stock Exchange and the NASDAQ address reciprocal interlocks and director independence to curb these ills.

However, regulatory frameworks cannot dictate nor control who is appointed as board members. Regulatory models such as the Sarbanes-Oxley Act (USA), the Higgs Report (UK) and the King II, III and IV Reports in South Africa have been adopted, but the unfortunate reality is that, despite their existence, board failures and questionable board decisions still occur. In the local context, regulatory changes were introduced through the Employment Equity Act, the Broad-Based Black Empowerment Act and new Companies Act, which potentially changed the patterns in ownership and control, and also potentially changed patterns in the interlocked network structure of both companies and directors, as well as potentially sparked the question whether interlocks altered along with South Africa's changing economy.

1.2.7 The managerial revolution and power formation

Levine (1977) pointed out that that elite theories define power as centralised in one group, whereas pluralist theory differentiates centres of power which would negotiate and compete among one another. Historically, the concentration of economic power started with the non-owning managers described by Berle and Means (1932), independent of capital, with the managerial class described by Burnham (1940), with the owner-capitalist as described by Mills (1956), or the technocrats described by Galbraith (1967). The question comes to mind: is power distributed pluralistically between equal competitors as Dahl (1961) suggested, or concentrated within an elite, as suggested by Mills (1956) and Domhoff (1967). Mintz and Swartz (1985) provided the answer by offering evidence of financial institutions, an elite of

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[3] **President Wilson** nominated Brandeis to become a Supreme Court Judge in June 1916. Brandeis played an influential role in the establishment of the Federal Reserve and the Federal Trade Commission.

sorts, which were central to networks. Useem (1984) was in support of the concentration of power within one group and he emphasised the role of well-connected directors, which he called the inner circle.

Cox and Rogerson (1985) believed ties are formed in this web of relationships, in turn resulting in power relationships. Scott (1991) conducted research analysing the structure of network connections and he argued that a social relationship is created between companies when a director holds a board seat on both the companies that are involved, sitting on each of the companies' respective boards. These social connections contribute to what Scott (1991) describes as the creation of a web of social relations. Whether social relationship is beneficial or not, depends on the circumstances. The ties manifest through exchanges between people, be it in the form of products or services, information exchanges, or technology that is shared. Scott (1991) agreed with this notion, stating that a move away from the individual structure of company boards occur, with more emphasis on the social relations that exist between companies who share directors. These relationships create a stage and a conduit of sorts through which communication flows, while the social relationships that are established could very likely lead to the formation of considerable influence. An inexorable by-product of this kind of influence is the ability of one individual to exercise his or her will over another, constituting an important dimension of how decisions are made. Power formation is exercised by an individual who does not actually connect a network and the connections are not necessarily a proxy for power. However, when individuals form a connection by mutually appointing one another on their respective boards (Dunn, 2004), the connection is strengthened. This creates a social network of corporate directorates and, according to Mizruchi (1996), an interlock.

1.2.8 The managerial revolution and changes to network and board structures

The premise is that structure relates to function and, despite the fact that research has been carried out to investigate how boards actually function, the results remain inconclusive (Appendix 3), failing to reveal how directors interact on board level to come to board decisions (Stevenson & Radin, 2009). Van der Walt *et al.* (2003) were in support of this notion, stating that initiatives for board reforms increasingly focus on how boards function and especially on how they are structured. Despite the initiatives, the South African King III and IV reports refer to corporate scandals which have been documented in South Africa in recent years, some of which, like the Steinhoff debacle, is still unfolding. These scandals include examples of misconduct and inappropriate or even corrupt managerial behaviour, which had negatively impacted on companies and their shareholders. The research aligns with authors like van der Walt *et al*. (2003); Nadler (2004); and Spangenberg and Theron

(2005) who called for a re-evaluation of the existing corporate governance models to reveal current practices. The effectiveness of corporate governance mechanisms and institutions were called into question and there was an increase in empirical research on the structure and functioning of boards (Nadler, 2004; Shropshire, 2010). Importantly, South African policy makers have to shift their focus and contributions to identify any defects in the regulatory framework or structuring of boards (both in South Africa and globally). During the decision-making process, directors should make decisions which safeguard the best interests and well-being of the company, taking into consideration the expectations of the company's stakeholders, ultimately ensuring that the company delivers returns (Pye & Pettigrew, 2005). A company's management should deal effectively with risk or uncertainty, while ensuring that services and/or products are to such a standard that stakeholders are able to trust the company and its leadership implicitly (Taylor, 2006).

Within the board structure where directors interact in an attempt to meet shareholder expectations, directors ought to try simultaneously to mitigate and manage the risk, whilst creating sustainability and increasing shareholder wealth. Leading from the managerial revolution and the evaluation of McLaren (2011) performed on Burnham's work, Burnham saw this mitigation and management of risk as only possible if the managerial support which they are suppose too oversee, creates an operating environment where this is possible.

1.3 THE LITERATURE REVIEW

Small world theory originated from Newman (2003) and Jackson (2006) through studies of the relationships between parties in social networks. These studies date back to the work of Jacob Moreno in the 1920s and 1930s, published in 1943. Mark Newman, in his application of small world theory, proposed a methodology to evaluate director interlock and to measure the path lengths and density of connections. Density refers to the number of connections between companies and how closely they are connected. A very dense network would have several companies with a high number of connections tying them to another. Path lengths are described as the number of steps taken in moving from one end of the network to the other (Newman, 2003).

Organisational research has become more involved in the phenomenon of director interlock, partly due to corporate failures over time. The magnitude of the corporate inter-relationship in terms of the power network which emerges from the interlock needs to be understood (Cox & Rogerson, 1985). This has necessitated a scrutiny of board practise and behaviour of which the recent Steinhoff debacle is a good example. Styan (2018:166) in his book, Steinhoff – Inside SA's biggest Corporate crash, pointed out that the bulk of the criticism is directed at the Steinhoff board members. The question of the day is how they could have overlooked the looming crisis.

Useem (1982) most probably had the answer when he described the formation of a corporate or business elite and defined this elite as an inner circle of corporate decision-makers with influence across the wider spectrum of business activities. This power network and influence manifest through what Useem (1984) calls an interclass mind-set whereby companies deliberately choose which directors to share and which is called an interclass concept. This interclass approach suggests that interlocks create ties in the form of interlocks between directors. For Useem (1984) the ties create a cohesive upper class within the world of boardrooms. The aim of good corporate governance is to appoint skilled and diverse directors to boards, but the intra-class concept tends to focus more on individuals who hailed from high profile companies, occupied high profile positions before, for example ex CEO's, who completed both their elite education at elite institutions, and who were prominent in important social circles.

The monitoring effectiveness of the directors' globally, and especially the directors on the Steinhoff Board, are being questioned. They are widely criticised that they could have been more assertive, or at least expectations of them to be more assertive (Hill & McDonnell, 2013). Were there appointments made for the wrong reasons and purely from an inter-class perspective (Useem, 1984) or were they overcommitted, or simply negligent (Mans-Kemp, Viviers & Collins, 2018)? Baruza and Curtis (2015) believed that despite the existence of interlocks and the growing emphasis on their importance, not enough attention has been given to the dynamics originating from interlocks, or of the structure, or influence inherent to this power formation. In agreement with the statement of Baruza and Curtis and in the case of the interlocked Steinhoff board members, and their respective reciprocal power formation, did they abuse their power, or in their joint power formation, possibly or even deliberately looked the other way? One of the 10 interviewees in the local study by Mans-Kemp, Viviers and Collins (2018:217), investigating the causes and consequences of interlocks in an emerging market, remarked that experienced directors might become "too complacent about what they are doing". Maybe that could have been the case and that the experienced and well respected Steinhoff directors simply became too complacent. Several studies, as quoted by Davis (1991); Mizruchi (1996); and Barzuza and Curtis (2015), have indicated the influence and magnitude interlocks have on the diffusing of ideas, advancing common board practises and coordinating action, inter alia.

Studies analysing interlocking directorates form part of mainstream research with specific interest in the social networks within which these companies are embedded. Historically, as pointed out by Jeidels (1905); Brandeis (1914); and Mintz and Schwartz (1985) and others, financial institutions played a significant role in interlocks and had a major influence on safeguarding their investments, often placing their representatives on company boards. Zajac and Westphal (2004) indicated that creating shareholder value became the primary objective and capital markets, financial analysts, and institutional investors became the monitors of boards, directors and CEOs. Chu and Davis (2013) agree with the earlier work of Useem (1982) that an inner circle was historically a distinctive feature of the United States corporate landscape but during the 1980s, the influence of the state, labour and commercial banks became less pronounced. According to Chu and Davis (2013), the number of companies involved within such a concentrated group of power, or the inner circle, declined with time. These authors found that there was a decline in the number of listed companies in the US from 1997 to 2012.

The extent and nature of possible interlock between the directors of all listed companies in South Africa can technically never be known, due to its dynamic nature. In the South African context, eleven previous studies have attempted to unravel the mesh of corporate interlocking in South Africa by examining a static structure. Six (6) of the studies: (Hobson, 1905; 1919; Wolfe, 1962; Savage, 1973; 1987; Cox & Rogerson, 1985) were carried out before the birth of democracy in 1994, and five (5) thereafter (Durbach & Parker, 2009; Durbach, Katshunga & Parker, 2013; Pretorius, 2014; Senekal & Stemmet, 2014; Williams, Deodutt & Stainbank, 2016). Throughout time, as boards change, society changes as well, and the studies of both Senekal and Stemmet (2014) and Williams, Deodutt and Stainbank (2016) used data from 2008, investigating static patterns in only one moment in time. Earlier studies did not investigate dynamics and no study analysing the interlocked network structure in 2008 emerged thereafter. The 2014 study of Pretorius only looked at power formation in the mining sector. A further elaboration on the 11 studies conducted in the South African environment follow below.

It was important to understand prior research to identify gaps. The first studies by Hobson in 1905 and 1919 revealed the dominant and highly concentrated position of mining houses, their financing partners and their related interlock. The studies by Savage (1973 and 1987) and Cox and Rogerson (1985) disclosed that interlocking directorates were a prominent characteristic of the environment within which South African companies conducted their business. In the South African studies by Savage (1973); and Cox and Rogerson (1985:219) the authors described the inter-relationships between business organisations as the “industrial and political geography” where networks of power are created. Cox and Rogerson (1985) cited the (1983 and 1984) work of Innes who stated that more oligopolies were formed in the South African business environment through the consolidation of businesses. The consolidation ensured sustainable growth, as large corporations took over smaller, struggling corporations and businesses merged to protect themselves against threats of recession. Alternatively, it could be argued that oligopolies could be the result of interlock, or even the extension thereof, but this can merely be speculated upon. In support, a doctoral study, (by) du Plessis (1978), incorporating 181 manufacturing industries, which he (du Plessis) found them to be highly oligopolistic. Cox and Rogerson (1985) mainly investigated the manifestation of company interlock within conditions they found in financial institutions and the mining sector and by examining, for example, the location of company headquarters. The study by Savage (1987) examined ownership and control.

Durbach and Parker (2009) completed an analysis on corporate board networks of listed companies as listed in 2008, while Durbach, Katshunga and Parker followed in 2013 with a study on what they called the community structure of the South African company network. The articles by Durbach and Parker (2009) and Durbach, Katshunga and Parker (2013) also focused on these ties within certain South African sub-sectors or industries. Included in this local research, Durbach and Parker (2009) made a distinction between two (2) trends in research on corporate networks and interlock. Firstly, and most prevalent, was research which was dominated by an analysis of the cause of director interlock and secondly, by the relationships and related consequences of those relationships. Pretorius' research in 2014 related to the power formation and interest groups in the mining sector. Senekal and Stemmet (2014); and the more recent work of Williams, Deodutt and Stainbank (2016), built on this, concentrating on these interest groups or power formations, within specific sectors. Senekal and Stemmet (2014) were interested in the interlocked network of the banking sector and researched this using a dataset from 2008, Williams, Deodutt and Stainbank (2016) also examined interlock, but only between the top 40 South African listed companies.

The studies mentioned above were carried out in an economic and political environment and did not consider the changes or dynamics of board interlock – at least not in the South African context (West, 2006a). The same is true for the studies carried out by Durbach and Parker (2009), Durbach, Katshunga and Parker (2013), Pretorius (2014), Senekal and Stemmet (2014) and Williams, Deodutt and Stainbank (2016) The broader social changes that occurred in South Africa would additionally, in each case, have been subjected to the changes in ownership and control, as well as the influence of the global financial crisis of 2008 on the South African economy (West, 2006a). Agriculture, mining and manufacturing declined during this crisis, while the trade and current account deficit widened. Change is heaped upon change, necessitating the need to consider dynamism. Manufacturing production has slowed in the past few years, the mining sector is shrinking further, and retrenchments are on the rise. The country has been struggling to achieve any growth and the resources sector is under immense pressure. In addition, the structured environment of governance has been influenced by continually evolving codes of governance such as the King I, II, III and recent King IV codes. One should also consider the fact that the social changes caused by the transformative pressures of post-apartheid South Africa and the country's evolution into a democracy resulted in substantial changes, with the introduction of Broad-Based Black Economic Empowerment (BBBEE) and the establishment of the Employment Equity Act. West (2006a:4) saw South Africa as maintaining an efficient and "first-world" financial infrastructure whilst still dealing with the "vestiges of apartheid and colonialism." This author defines the change in even broader terms because of the state's intervention in the labour and capital markets and the establishment of boards through the Employment Equity Act and the BBBEE Act. That raised questions about potentially changing patterns in ownership and control, potentially changing patterns in the interlocked network structure of both companies and directors, as well as the question if interlocks may have been altered along with South Africa's changing economy.

The comparisons across regions are still interesting, but somewhat less intriguing than the local temporal gap, as no study seems to have performed comparisons across different time slices in South Africa. The global studies listed in the literature review dealt in certain cases with structure, which sometimes included geographical comparison, whereas previous South African studies merely compared structural properties at different time slices. The contrast is that the current study focused on dynamics. Conyon and Muldoon (2006) believed that most of the previous studies on network structure and director interlock were more interested in the properties of boards and not in the characteristics or properties of networks. These authors mentioned that they have found a small number of studies that attempted to analyse the properties of social networks and what impact these properties would have on corporate governance. The data of the current study was compared to that of Davis (1994 and 1996). Davis' work contained several significant contributions. He was one of the first authors to indicate that there are two (2) distinct perspectives emphasising the organisational role of interlocks. The first perspective is the resource dependence theory which contends that companies use interlocks to mitigate their resource constraints and interdependencies. The second perspective is the financial control theory in which banks use interlocks to gain and maintain influence over companies. Mintz and Swartz (1985) maintained that the prominent commercial banks form a stable core of the interlocked network due to their central positions in the networks. Davis (1996:155) disagreed, indicating that the position has changed. This author used as an example the fact that banks no longer occupy a stable core at the centre. In this study, Davis compared the relative centrality of banks over a period of 12 years and he found that the centrality of banks declined dramatically over time. Of the 10 most heavily interlocked United States companies in 1982, seven (7) were banks. In 1986, the number had decreased. Only four (4) of the most interlocked companies were banks, further decreasing in 1990, when only two (2) were banks. In 1994, only three (3) of the top 10 companies were banks. At the time, the overall centrality of banks was no different to that of other industrial companies. In the local context and up until 2008, Senekal and Stemmet (2014) indicated that banks occupied dominant positions on the South African interlocked network.

The current study also investigated similar works on the structure of boards globally, published over the last 20 years. The oldest comparative study that could be found was by Salvaj and Lluch (2011). This study compared 1970 data for Argentina and Chile. At approximately the same time, Davis, Roy, Fox, and Hamilton did the same by comparing data for 1991 and 1993 in Australia and New Zealand. Haunschild and Beckman (1998) and Scott (1988; 1991) listed a significant number of studies specifically investigating interlocking in North America and Western Europe. Au, Peng and Wang (2000a) analysed 1997 data, comparing the results of Hong Kong against that of results found in the UK and United States. Italian data in the largest dataset, from 1998 to 2011, was compared by Bellenzier and Grassi (2013). Brookfield (2009) compared 1990 and 2000 data for China, Hong Kong and Taiwan against data for the same period in the United States and UK. Denis, Denis and Sarin (1999) used the same time period for analysing French data, Ferris, Jagannathan and Pritchard (1995) did the same with US data, while Groci and Grassi (2008) did the same in Italy. In 2000, Heemskerk and Shnyder examined Swiss data and followed that up in 2001 with data from the Netherlands. Milakovic, Alfaran and Lux did the same in 2008 with German data. The most comprehensive study comparing data across the greatest number of countries (Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, and UK) was conducted by Heemskerk in 2011. This was, however, for one period (2005). Santella (2008) did not only analyse and compare data but also mapped networks for France, Germany, Italy, UK, and the US. More recent studies by Sankar, Asokan and Kumar (2015) analysed Indian data obtained for 2013 and Sankowski and Siudak (2016) did the same with Polish data. Bacinni and Marroni (2016) compared Italian data over two (2) data sets for 2010 and 2011 to that of the US.

A summary of the various studies over the last 20 years indicated that the structure of the corporate elites of the early 1970s and mid-2010s changed fundamentally. This was caused by the change in organised capitalism during the 1970s where increased network activity was seen as part of the solution to the then financial crisis. Mizruchi (2013) remarked that, after the 1970s and during the 1980s and 1990s, the corporate elite became more conservative and self-interested. After the 2008 financial crisis, interlocks did not increase and became less popular as it appeared that those attempting to protect the interests of the shareholders regarded interlocks with suspicion. Historically, companies reacted to crises by increasing their board sizes but, as stated by Mizruchi (2013), companies appointed less well-connected directors and their focus and interest shifted towards their own survival. The trend of network density continued to decrease, and this contributed to the further fragmentation and decline of interlocked networks as proven by the following connected factors: Firstly, there was a shift from relationship-based to transaction-based financing. In this process, the boards of banks lost their central coordinating role which was a key source of consensus formation. Secondly, regulatory changes in the financial sector in the 1980s, resulted in the consolidation of capital and centralisation around fewer of the prominent banks. Interlocks between insurance companies, some of the trust companies and banks disappeared. Thirdly, the rise of new corporate-governance regulations in the 1990s discouraged directors to involve themselves in holding simultaneous, multiple directorships. According to Mizruchi (2013:225-6), this “thinning of corporate networks also decimated the corporate elite’s ability to enact its collective interests.” The result was that corporate management was demolished, leaving behind highly paid high-profile figures whose influence became fragmented as the density of the network of interlocking directorates decreased. The dynamism that was observed would clearly allow scope for establishing whether the differences found are consistent over time and whether they are associated with the specific historical period analysed. The results of the current study could never have emerged from the static studies that have previously been carried out in South Africa.

Since interlocks and the emergent power networks are dynamic, the most contemporary studies relating to board structure, in which networks were mapped, were scrutinised to obtain the most up-to-date overview of studies globally. Results from the application of the inductive approach and the multiple interpretations by comparing the structural pattern of the 2010 network against the pattern of the 2016, led to findings which were unavoidably shaped by the assumptions and experiences of the researcher who conducted the research and who carried out the data collection and analyses. In the inductive research process the researcher had to make decisions about what is more important and less important in the data and the subsequent findings. The trustworthiness of findings were assessed by validating the findings against similar patterns or similar findings in other academic research.

The pattern of interlock for South African listed companies in 2010 and 2016 could be compared against those studies and this led to a revelation of exciting findings in the structural dynamics and shifting character of board structure and interlock. In this study, visibility of the structural pattern of interlock could be created as a graphical representation of all listed companies in South Africa. For the first time, the network structure of all listed companies and representative of two (2) time slices could be compared to previous research and similar network maps, globally.

1.4 THE PROBLEM STATEMENT

Most of the research used to review and analyse the boards of major listed companies has only focused upon the static structure of these networks at a moment in time. However, some studies investigated the pattern of interlocks in various countries across the world. Studies by Levine (1977); Davis (1994; 1996); Elouaer (2006); Bellenzier and Grassi (2014); and Chu and Davis (2013) are examples of how these patterns have changed over time. The research of Levine (1977) is an example of the revelation of a dense network, where Davis, with later research (1994; 1996), showed a decline in density. The 2006 work of Elouaer on a portion of the French network compared the 1996 network to the 2005 network and indicated a decline in density. Barnes (2015) analysed what he called structural redundancy and multiplicity of social ties among US corporate directors and found a noticeable shift in the relative number of social ties and the structural configurations between 1962, 1972, 1983 and 1995. Chu and Davis (2013) indicated that their findings indicated that the inner circle of well-connected directors in the US, largely collapsed.

Local research followed a similar pattern, as no previous local study has ever compared the network of interlocked companies or individuals at different time intervals and no previous study has compared the findings of the research from one point in time to another. In addition, no previous local study has previously investigated the complete network of all listed companies and all directors involved. Earlier studies merely investigated components or fragmented sections of the entire network and the findings were therefore not a true reflection of the complexity and structure of the entire network. No local study previously investigated potential changes on the pattern of the local network. The literature review showed a similar pattern compared to other international studies, indicating the historic centrality and dominance of the banking industry and, in the local context, mining houses.

An investigation into the identification of the characteristics of the network structure would shed light on the ties that exist. Previous local studies exposed some ties but failed to investigate their significance. By exposing the positioning and ties between all listed South African companies and their boards of directors, the complete structure and possible significance of any power formation can be revealed for the first time. To date, not much consideration has been given to the structural dynamic of board networks. No study investigated if there was a move, similar to the global trend, away from the dominance of financial institutions and if the local network has become less dense in similar fashion.

The fact that no conclusive findings emerged from existing literature, indicates that manipulation in the creation of board structure may occur with interlocks. With this said, the research would have to establish an understanding of the possible causes and consequences of the interlock. The purpose of this study is to investigate the possible causes and consequences of interlock in South Africa against the backdrop of the country's changing economy and transformation agenda, comparing the power network within the country to those in other jurisdictions, and developing a complete network of all listed South African companies and their directors.

Keeping in mind the changes in South Africa over the last 23 years, much empirical research has been done based on static time comparisons and not necessarily based on spatial or longitudinal comparisons. In these studies, the dynamic nature of interlocks was not taken into consideration. Unlike previous research that focussed on static structure, this research is more in line with recent research by Williams, Deodutt and Stainbank (2016), who examined the characteristics of the South African network and any potential locus of influence whereby several companies or directors occupy central points in the network density. However, the study of Williams, Deodutt and Stainbank, did not take dynamics into consideration. The study by Williams, Deodutt and Stainbank confirmed the dominance of four (4) financial institutions among the 10 most connected companies (Standard Bank Group Limited, RMB holdings limited, First Rand Limited, and Sanlam). Furthermore, with specific reference to the transformation agenda, this study examines if any progress has been made, or if any changes could be observed.

1.5 RESEARCH QUESTIONS

Four (4) research questions must be answered:

1. How has the structure of the South African network of directors changed over time?
2. Has the network followed a similar global trend to become less dense, and is there any evidence of consolidation, and similar to global trends a move away from the dominance of financial institutions?
3. Is there any evidence of a local elite, or shift in the composition of a local elite?
4. Is there any local evidence that suggest that interlocks could possibly be, either beneficial or detrimental to business enterprises?

1.6 OBJECTIVES OF THE STUDY

The first objective was to statistically analyse and map the extent and nature of director interlock in all South African listed companies as well as directors in February 2010 and May 2016 (post-democracy). Both periods occur shortly after times of financial turmoil or contracting of economic growth, where, in line with global trends, financial consolidation and a possible decline in economic activity and board sizes of companies would be expected. This objective was intended to reveal the structure and actual composition of the network of interlocked companies and directors by various connections of lines and points as well as the distances between the lines and points. The representation would create a perspective of the characteristics of the current South African network of listed companies, identifying the directors involved and their positioning in the network.

The second objective was to compare these structures with a view of noting changes and characterising key structural dynamics over time. This was expanded to compare the results of the mapping and the emerging pattern in two (2) time windows (2010 and 2016) with results from similar studies in South Africa (Hobson, 1905; 1919; Wolfe, 1962; Savage, 1973; Cox & Rogerson, 1985; Durbach & Parker, 2009; Durbach, Katshunga & Parker, 2013; Pretorius, 2014; Senekal & Stemmet, 2014; Williams, Deodutt & Stainbank, 2016). The results were to be compared to international results in order to see whether a similar trend was observed in decreased density of the local network.

The third objective was to investigate and elaborate on the time series above, with specific reference to network structure focussing on the appearance of similar network properties and structures locally and globally. The goal was to compare these structures with structures described in earlier network studies in South Africa and globally to further deepen the understanding of structural dynamics over a longer time frame. Global trends indicated a move away from the dominance of financial institutions, and a shift in power. The literature review showed a similar pattern compared to other international studies, indicating the historic centrality and dominance of the banking industry and, in the local context, mining houses, and the study investigated potential changes, and if any move occurred away from the dominance of the financial institutions in the local network.

The fourth objective was to investigate potential changes in the power network related to directors and the possible existence of a local elite. If such an elite did exist during the study period, did the composition of the group change in concert with the changes in South Africa's demographics and regulatory frameworks? The fifth objective was to consider possible causes and consequences of these structural dynamics and to investigate whether interlocks are beneficial or detrimental in character in the South African context. The final objective of this study was to contribute to the fields of social network theory, agency theory, small world theory, power dynamics and corporate governance.

Interlocks have an influence on all stakeholders internally and externally and the current study and the sixth objective were expected to make an important contribution to the application of network theory and lead to a better understanding of the social relationships between actors. These actors are embedded in social structures as a direct result of their relationships and their exchanges with one another. The actors in this case, are the interlocked companies, and especially the directors serving on their boards. These relationships and exchanges which are embedded in the social network structures impact on company and director behaviour and by understanding the possible rationale, the behavioural outcomes could be better understood. The monitoring role of boards and directors serving on their boards are central to agency theory. The study would contribute to a better understanding of the possible effectiveness and the reasons for ineffectiveness, of boards and their directors in the execution of their monitoring role. Interlocks create a small world of interlocked directors and corporate elite. The current study not only reveals the existence of such a local elite, but also makes a vital contribution to an important change that occurred from 2010 to 2016, in upper echelons of the local elite. The study of interlocking directors has been useful to research power structures in assisting to define the corporate community and to provide insights on how boards function. Interlocks lead to power formation and the study investigates a possible shift in the power concentration and to see if a possible similar shift that occurred globally, away from the dominant position of financial institutions might have occurred locally. Interlocks occur within the domain of corporate governance and the study makes a contribution in examining the impact and result on companies and their behaviour after the introduction of the evolving King codes. If interlocks are seen, in the local context as a cause, the study reveals, if the resulting consequences are any different from consequences seen anywhere else in the world. Lastly, the study indicates with the use of a recent local example, that interlocks can be a good or a bad thing, or potentially both, depending on how they are applied.

1.7 DELINEATION OF THE FIELD AND SCOPE OF STUDY

The study intended to reveal the structure and extent of director interlock of South African listed companies. Emphasis was placed upon the pattern of interlock and sought to compare the patterns observed with a) related studies in the South African context dating from 1905 to 2016 (Hobson, 1905; 1919; Wolfe,1962; Savage,1973; Cox & Rogerson, 1985; Durbach & Parker, 2009; Durbach, Katshunga & Parker, 2013; Pretorius, 2014; Senekal & Stemmet, 2014; Williams, Deodutt & Stainbank, 2016 and b) international studies by Ferris, Jagannathan and Pritchard (1995); Roy, Fox and Hamilton (1994); Au, Peng and Wong, (2000b); Davis *et al*. (2002); Conyon and Muldoon (2006); Santella (2008); Brookfield (2009); Heemskerk (2011); Santella *et al*. (2009); Salvaj and Lluch (2011); Bellenzier and Grassi (2013); Herrera (in an undated working paper); Heemskerk and Takes (2014); Bacinni and Marroni (2016); and Heemskerk, Fennema and Carroll (2016). The study focussed on boards of directors and the relationships between directors. These phenomena have been attracting attention for some time, focussing primarily on, board structure and composition.

Van der Walt and Ingley (2003); Nadler (2004); and Shropshire (2010) argued that the implication of the relationships between directors is an important factor in the dynamics of board structure. Interlocks, however, are fluid. Therefore, whatever pattern was detected, it is not a definitive one. The revealed pattern was compared against previous studies conducted in South Africa, with specific focus on the properties of the network structure that was shown. Potential changes in the pattern were investigated, in addition to the progress in the transformation of the South African economy after the birth of democracy. Also, of interest was research into evidence of the emergence of a black power network. The results were compared to similar international studies.

1.8 SIGNIFICANCE OF THE RESEARCH

The study makes contributions to the body of knowledge in the fields of social network theory, agency theory, small world theory, power dynamics and corporate governance. Clarification is provided on why the influence of interlocks and the small world it creates are important. Interlocks are in itself a circle of power and it is important to understand who influenced whom, and if any shift in power formation occurred.

The reasoning behind the current study was that changes in the pattern would be at least as thought-provoking, if not more, than the static patterns studied in the past. The current structure and its extent within the South African context are not yet known and the potential evolution in the network of directors and companies within the changing corporate landscape and economic transformation has never been investigated. This study is specifically an investigation into the changes in structure (the structural dynamics) in relation to previous studies which focussed on static structure. No other study could compare how this pattern evolved, whether the central positioning of companies or directors have changed for some periods in time, or whether any companies or directors remained central or dominant in the network. This study indicates the shift in power associated with various kinds of capital based on the position occupied by companies and representing these kinds of capital.

Although research into interlocking directorships has gained increasing prominence, insufficient attention has been given to the dynamics originating from the structure or influence resulting from this power formation. This study focusses on comparing the structures that were revealed within 2010 and 2016, structures which were then compared with those described in earlier network studies to further deepen the understanding of structural dynamics over a longer time frame. An attempt was made to not only reveal the structure in 2010 and 2016 for both interlocked companies and directors, but also to point out any structural changes between the two (2), time periods. The study contributes on the causes and consequences of these structural dynamics. This was done by applying a technique called a social network analysis. In addition, with the transformation agenda in mind, the embedded elite was further scrutinised to see if there was any evidence of an upcoming black elite.

Finally, from the two (2) time slices and patterns that were probed to investigate if there were any changes in the structural patterns, the emergence of a black power network was evident in 2008. However, in 2016 there was a definite swing back to white male dominance, especially among the upper elite. In view of the fluidity of power, this study also examined power in two (2) different time series. The contribution that is made is the why the current results and the structure from 2010 differ so much from 2016 results and why these results differ from studies in the early 20th Century and earlier South African studies. One of the apparent important shifts among the upper elite of companies is similar to what was found by Davis (1996) in that the dominance of banks has decreased significantly.

1.9 ASSUMPTIONS

The first assumption that had to be made was that some form of interlock among South African listed companies exists and that it could be investigated and exposed. This would mean that companies, the directors on their boards and the ties between them could be identified. The next assumption was that, if 2010 data was compared to 2016, potentially some change in the pattern of the network structure would have occurred. From the intended revelations of the pattern of the network structure of listed companies, it was assumed that some form or pattern of power elite of companies and directors could be identified. Historic studies have used a variety of other software platforms or tools for their analysis. The software used in the current study to enable the social network analysis has not been used in a study involving director interlock before. In analysing structural changes in the elite companies and the directors involved, the classification of both race and gender was not provided in the datasets and had to be done manually - these are assumed to be correct. A fundamental assumption of the study is that, irrespective of the causes and normative character of the consequences, it is possible to investigate whether interlocks create a power network and at most, and whether, interlocks are a proxy for power.

1.10 RESEARCH METHODOLOGY

Inductive reasoning as described by Thomas (2003) was applied which started with detailed observations, and which moved towards more abstract generalisations and ideas. It is important to note that the inductive approach that was used does not imply that any theories were disregarded when the research questions and objectives were formulated. The inductive approach, that was used started with the observations and involved the search for patterns from observations and analyses. This approach aimed at generating meaning from the data set collected in order to identify patterns.

The research questions have been answered through the application of empirical research methodology and the analysis of two (2) sets of data. The databases include a list of the directors who occupy positions in South African listed companies with their associated variants within a social network. This data was used to reveal the pattern of the director interlocks in South Africa in graphical representations. The patterns which arose from the analysis were compared with, firstly, previously reported South African patterns and, secondly, to previously reported global patterns. The patterns that were observed were created by statistically mapping the structures of the network of interlocked and listed South African companies and directors serving on their boards in 2010 and in 2016. The aim was not to simply compare patterns but by comparing patterns, and the fact that similar changing global patterns were found, gave credibility and made the findings of the current study trustworthy. The current study is not the first to compare changing patterns over time and studies by Levine (1977); Davis (1994; 1996); Elouaer (2006); Bellenzier and Grassi (2014); and Chu and Davis (2013) are relevant examples, for reseachers who did exactly the same.

The analysis deployed three (3) components of network centrality. Degree centrality which measured the number of connections of a company or director, and which is an indicator of their activity in the network. Closeness centrality which measured the distance of companies or directors or companies to other companies and directors in the network and which is an indicator of the closeness of that company or director to other companies or directors within the network, and the number of steps between other companies and directors in the network. Betweenness centrality measured the centrality of the companies and directors and the extent to which the companies or directors connected to other well connected companies and directors in the network, as an indicator of the extent to which the companies or directors act as bridges to other companies or directors.

Empirical generalisations were developed to identify preliminary relationships and to establish who interlocks with whom, and from the observations characterising key structural dynamics to establish if any changes occurred from 2010 to 2016. By following the inductive approach and in identifying the patterns and understanding the relationships between the interlocked parties, possible clarification of theory on the possible causes and consequences of these structural dynamics, in the local context, was developed.

Subsequently, leading from the application of theory that originated, a framework was developed of the underlying structural patterns that became evident, and which allowed the researcher to theorise on the change and possible reasons for the change in the structural patterns. From the findings, questions could focus on providing answers to the change in the structural patterns, and to examine the effect of new governance guidelines (for example King IV), the impact of the 2008 financial crisis on the structure of the local network structure, and the introduction of the transformation agenda after democratisation and especially on, board composition. This study investigated a possible shift in power, potentially away from the historical dominance which financial institutions and mining houses held. In observing change in the pattern and in the make-up of the corporate elite, there is an apparent reversal from the progress made in addressing the transformation agenda towards 2010, to the re-establishment of white male dominance in the ultra-elite echelons of directors in the South African network by 2016. The inductive approach was used to close the gap in theoretical knowledge. An attempt was made to indicate a shift in the patterns that were discovered, and evidence shared that this shift enabled both local socioeconomic development and African expansion. A conclusive theory regarding the beneficial or detrimental value of interlocks has not been formulated to date. In this study, a grave South African example illustrates that the value of interlocks could be detrimental, apart from possibly being beneficial.. The differentiating factor is the way in which interlocks are applied.

The collection and analysis of social network data remains a challenging field and, not surprisingly, lends itself to methodological problems. According to Duijn and Vermunt (2006), these theoretical and empirical problems increases the challenge, and makes the reward higher, as it has led to an increase in research which combines content and methodology. The existing social network perspective provides a theoretical framework for data collection and analysis. From the literature review and the theories presented, a combination of two (2) dimensions could be identified. Firstly, the character of the relationship (control/reciprocity) and secondly the various groups (classes) that are involved. To understand and interpret the networks it was also important to recognise the network components, and the level on which they were measured. In this regard, Butts (2008) defined the reconstruction of the social network of a pre-defined population as a complete network study. This pre-defined population applied to an organisational and a small group study comprising of South African listed companies on the Johannesburg Stock Exchange (JSE) and their interlocked directors.

1.11 LIMITATIONS OF THE RESEARCH

It must be borne in mind that this study is limited solely to revealing patterns. The researcher did not engage with any directors or representatives of the companies directly and he did not engage in any structured interaction or unstructured interviews. The pattern was limited to the boards of companies listed on the JSE and did not consider boards of non-listed companies, privately owned companies, non-profit organisations, and government parastatals. By limiting the universe to the boards of listed companies, it creates a view of the tip of the iceberg. The scope of the study is limited to the structure and extent of director interlock, as portrayed by the directorships of South African listed companies in two (2) time slices, 2010 and 2016. Social ties beyond board membership were not investigated.

In this study, not only quantitative indicators were applied. Mizruchi (1996) argued that interlocks cannot explain all company behaviour, but the decision making of companies is affected. In this study: a deductive theory testing design was used to examine the effect of new governance guidelines and the financial crisis on the structure of the local network structure, and especially on board composition and thereafter, an inductive approach was used to close the gap in theoretical knowledge by contributing on the possible causes and consequences, and that it could be either good or bad, all depending on how it is applied.

The importance of studying board structure, composition and board behaviour is indicated by boards themselves. In 1999, Forbes and Milliken, were just two (2) of the authors who indicated that boards are becoming more interested in what such groups do. The current study therefore examines the structure and pattern of directorates. The amount of literature on the causes and consequences of corporate interlocks has increased since earlier studies in the 1960s and through applying complex statistical methods, a number of measures have been identified which have to be analysed to discover their significance. A quantitative social network analysis was applied and within these limitations, a realm of possibility is created regarding the possible causes of these findings as well as their possible consequences and implications for director interlock. As noted, it has been argued by van der Walt and Ingley (2003); Nadler (2004); Pye and Pettigrew (2005); and Shropshire (2010) that the relationship between directors have an impact on the dynamics of board structures. Interlocks, however, are fluid, which implies that patterns which were exposed were not definitive.

Revealing board structures alone is not the answer since identical structures could lead to potentially different consequences. In addition, boards do not function in isolation. Conyon and Muldoon (2006) held that the company, the board and the directors all form part of an important social network. Form does not necessarily imply function; nor does pattern necessarily imply causation or consequence. A fundamental premise is that, irrespective of the specific character of relationships, the network of boards of major listed companies represents a very important power network. This study focussed on board structure and composition.

1.12 OUTLINE OF THE STUDY

Chapter 2 presents a literature review which starts with the clarification of the role of social structure. Chapter 3 describes the methodology and how the social network analysis was carried out. The findings are presented in Chapter 4 and discussed in Chapter 5. The study ends with recommendations for possible further investigations and a conclusion is presented in Chapter 6.

CHAPTER 2 - LITERATURE REVIEW

2.1 INTRODUCTION

Through the ages, a desire existed to examine and understand social structures. Borgatti *et al*. (2009) referred to Plato (circa 428/427bce-348/347bce), who showed a keen interest in how independent and self-sufficient individuals could co-operate to form successful societies. His pupil, Aristotle (circa 384bce-322bce), noted that we are a social species; the individual preceded by society. Central in social structure are social relationships in which individuals are embedded. From this social embeddedness, people stand in direct contact with one another, and interaction in the form of exchanges take place between them. This literature review starts with an explanation of social structure and how relationships and exchanges evolve into exchange theory. Exchange theory and network analysis both see social structure as a manifestation of social relationships and positions. This convergence between exchange theory and network analysis is best explained by the fact that network analysis provides the empirical tools to expose structure. Exchange theory presents a theoretical landscape of sorts from which structure might be interpreted.

One of the ageless questions of social theory is how social structure affects economic life. As part of economic behaviour, companies appoint directors and form boards. And, because of the connections between companies, a social network of embeddedness is created. Emerging from this is the existence of connections which can be revealed through a network analysis. At the turn of the century, corporate capitalism transformed into competitive capitalism and the rise of big corporations. With this transformation came mounting concern that power is in the hands of too few. The first important investigation was led by Otto Jeidels (1905). This author stated that the 1305 interlocks he discovered between six (6) German banks and industry was the result of the financial crisis of the 1900s and these interlocks launched the concentration of financial power. Jeidels findings regarding the concentration of financial capital, was strengthened by Rudolf Hilferding's work, Finance Capital, in 1910. Based on findings from the congressional Pujo committee, Louis Brandeis' 1914 publication brought to light how major investors and the concentration of financial capital and institutions can control other people's money. Social scientists used network analysis to analyse this concentration of connections.

These connections imply a form of power that is mediated by the capacity to exchange, which we can assume is inherent therein. In the literature review which follows, the structural processes and relational properties that assist in the formation of these networks are examined. This is followed by a discussion of the role of power and the various theories of power formation in social structures; specifically, in network development. The concept and existence of the social elite is introduced. Clarification of the role and function of boards of directors is complemented by an explanation of literature where the focus then shifts towards governance models from the perspective of a network analysis. The chapter concludes with a look at the historic literature and studies on interlock, both locally and in other jurisdictions around the world.

2.2 SOCIAL STRUCTURE, SOCIAL RELATIONSHIPS, AND SOCIAL CAPITAL

Marx, in his Grundrisse of 1857 said: “society is not merely an aggregate of individuals but the sum of the relationships in which these individuals stand to one another.” One of the earliest references to social structure was made in 1875 by Herbert Spencer (Freeman, 1979). Spencer’s references to the concept of social structure were followed by descriptions of social structure by theorists such as Durkheim, Parsons, Levi-Strauss, Weber, Merton, Coser, Blau, and Coleman. Central in social theory and specifically social structure, is how behaviour is affected by social relationships. In 1992, Cook and Whitmeyer described social structure as one of the core principles on which any sociological analysis is based. Societies are made up of people, connected to one another through a system of social relationships (Freeman, 1979) and fundamental to social science is the study of the social relationships between actors, whether they be humans, organisations, or nations.

The concept of social capital has become increasingly popular in sociology, investigating the exchanges or interactions between interconnected groups and how these result in the common good. Inherent in social capital are the connections which exist between people or organisations, commonly referred to as actors in this context (Di Maggio, 1997).

2.3 NETWORK THEORY AND STRUCTURAL AND RELATIONAL EMBEDDEDNESS

Network theory focuses on the social relationships between actors. These actors are embedded in social structures as a direct result of their relationships with one another. and social structure displays patterns in which each social unit is “embedded in a web” or network of other social units (Freeman, 1979:14). Granovetter (1985); and Borgatti, Brass and Halgin (2015:4) described network theory as “an explanation of the relationship between actors with network outcomes.” Granovetter (1985:504) stated that interpersonal relationships are always exchange relationships and what he calls “the close embeddedness of behaviour in networks of interpersonal relationships.”

Embeddedness theory investigates the structure of personal relationships and structural relationships. In later work, Granovetter (1992) differentiated between structural and relational embeddedness. In a structural context, embeddedness relates to the configuration of one's network, while in a relational context, it relates to the quality of those relationships that had developed over time. It is the nature of the relationship, be it relational (qualitative) or structural (quantitative), and not the fact that there is a relationship, that makes a difference. Structural embeddedness defines the "configuration of impersonal relationships" between people (Moran, 2005:1132), including structural network properties such as the centrality of actors within a network, that is the sum of the differences between the most central actor and the rest of the actors within the network. Brayshay, Cleary, and Selwood (2007) quoted Martin and Sunley (2001), who stated that the term embeddedness has not been properly defined before. Brayshay, Cleary and Selwood (2007) attempted to improve the definition and referred to Hess (2004) who believed it is not possible to understand networks without understanding the role of embedded knowledge. This author (2004) defined embedded knowledge as the degree to which knowledge and information flows, channelled along socially and culturally specific pathways. Brayshay, Cleary, and Selwood (2007) expanded on the work of Hess and defined three (3) dimensions of embeddedness which they saw as both distinct, but also closely linked.

These authors called the first of these dimensions, societal embeddedness, which influences and shape the actions and attitudes of individuals and groups in their interactions within their social, cultural, and political environments. Societal embeddedness is seen as the dependence of an actor on its environment and network embeddedness is the extent to which the contacts of an actor are mutually connected to one another (Smith, 2015). These theorists saw network embeddedness as the structural formation of both the informal and formal relationships that exist between individuals and organisations. Hess (2004:167) suggested that the structure and evolution of the network and the "architecture, robustness and stability of relationships will determine the degree of the network of embeddedness of individuals. This is naturally also true for social institutions such as companies as well as social interconnections such as boards of directors. Directors exist in relationships with one another, and social structure creates a platform for the interaction where exchanges between them take place. This embeddedness of behaviour within networks of interpersonal relationships would explain much of the orderly self-regulating actions within companies, boards of directors and markets.

Secondly, territorial embeddedness, as postulated by Hess, represents the degree to which individuals and companies are anchored territories or places. Finally, network embeddedness was illustrated by Domhoff (1990); Davis (2000); and Rost (2014) who provided arguments for the existence of an economic elite which forms a group within which the power is concentrated. Kim (2006) believed that the relationships and interactions between actors, in their capacity of directors, must surely influence their actions and the outcomes of these actions.

2.4 EXCHANGE THEORY AND SOCIAL INTERACTION

Exchange theory in social structure originated with work done by Homans in 1961 and 1964. His work focused on the observed behaviour of individuals, attempting to explain how individuals create and maintain social structures. Homans stated that stimuli, rewards, and punishments will influence individuals' behaviour (Available from The encyclopaedia of informal education - www.infed.org /thinkers/ George Homans.htm). Emerson (1976) expanded the macro level on which social structures had been analysed, applying the analysis to investigate the social relationships between people as well as organisations and labelling them exchange relationships. Emerson placed the primary focus on these exchange relationships, which is the departure point for the formation of more complex social structures called exchange networks.

According to Conway (2014), one of the attempts to improve the understanding of exchange formations was the Hawthorne studies in the 1930s, which constituted examples of the analysis of social networks. Much later, three (3) important approaches for the understanding of social structures followed, developed by Blau in 1975. Firstly, Blau regarded social structure as the formation of social relationships and the positions that each actor holds within the network. Secondly, he described social structure as the substratum that defines social life (Blau, 1975:14). Thirdly, he considered social structure to be the "multidimensional space of the differentiated social positions of people in a society or other collectivity" (Blau 1975:28).

Blau focused on the development of a theory of social exchange which is more advanced than the direct contact between individuals. This author incorporated complex indirect exchanges and analysed social structures in terms of social forces. Freeman (1979:38) described the exchange as starting with an actor as a "point where exchange relationships connect," stating that the actor might be a person such as a director, or even a company. Exchange theory departs from the premise that actors are motivated by interest and reward, essentially focussing on the interaction between these actors and the qualitative character of the exchange. Burt (1983) differed from this opinion, stating that the actors' interests stem from their network position and that they indeed have interests which they acquire and pursue from their social interaction.

Scott (1988) postulated that sociology not only focuses on formations, having evolved to develop a keen interest in social interaction and how social relationships between people are created, sustained, or destroyed. This author posed normative questions about why relationships are formed, as well as the consequences of the relationships. Scott (1988:109) asserted that a related reality is formed by people's interactions and the unintended consequences of these interactions. This author used terms describing textiles to indicate the close ties between individuals, describing the bonds between them as being knitted together in a "crisscross mesh of connections." Scott compares the social network to a piece of cloth, interweaved, and the threads interlocked, to form the tightly knit social fabric (Scott, 1988:109).

Network researcher such as performed by Wellman (1988) made important contributions and he was one of the leading catalysts to form the point of departure for exchange theory. These researchers facilitated the change by no longer focussing on the attributes of the actors, but rather on the relationships between them, developing a set of theoretically distinctive perspectives known as a structural analysis. From a social perspective, this includes actors that are identified through a sense of inter-dependence. However, from a corporate perspective, these actors may be companies that share directors. They simply represent bridges for exchanges to take place within the context of the exchange theory model.

Marsden (1990) believed exchange theory provides the best platform for the interpretation of a pattern in network analysis and that such an analysis will not be possible if it is not performed on the actor level. Cook and Whitmeyer (1992) supported Blau and regarded exchange theory as the "actual social behaviour and relationships of individuals in direct contact with another." These authors argued that exchange theory, in the context of social networks, can form the base for the analysis of social interaction. It is now also important to expand on the notion of actors. Cook and Whitmeyer (1992) explained that the model of the actor can be applied to organisations, corporations, companies, or individuals. Amongst others, they referred to the work of Laumann, Marsden, and Prensky (1983) and that of Mizruchi (1989; 1990) in which work the organisations were all actors.

Cook and Whitmeyer (1992), was later supported by Borgatti *et al*. (2009) who extended this metaphor to individuals who are embedded in complex webs of social interactions and social relationships. Exchange theory assists in creating the platform from where these webs of social interactions and social relationships, exchanges and interactions can be interpreted.

2.5 NETWORK FORMATION AND STRUCTURAL ANALYSIS

The convergence between exchange theory and social structure is best explained by a network analysis which provides the empirical tools to expose structure. According to Buskins *et al*. (2012), network formation results from the links established between actors and the ways in which they form, maintain, or delete these links. Exchange theory assisted in identifying social structure, but purely presented a theoretical landscape of sorts from which the structure might be interpreted.

The reality is that we are living in a social order which is characterised by increased network connections of decreased value or strength (Knox, Savage & Harvey, 2006). It must be borne in mind that social connectivity is not limited to general networks. Indeed, it is further illustrated by executives who form business connections through virtual communication and networks of shared interests and experience, in addition to social and professional mediums, such as “LinkedIn” (Duijn & Vermunt, 2006). Interest in the analysis of such networks, continue to grow with inputs from the fields of sociology, anthropology, statistics, mathematics, sociometry, information sciences, education, and psychology. According to network analysts such as Duijn and Vermunt (2006), social life is influenced by the relationships and the patterns that are formed by these relationships. These patterns enable researchers to analyse, investigate, and visualise the network structure and relationships, as well as the subsequent reciprocal impact, trends, causes and outcomes.

2.6 CONVERGENCE OF EXCHANGE THEORY WITH PATTERNS OF RELATIONSHIPS IN SOCIAL NETWORK ANALYSIS

At the most simplistic level, any relationship can be regarded as social if there are at least two (2) individuals and one connection (Freeman, 1979). Exchange theory provides a basis for the argument that structure is important and worth investigating, as the theory is an economics-centred perspective of the relationships between people. The convergence of the theoretical landscape of social structure and exchange theory is best explained by the revelation of the patterns of relationships which is the interest of a social network analysis. Cook and Whitmeyer (1992) saw the convergence between exchange theory and social structure as based on actors and exchanges.

Exchange theory, in effect, provides a basis for interpreting the kind of interactions and choices that might well characterise network structures. Exchanges can be modelled upon and behaviour motivated by interest, passion, instinct, rewards, or punishment. Cook and Whitmeyer (1992) contended that all exchanges consist of an exchange of some value. Cook and Whitmeyer (1992), felt that directors might not be able to act sufficiently autonomously as organisations are made up of autonomous entities such as boards of directors that condone group consensus on board level and which have their own interests at heart. The exchange further extends when a company act as an actor. Examples of exchange in this context are the flow of information between directors or companies or the expertise that is added when a director joins a board.

Network analysts agree with exchange theorists that exchange theory assisted to define the theoretical landscape as described above, whereas social network analysis provides the empirical tools to scrutinise social structures. Wellmann (1983) considered social network analysis to be less theoretical and more empirical, stating that it is the patterns of interaction which create a network. Otte and Rousseau (2002) agreed with Wellmann in defining social network analysis as a strategy with which social structures are investigated instead of a component of a formal theory. Cook and Whitmeyer (1992) concluded that both the director and company, in their interlinked state, are powerful in this context, stating that more emphasis should be placed on the details of the structure displayed by the connections between them. Network analysis is not simply a study of the relationships, although identification of the patterns is simplistic. The complexity is created by the relationships which are inherent in any pattern (Freeman, 1979). Cook and Whitmeyer posited (1992:112) that social structure in network analysis can be defined as "patterns of connections among actors in networks of exchange relationships."

2.7 THE ORIGINS OF SOCIAL NETWORK ANALYSIS AND SIMMEL'S CONTRIBUTION TO SOCIAL NETWORK THEORY

Social network theory, according to Fredericks and Durland (2005), stands apart from other social science theories. In these authors' opinion, social network theory does not focus on the rational or irrational choices that individual actors make. This theory shifts the focus to the social context within which those choices are made. Butts (2008) added that, from exchange theory, the technique of social network analysis is then used to uncover the impact of the structure between social entities. Social network theory is about actors and their individual relationships and the structure and pattern of the exchanges between them.

Fredericks and Durland (2005) and Marin and Wellman (2009) referred to George Simmel's work (1905), the first to recognise the importance of relationships and social connections in network structures. Instead of viewing these connections as isolated units, Marin and Wellman (2009:6) also referred to the work of Simmel (1905:23) who was the first author who opined that "society consists of nothing more than a web of relationships." Simmel stated that connections are better understood through the unique characteristics which are defined at the “intersection of these relationships.” He was supported many years later by, amongst others, Scott (1988:110), who reiterated Simmel’s view that a social network is a powerful image of what Scott (1988:110) called a “social reality.” The social network of connections or relationships reminded Scott (1988:110) of woven garments, webs, or grids. Tichy, Tushman and Fombrun’s (1979) view of organisations as social groupings also concur with Simmel’s (1905), as does that of Otte and Rousseau (2002). These authors argued that the social world is not built around collective individuals but rather on the interactions between individuals.

To delve deeper into the theoretical landscape of social structure, three (3) parallel influences emerged in social network analysis. Cook and Whitmeyer (1992) identified the three (3) influences, listing the empirical work of Bott in 1957 in social anthropology, the mathematical models of Mitchell in 1969 and Kapferer in 1972 and the biased net theory of Rappaport (1957). These authors referred to a sociometrically-inspired analysis using graph theory of Harary, Norman, and Cartwright (1965). Fredericks and Durland (2005) believed that the three (3) sources merged at Harvard in the 1960s and 1970s, leading to what is known as “Contemporary Social Network Analysis”.

2.8 DEPLOYMENT OF SOCIAL NETWORK ANALYSIS AS EMPIRICAL TOOL

In 1990, research to develop measures of social networks was carried out by Marsden. He defined the social network to be investigated as consisting of individual actors with the inherent capacity to interact, connected by one or more type of relationship. In the study of social networks, social entities are defined, together with the structure and impact of the relationships between them. Social network analysis provides the platform for not only modelling the structure, but also for analysing these structures (Butts, 2008). Network analysts like Marin and Wellman (2009) agreed that the foundation and contributing building blocks of the social world and social networks are made up by actors, relationships, and the interaction between actors.

Beyond this, network analysis allows one to contemplate exchanges beyond the bilateral – one actor to another, allowing one to consider potential exchange pathways between multiple actors. In the corporate context, examples of multiple actors are interlocking companies and directorates; structures which reveal the existence of connections with an inherent capacity of exchange, and of power mediated by the power to exchange. The analysis of the connections and the detail of the structure are performed using such a social network analysis. The analysis of social network data has developed rapidly since the 1970s, with authors like Duijn and Vermunt (2006), Butts (2008) and O’ Malley and Marsden

(2008) in agreement that these developments were made possible by more powerful computers and enhanced computing facilities. Network researchers like Tichy, Tushman and Fombrun (1979) described the importance of strategic networking and the networks found in organisations as "social groupings." Social network analysts investigated the structure and impact of these connections between the groupings.

2.9 CATEGORIES OF RELATIONS IN THE NETWORK STRUCTURE

Categories of relations exist within the network structure. Borgatti, Brass and Halgin (2015) and Marin and Wellman (2009), described these categories of relations as similarities, social relations, interactions and flows (Figure 2.1). To clarify the make-up and build of these categories, Borgatti *et al*. (2009) displayed the structural properties as two (2) groups of categories, one of state, and one of flows (Figure 2.1). The types of ties, the relationships, and categories are also depicted in Figure 2.1.

The notion of similarities is important in understanding the underlying social network structure. Similarities exist when two (2) actors, such as companies or directors, share attributes like demographic characteristics, location or group memberships (Borgatti *et al*., 2009; Marin & Wellman, 2009). Group memberships may include similarities such as the relations found in co-membership or interlocking directorates – something which is under investigation in the current study.

Another example of such a similarity is when directors belong to the same professional organisations. In the current study, membership of the South African Institute of Chartered Accountants (SAICA) was investigated to determine how many of the directors are, in fact, Chartered Accountants (CAs). In earlier work, Borgatti and Cross (2003) did not only consider similarities as social ties but they suggested that similarities also provide the "relational conditions for the ties to form."

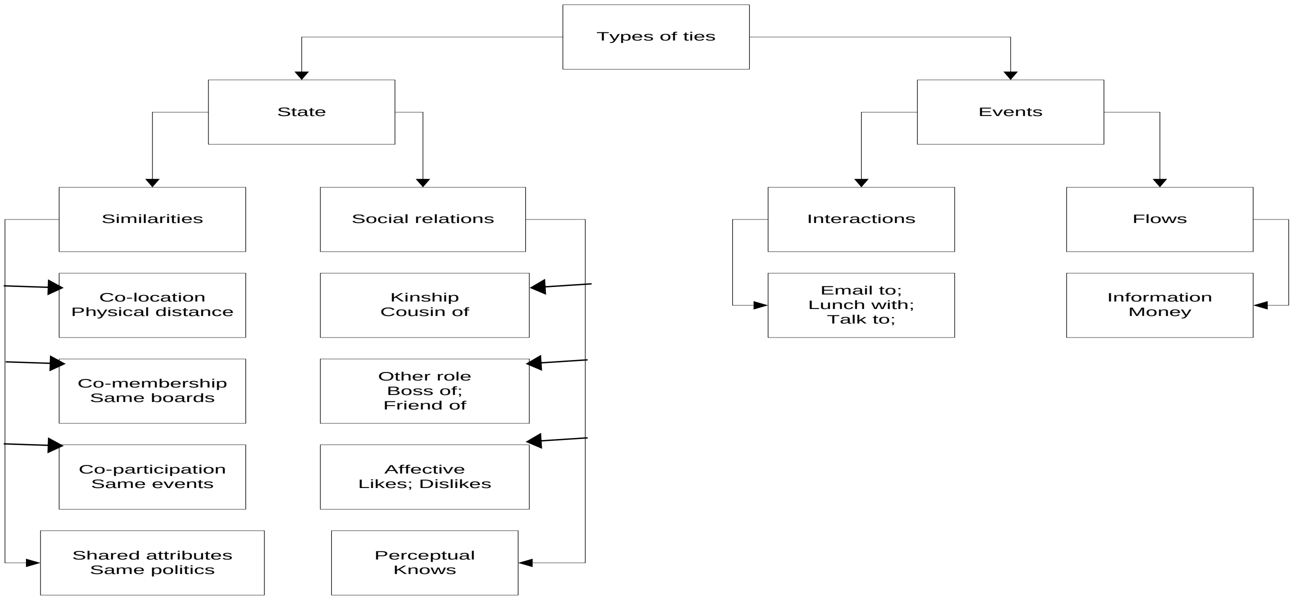

Figure 2.1: Categories of relationships (Borgatti, Brass & Halgin, 2015)

Social relations (ties) include connections and affiliations, also defined as kinship and relations where the network members are friends or acquaintances. Affective ties represent the feelings, that is, the likes or dislikes, which network members have for each other, while cognitive awareness is implied when directors know one another. Social relations would develop through social interaction, and especially through interlocks.

Flows are defined as relations based on the exchanges of information, resources or influence that move through networks. Researchers like Wellman and Wortley (1990) have shown that flow-based relations co-exist with other social relation ties and that relations such as affiliation and friendship include exchanges of, for example, support and companionship. The flows that exist did shed some light on the pattern that was discovered, but the possible causes and consequences of this pattern is still under debate.

In more recent work, Borgatti, Brass and Halgin (2015) defined interactions which would include transactions and exchanges. Interactions include conversations, email exchanges, shared lunches, or when directors work jointly as team members on a project. When directors jointly sit on a board, exchanges and interactions between directors occur as a matter of course. According to Borgatti, Brass and Halgin (2015), the types of relations to the left of Figure 2.1 may provide opportunities and/or conditions for the relations on the right, whereas the relations on the right of Figure 2.1 may effect changes to those on the left. The types of relationships and categories of relations that were identified will shed light on certain structural properties unique to a network. This is discussed in paragraph 2.14.

2.10 INTERLOCKS AS INDICATORS OF SOCIAL NETWORK EMBEDDEDNESS

Structural embeddedness defines the configuration of the relationships (Moran, 2005) within a network and relational embeddedness is the relationships that have developed over time. The discussion to this point focused on social networks in general, whereas the focus will now shift to board networks in specific. Within organisations, and especially within business ventures, directors are similarly embedded by sitting on their boards. Directors as actors exist in relationships with one another and social structure creates a platform for the interaction where exchanges between them do take place. Wasserman and Faust (1994) defined network creation when actors or directors have connections by virtue of sitting on the same board. A triangular connection is created if each director is already connected with a separate common actor, creating what is known as an interlock.

Interlock was understood by Mizruchi (1996) and Granovetter (2005) as an indicator of network embeddedness. According to Granovetter (1985) and Smith (2015), interlocks promoted, among others, economic behaviour through social embeddedness, while economic behaviour is soundly embedded in network structure. The interlock created by companies and directors embedded in these sets of relationships and interactions determines both their actions and the outcomes of these actions (Granovetter, 1985). The network embeddedness is illustrated by directors sitting on a board, forming part of a corporate elite.[4]

Domhoff (1990), Davis (2000), and Rost (2014) posed the following question: does a small group of insiders perhaps control society? Domhoff (1990, 1996, 2000, 2005), in his later research, was the first to answer this question by identifying what he believed to be the ruling elite consisting of the leaders of high-level companies connected through interlocks. These theorists provided arguments that power is concentrated in these corporate elites.

2.11 THEORIES OF POWER STRUCTURE

Cook and Whitmeyer (1992) supported the notion of social and network embeddedness and pointed out that both Blau and Emerson in fact positioned power processes as central in the network structure. It leads to the question which Dahl (1957) and, forty-five years later, Domhoff (2002) asked: who has the power? The notion of power has no doubt been discussed since man started discussing the nature of man; the forms of embedded power being a focal point in political philosophy. Plato's 'philosopher kings' spoke to the allocation

[4] The general concept of structural, relational, societal, territorial and network embeddedness is discussed in section 2.3

of power and Niccolo Machiavelli's work was a study in power. To a certain extent, Marx's work also investigated the notion of power. Domhoff (2005a:3) described power as "the ability to act in a strong, compelling, and direct way" with the resulting capacity to have an effect and influence on some individuals. Vergara (2013) summarises five (5) forms of power as shown in Table 2.1: economic, political, military, ideological and intellectual, and five (5) theories; Pluralism, State Autonomy, Elite, Marxism and Class-Domination are summarised in Table 2.1.

Table 2.1: Theories of power structure (Vergara, 2013)

THEORY	THEORETICAL BACKGROUND	THEORETICAL PERSPECTIVE	PRINCIPAL EXPONENTS
Pluralism	General theory of society	Multiple centres of power	Dahl and Lipset
State Autonomy	Theory of government as an independent force	Government as power centre	Skocpol
Elite Theory	Theory of organisations	The leaders of large organisations inevitably dominate all large-scale societies	Dye
Marxism	Marxist theory of historical materialism	Class domination	Gramsci, Cohen, Roemer, Elster, Wright
The Class Domination Theory of Power	Theory of domination and power network	Domination by the few does not mean complete control, but rather the ability to set the terms under which other groups and classes must operate.	Wright-Mills and Domhoff

In the studies regarding power it is all about who has the power, and Table 2.1 provides clarity in this regard. The following theories, originating from the table above, are an explanation of the theoretical perspectives of where the power lies. The theory of Pluralism describes society as being made up by the concentration of power which resides with a spectrum of individuals or a range of groups. The State Autonomy theory describes the State as the primary holder of political power. The Elite theory is based on the existence of a small minority who controls society - the leaders within state enterprises or large companies that constitute the so-called elite. In the theory of Historical Materialism, Domhoff

(2005b) elucidated the Marxist perspective which categorises societies by using the positions of individuals in the context of production to define the concept of social class. The Class Domination theory is based on the existence of a social order, analysing the different positions of each group in this social order to study the power structure. Class domination theory investigates the positions of different groups and the dominance of these positions over other positions. This theory analyses social networks to determine how power is distributed and divided, attempts to understand who benefits from the distribution of power and attempts to clarify who governs social networks. Class Domination theory postulates that power is focused in a single organisational base and domination by a few leaders, although this does not mean that they have complete control over society. Based upon these authors' notion of domination by a minority of individuals, a combination of the elite and social class domination theories is relevant in the current study.

2.12 'POWER STRUCTURE AND THE INFLUENCE OF THE SOCIAL UPPER CLASS AND ELITE

Social status has always been important, endowing individuals with a certain level of prestige in society. Social stratification existed throughout the ages. Greek society with its composition of the free and the slave is an excellent example. Similarly, Roman society was made up of property owners, individuals with wealth, who has citizenship and those who have freedom (Vergara, 2013) and slaves. Even today, social stratification is evident in the existence of monarchies as well as in advanced capitalist democracies. Globally, some countries are still ruled by monarchies and in some cases, royal families play central roles in the formation of elite networks. Plato's *Republic* and Aristotle's *Politics* dealt with this to some extent, but Rossides credited Pareto (1901) as the first researcher to perform a socio-political analysis of elites. Pareto based his analysis on the political role played by the Italian aristocracy (Rossides, 1998). However, in the mid- to late 1800s, Marx had already expressed a keen interest in the notion of social stratification. Empirical sociological research on economies and companies has focussed on explaining social factors and criteria that assist in the formation of elites since the early 1970's (Vergara 2013: 34). This included social origins, types of education and socioeconomic status.

The history of sociological research contains important contributions by Marxism and Functionalism (Wright, 1997), with Max Weber developing a theoretical framework to explain the connection between political action and social stratification in societies. Higley (2008:3) defined members of the elite as "persons who, by virtue of their strategic locations" in large or prominent companies, organisations, or movements, have the regular and sustained ability to influence political outcomes. Vergara (2013:3) supported this notion and defined the social elite as companies, political parties, societal organisations, or groups of people who influence government and who manage businesses and all the manifestations of political power."

Behind these power structures are what Domhoff (2005:4) called a lurking force which is ready to exercise a form of this power. This force is in possession of power which is understood to be an underlying trait or property (Domhoff 2005:4) of a social group or social class, a concealed capacity to bring about intentional consequences on others. This is measured through a set of three (3) indicators which seek to identify those who benefit, those who govern and those who win. Those who benefit the most, by inference, are seen as powerful, while those who occupy important positions, taking part in important decision-making groups, are regarded as being in positions of power. Those who win are at the centre of control, driving decision-making processes due to their considerable influence.

This raises the following question: if the formation of power within groups does exist, do these groups hold more influence and power than others? Similarly, illustrating the point within a business environment: do some companies or individuals within those companies have more power in the network structure than others? The answer is yes. At the top of societies exists a small group of organisations and/or people that hold significant power. According to Vergara (2013), this group is called the elite. Domhoff's research in 1990 and that of Scott in 1991 form an important part of research into the elite and their inherent power. Two (2) approaches have been used to identify the elites: the positional approach and the relational approach. Both approaches are used to identify relationships within social structure and to investigate the embeddedness of these relationships in social structure.

Domhoff's interest in power and power indicators extended to business-specific power. As such, in his 2005 research, he sought answers to the following questions: who benefits most from the patterns of connections and who governs those patterns of connections? He identified two (2) groups of actors. The first group consists of companies that have a strong basis for cohesion in their attempts to maximise profits, whilst mitigating uncertainty and risk. Their power is displayed by the impunity with which they can make investment decisions, decide on who to employ and who not, and their freedom to use their income in any number of ways. This group shares the common interest of serving shareholder interest and making profits (Domhoff, 2000; 2005).

The other group, on a more granular level, consists of individuals with decision-making authority occupying positions of influence in companies where economic power is concentrated. Useem (1984) also identified these individuals as the corporate elite, while

Burris (2005), considered the corporate elite as a politically meaningful group with a collective interest. Examples of collective interest are the creation of economies of scale, increased buying power, and the protection of certain commercial interests.

Director interlock is part of the network through which unity might be mediated because of directors sitting reciprocally on each other's boards and often on multiple boards of directors. In some cases, these individuals have the upper hand by virtue of their significant wealth. According to Mizruchi (1982), the social elite is sometimes overrepresented on boards of directors and forms part of what, Useem (1984), Scott (1991) and Murray (2000) called an inner circle of individuals that has two (2) or more directorships.

2.13 POWER STRUCTURE AND THE IMPACT OF THE BUSINESS CONNECTIONS OF THE CORPORATE ELITE

Like social circles, business connections form part of social networks. In this context, according to Useem (1984); Granovetter (2005); and Vedres and Stark (2010), these social networks are made up of the socially embedded corporate elite and cohesive sub-groups (Vedres & Stark, 2010). Individuals in these sub-groups are more likely to be connected because of similarities towards problem solving, common interests, shared outlooks and similar perspectives on business-related matters (Granovetter, 1973).[5] Thus, the corporate elite who belong to the same social circle creates close connections resulting in coordinated action. This, in turn, builds a basis of trust and reduces the risk of discordance. Less fragmented corporate elites can mitigate uncertainty or confusion by establishing a common base of recognition. The corporate elite, of which board members could be regarded an example, occupy strategic positions within companies, dealing with company responsibilities and wielding control over rare resources and events (Pettigrew, 1992).

In Table 2.1 (Vergara, 2013), it appears as if both elite theory and class domination theory play a role in this context. Boards of directors, by default, already form part of the corporate social elite. The directors on these boards are important actors or role players in the power structure and, perforce, in any network, by virtue of their influence and power. Boards of directors provide a platform for the interaction of the corporate elite. Both Davis (1994:225) and Rost (2014:22) agreed that directors are also frequently members of governing and advisory boards, social clubs, and policy associations. Davis (1994:218) stated that the corporate elite, through their joined membership of business associations, organisations and social clubs, and their joined board seats, makes decisions that influence and define

[5] When this extends to similarity in behaviour it is called homophily.

the “direction the economy” and, in this process, they share information and form strategic alliances. Davis believed that the corporate elite becomes friends and extend their friendships with their peers to include investors and other businesspeople. Centrally embedded in these less fragmented networks such as board membership, are the corporate elite, which also act as brokers between fragmented sub-groups (Rost, 2014).

The network of interlocking directorates are social structures (Scott, 1991), with the social connections between them creating a non-exclusive platform and framework within which the corporate elite makes decisions (Granovetter, 1985). On a more granular level, directors of multiple companies (interlocked directors) do not only meet in boardrooms, but also in several different places for discussions and to share opinions and debate economic matters as well as social and political issues (Rost, 2014). These directors form part of a socially cohesive and influential ‘inner circle’ of the capitalist class, as posited by Useem (1984). The interlocked directors participate in efforts such as policy-planning groups, with interlocks serving as channels of communication between companies and directors. Interlocks give these actors access to resources which are scattered and distributed throughout a broad base of interlocked boards, and the companies and resources to which they are connected. Based on common educational and social backgrounds, layered personal networks are created which promote consensus and cohesion among this corporate elite (Carroll & Spanski, 2010). Similarly, the commonality of educational and social backgrounds may also create a small world of narrow- mindedness or short-sightedness.

2.14 STRUCTURAL PROPERTIES OF SOCIAL NETWORKS

According to Martinson and Campbell (1979) and Freeman (1979), structural representation is reflected by means of the unique structural characteristics or properties of the network connections of the actors who are embedded in the network. The properties of a network and participating actors are described by conceptual components which can be calculated and used to express the structural representation of the network. The following five (5) structural properties will be introduced here: size, centrality, density, cliques or clustering, and groups. The first property that usually describes and defines a network is its size. Tichy, Tushman and Fombrun (1979) and O’Malley and Marsden (2008) defined size as the number of actors, companies or directors participating in the network, whereas Martinson and Campbell (1979) referred to ***size*** as the number of companies and directors that are connected. Freeman (1979) was the first researcher to study the embeddedness of actors such as companies or the directors serving on their boards, and to investigate the position they occupy. The unique positioning within the network of relationships is revealed through what is called the centrality of such an actor. Centrality in networks may serve to facilitate the resolution of uncertainty in financial markets. Individuals who form part of this connected elite have enhanced ways of accessing information and higher status due to the centrality of their network positions. Companies and directors who occupy central network positions are also better informed and have access to information regarding economic developments and competitors. Indeed, the conceptual higher centrality of the connected, powerful elite, reduces uncertainty in the broader operating environment for any company, its board, and its directors. This has a decided impact of creating an advantage over competitors.

Centrality results in the building of trust with market actors such as investors, resulting in reduced investor uncertainty (Rost 2014). Centrality and embeddedness are closely related. The embeddedness and resulting relationships of an actor defines his/her centrality in a network. Tichy, Tushman, and Fombrun, applied Freeman's notions to a board context in 1979. Their work was expanded upon by Wasserman and Faust in 1994. Otte and Rosseau followed suit in 2002, while Fredericks and Durland did so in 2005 and O' Malley and Marsden in 2008. All of these authors argued that centrality may be an indication of the amount of power a company or individual has. The connections themselves are also important, as they are indicators of the information flowing through the network (Rost, 2014). The connections between the directors can be seen as a conduit or a funnel of sorts. Centrality contains different components which are best expressed by means of degree centrality, closeness centrality and betweenness centrality. The diagrammatical explanation of the concepts, and how they are applied in a network analysis, is shared in Figure 2.2.

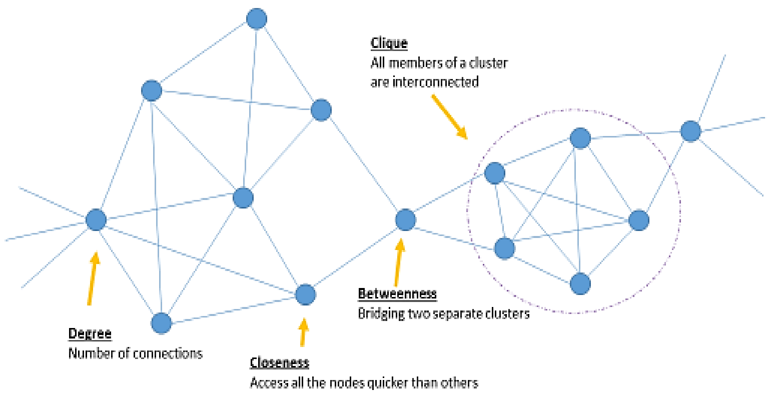

Figure 2.2: The difference between a clique, and the centrality measures of degree, closeness, and betweenness

Diagram to display the difference between a clique, and the centrality measure of degree, closeness, and betweeness [online]. Available from: < https://www.google.co.za/search?q=picture+of+properties+of+network+structure&rlz=1C2CAFB_enZA658ZA658&biw=1366&bih=667&tbm=isch&tbo=u&source=un>

The three (3) components of degree centrality, closeness centrality and betweenness centrality are further explained by means of Krempel's figures (2009). Barzuza and Curtis (2015) also adopted these figures which use a visual application of size to depict different centralities. This depiction makes it easier to compare the distribution of components. Figure 2.3 shows the representation of measures by the use of sizes and the calculation of measurements:

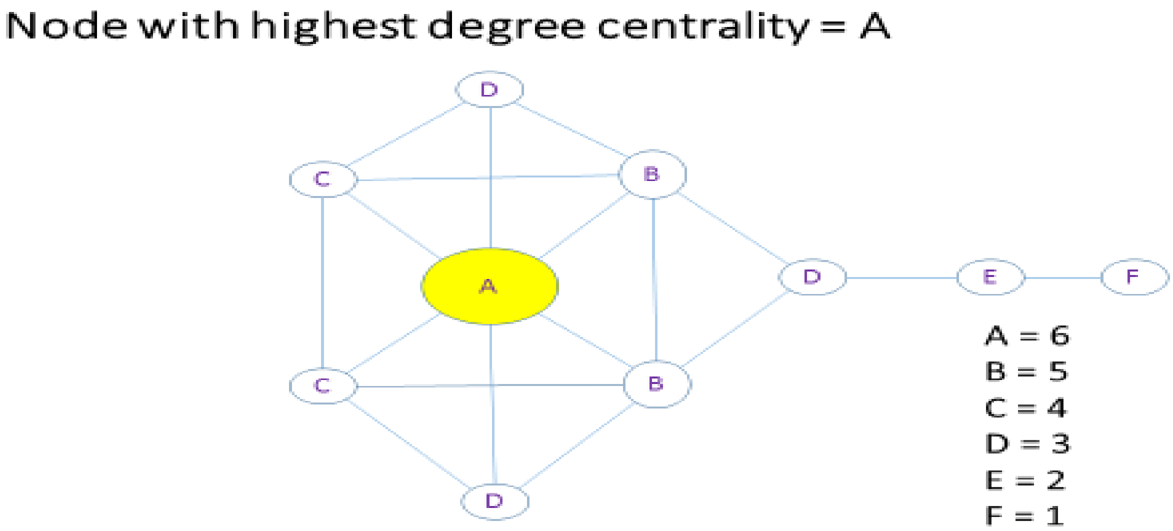

Figure 2.3: Graphical example of degree centrality in a network (Krempel, 2009)

Tichy, Tushman and Fombrun (1979) as well as Otte and Rousseau (2002) defined degree centrality as the number of relationships or connections of an actor, while Everard and Henry (2002) saw degree centrality as measuring the extent to which a node is adjacent to another node in the network. This affords an indication of how well connected that particular actor is. The average degree centrality of a network can be seen as the average number of connections between the actors within that network. Both Wasserman and Faust (1994); and Rost (2014) agreed that actors that could be regarded as highly central in the network due to the positions they occupy, have the ability to interact with a large component of other actors in the network. These central actors are regarded as higher in status and in possession of more power than other members of the network. These authors posited that the likelihood that central actors within a network will be exposed to various different social circles are also higher.[6] Freeman (1979) saw degree centrality as an indication of a

[6] Such a social circle could be the membership to a business association, or any other business entity such as a board of directors. The corporate elite are connected not only directly but also indirectly through their social circle with other market actors (Rost, 2014).

company or a director's activity within a network and theorised that those with a high number of connections with other directors and other companies will also have high degree centrality.

Durbach and Parker (2009) contextualised degree centrality to companies, their boards and the directors who sit on them, and saw degree centrality as the number of connections of a director or company as an indication of how well-connected that director or company is. Senekal and Stemmet (2014) described degree centrality as calculating the number of connections of a company or director with the companies or directors closest to it. Companies and directors with positions of high degree centrality have the potential to be exposed more too various other unconnected members of social circles within a network. Better defined in a board context, degree centrality calculates the number of ties a board or director has with other directors and boards and describes the number of shared directorships. In Figure 2.3, node A has the highest degree centrality, by virtue of its ties with six (6) others, followed by node B who has ties with five (5) others.

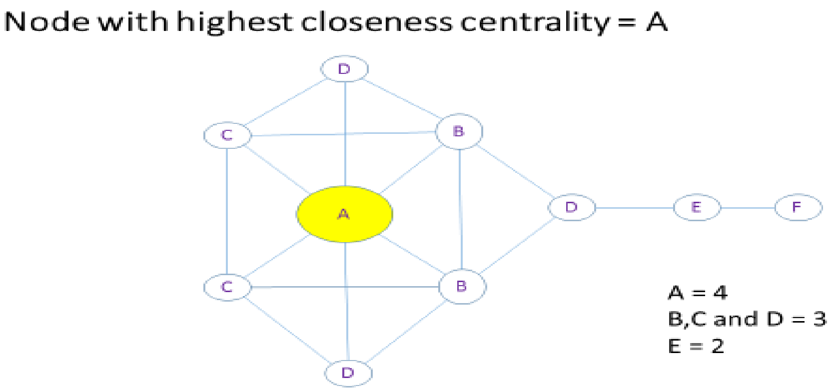

Figure 2.4: Graphical example of closeness centrality in a network (Krempel, 2009)

Closeness centrality, as illustrated in Figure 2.4, measures the degree of closeness of an individual to all the other individuals who also form part of the network. Closeness centrality calculates the distance between the companies and the distance between the directors by means of the number of steps between them. Closeness centrality therefore refers to how close a director or company is to all other directors or companies in the network – and the shorter the connection, the higher the impact. Closeness centrality calculates the shortest possible distance between each node and other network nodes. In Figure 2.4, node A has four (4) short connections or nodes B and C, whereas nodes B, C, and D have three (3) short connections to other nodes. Entities like companies (boards) or directors with a high closeness centrality are regarded as central players because they have connections with a shorter length to most other companies or directors in a network. The explanation of betweenness centrality is defined as the extent to which an actor assists with the flow in a network. O'Malley and Marsden (2008) saw closeness centrality as the prominence of an actor within a network and defined betweenness centrality as the frequency with which an actor is found in an intermediary position in the paths linking pairs of other actors.

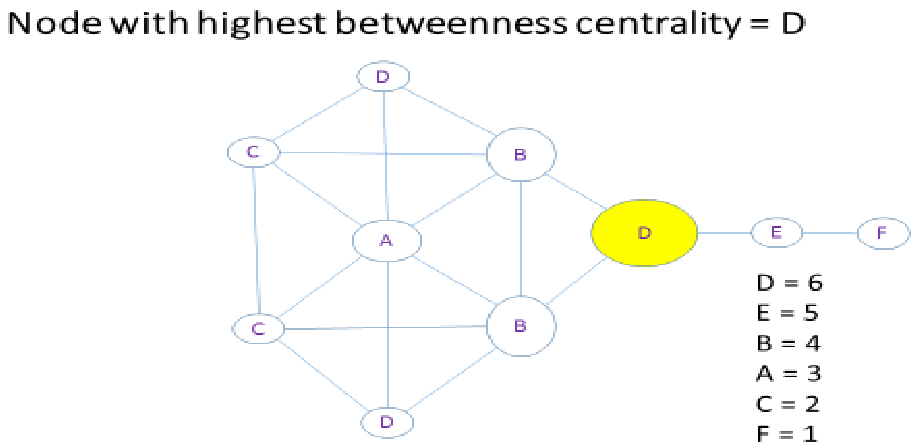

Figure 2.5: Graphical example of betweenness centrality in a network (Krempel, 2009)

Freeman (1979) presented the first formal definition of betweenness centrality. Betweenness centrality, as illustrated in Figure 2.5, measures the extent to which one node is connected to another node which is not connected to other nodes and the degree to which one node would act as a bridge connecting other nodes. Betweenness centrality is an indicator of a node's centrality in a network. In later research, Freeman (1979) described betweenness centrality as the inclusion of a node in the flow of communication between that specific node and other nodes in the network. Everard and Henry (2020) added to this and posited that betweenness centrality measures the extent to which one node connects all other nodes. Senekal and Stemmet (2014) agreed that betweenness centrality measures the extent to which an entity forms part of the possible shortest connection between itself and other entities in a network, and often whether an entity is positioned as the only connection, or bridge, between other entities. Node D (Figure 2.5) has the highest betweenness centrality as it connects several other conduits of nodes through its central positioning. In a board and company context, betweenness centrality calculates the central positioning of directors or companies (boards) and represents the company with their ties to other directors and companies.

Brandes, Borgatti, and Freeman (2016) acknowledged that the concepts of closeness centrality and betweenness centrality may be confusing because both concepts are described in terms of the shortest path between nodes and their division regarding the inter-dependency of nodes. Betweenness centrality is generally regarded as a measure of control because of the dependence of a specific node on another node. Closeness centrality, on the other hand, is a measure that usually interprets the efficiency of access to nodes, or the independence of nodes from potential control by others.

The third component to express the positioning of actors within a network is density or connectedness. Tichy, Tushman, and Fombrun (1979) described the concept of density as the ratio of the number of actual connections in the network to the number of possible connections. Otte and Rousseau (2002) described density as an indicator of the general level of connectedness of actors in the network. Fredericks and Durland (2005), on the other hand, described density as the proportion of the total available connecting actors. Durbach and Parker (2009) defined density as the number of connected actors, describing the notion as the collection of all actors that can be reached within a network. Conceptually, many of these components are similar, although they differ from a technical perspective. For this study, I subscribe to the explanation of Tichy, Tushman, and Fombrun (1979). Sonquist and Koenig (1975) were the first to use the concepts of cliques and clustering as respectively the fourth and fifth components to describe the positioning of actors within a network.

Otte and Rousseau (2002) defined a clique in a graph [7] as a sub-graph in which any actor is directly connected to any other actor of the sub-graph and the cliquishness, or tendency to associate exclusively with the members of their own clique, of a particular universe of actors. Clustering was defined by Tichy, Tushman and Fombrun (1979) as the number of densely connected regions in the network, that is the ratio of the number of actual connections in the network to the number of possible connections. Levine and Kurzban (2006) added that they see these clusters as homogenous groups of dense relationships which are informally connected to other groups. Durbach and Parker (2009) saw a highly clustered network as neighbouring nodes which are also connected to the neighbours of their neighbouring nodes. Zhu, Watts and Chen (2010) and Senekal and Stemmet (2014) described clustering as the phenomenon of interlocked companies which form sub-groups - and where the companies or directors in this sub-group or cluster are more connected between themselves than they are with companies or directors that fall outside the cluster.

In a group, the persons involved all have some relation to one another, while a clique is a small, exclusive group of individuals. A group is intentionally formed for a specific purpose, while a clique is, according to WikiDiff, to "associate together in a clannish way; and to act

[7] In graph theory, actors in a network are represented as nodes in a graph and the relationships between them are represented as edges. Pairs of actors can be linked through chains of relationships (paths).

with others secretly to gain a desired end; or to plot” (WikkiDiff (2020) Group vs Clique - What's the difference? [online]. Available from : < https://wikidiff.com/group/clique>). In the context of the structural properties of networks, the notion of groups differs from the notions of connectedness, cliques, and clusters, having also been studied in relation to director interlocks. Fennema and Schijf (1978:311) referred to Dooley (1969), who used interlocks and the number of times companies or boards were interlocked to define group membership. In his study of 15 groups, seven (7) of the companies in these groups were interlocked four (4) or more times. Dooley labelled these companies as tightly-knit, while he labelled eight (8) companies in the groups that were interlocked only two (2) or three (3) times as loosely-knit. Groups then exist when there are two (2) or more interlocks between companies or directors which will tie them all together. Sonquist and Koenig (1975:205) investigated the notion of groups and identified what they called “a network of nested groups.” These nested groups further manifested in the formation of business groupings which Scott (1991) identified by name and by country” (Appendix 4).

If the formation and existence of interlocks is a given and power formation is a certainty, and if directors have a fiduciary duty to act in good faith, how could the interaction, relationships and networks be better understood? What is a board of directors supposed to do? What does the literature offer? This literature review continues with a clarification of the role and function of boards of directors, with a shift towards governance models from the perspective of network analysis.

2.15 THE FIVE (5) GOVERNANCE OR CONTROL MODELS ASSOCIATED WITH LITERATURE ON NETWORK ANALYSIS

There is no single model that explains the role of a board of directors in governance (Hung, 1998). Van der Walt and Ingley (2003); Kula (2005) and Wan and Ong (2005) agreed that the role and functioning of boards of directors were attracting an increasing amount of attention and that more forms of corporate control were being advocated. Hung (1998) created a meta-conceptualisation of the theories pertaining to boards which is portrayed in Figure 2.6, below. His model differentiated between the contingency perspective of Mintzberg (1983) and the institutional perspective of Eisenhardt (1989). Hung’s model aided to recognise board involvement in the decision-making process, identifying six (6) supporting functions for the board. He identified these functions as: linking, coordinating, controlling, strategy, maintenance, and support. These were then linked to six (6) theories relating to previous research and added new perspectives from the resource dependency theory, the stakeholder theory, the agency theory, the stewardship theory, the institutional theory, and the managerial hegemony theory.

Each of these theories focuses on a certain perspective of what the role of a board should be. Hung (1998) conceded that none of these perspectives incorporate the full extent and complexity of a good governance model.

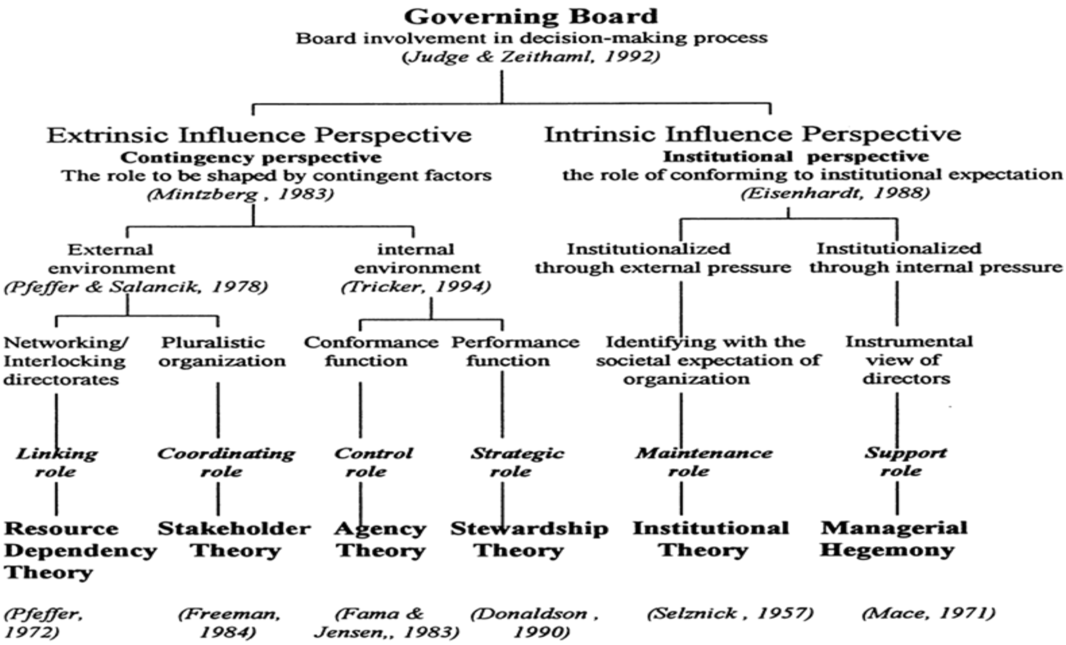

Figure 2.6: A typology of the theories relating to roles of governing boards (Hung, 1998)

The first four (4) governance models associated with the literature on network analysis was identified by Sonquist and Koenig in the 70s, with Mintz and Schwartz who continued the research on governance models in 1981, but it was only in 1983 when Bazerman and Schoorman added a fifth model.

These models explain the rationales that lead to the formation of interlocks. Berle and Means (1932) were the first main contributors to the management control model, followed by Sonquist and Koenig (1975; 1976) and Koenig and Gogel (1981). The financial control model was predominantly advocated by Allen (1974; 1978), Mizruchi (1982), and Scott (1988). The environmental control model, also known as the interdependence model, the resource dependency model or coalition theory, was primarily supported by Pfeffer (1972; 1987); Pfeffer and Salanick (1978); Berkowitz *et al*. (1978; 1979); Burt (1983); and Mizruchi (1989; 1990). The class hegemony, upper class cohesion or network control model was principally supported by Soref (1976); Useem (1982); Bonacich and Doornhof (1981); Gogel and Koenig (1981); Palmer (1983); Patmer *et al.* (1986); Bearden and Mintz (1987); Soref and Zeitlin (1987); Johnsen and Mintz (1989); and Domhoff (1990). The multi-level rationality model as proposed by Bazerman and Schoorman (1983). Table 2.2, courtesy of Bazerman and Schoorman (1983), provides a comparison between the different models commonly used to explain director interlock as well as the factors which each model would consider.

Table 2.2:Comparisons of Alternative Models of Interlocking Directorates

Factors	Management Control	Financial Control	Class Hegemony	Environmental control, Resource dependency	Multi-level Rationality
Views management as the critical factor in director selection	Yes	No	No	No	No
Views the financial community as controlling the industrial community through interlocks	No	Yes	No	No	No
Considers the existence of a corporate elite	No	No	Yes	No	Yes
Views both parties in an interlock to benefit mutually	No	No	No	Yes	Yes
Considers the decisions of directors in the formation of interlocks	No	No	No	No	Yes
Considers the decisions of companies in the formation of interlocks	Yes	Yes	Yes	Yes	Yes
Considers the decisions of society in the formation of interlocks	No	No	No	No	Yes
Considers limitations to rationality in decisions concerning the formation of interlocks	No	No	No	No	Yes
Integrates legal factors with the analysis of the existence of interlocks	No	No	No	Yes	Yes
Viable in view of existing data	No	No	Yes	Yes	Yes

Source: *Bazerman and Schoorman (1983)*

2.15.1 The agency problem and the management control model

Berle and Means are credited with launching the agency theory in 1932. This theory describes the relationship between two (2) contributing role players: a principal and an agent (the manager of the business), where the interests of the two (2) parties are not aligned (Eisenhardt, 1989). These two (2) parties have different views on how to manage their differing interests and how to mitigate risk. In an organisational context, agency theory attempts to resolve the conflict in governance between the principal (the owner of a business) and the role of the board as exercising control over management, acting as their agent. The board further needs to create mechanisms that limit self-serving behaviour in situations where the principal and agent have conflicting goals. As stated, one of the duties of a board is to exercise control over management, but in the model described, the board has no executive powers, acting in an advisory capacity only (Fennema & Schijf, 1978; Mintz & Schwartz, 1981b). Although the board of directors technically also remains an agent, the control remains in the hands of management, serving as agents. Eisenhardt (1989) described this as a secondment of decision-making power from the principal (in this case the shareholders) to the agent (in this case management).

Two (2) potential problems arise when there is misalignment between the goals and desires of the principal and those of the agent. Firstly, if it cannot be established whether work was done adequately, and appropriately, and secondly, if there is a difference between the principal's and agent's perception of risk and the handling thereof. Agency theory attempts to mitigate the risk by limiting agent self-interest and opportunism in situations where conflict occurs because of difference in goals (Hung, 1998). Ruigrok, Peck, and Keller (2006) assumed that corporate leaders (managers) are independent decision-makers, serving their own interest, and posited that, in their capacity as agents, there is no guarantee that they would look after the interests of the principal or shareholders any better than board members could.

In theory, the board is meant to represent the interests of shareholders impartially. Sonquist and Koenig (1975); and Koenig and Gogel (1981) perceived the connections between companies as a result of the directors sharing board seats as significant in this context. Koenig and Gogel (1981) defined the management control model as managers acting in the best interest of the company, an independent entity, according to the economic needs of the company and not because of a sense of cohesion amongst the managers. In reality, the connections between companies represent conduits across which control might flow, and these connections could be exceptionally important in relation to agency theory. However, if a particular connection between boards represents a conduit through which one company exercises control over another, how can one be sure that the interests of the shareholders of one company are not rendered secondary to the interests of the company wielding the most control?

2.15.2 The financial control model

Cox and Rogerson (1985) opined that companies have lost their independence from financial institutions due to their increasing need for significant amounts of capital. Companies are under continuous pressure to mitigate this risk against the availability of capital. By virtue of this need for capital, banks and insurance companies possess great economic power, which is used to arrange agreements between their clients, or even between themselves. Indeed, financial institutions ensure their continued involvement when companies require large amounts of capital (Koenig, Gogel & Sonquist, 1979).

The basis of the financial control model resides in organisations' dependency on financial institutions due to large scale borrowing, often to the detriment of organisations' best interests. This, however, results in the continued advantage of the group of financial institutions as they combine their financial muscle. In this context, shared directorships are created when directors of the lending bank sit on the board of the company to which they lend money in an arrangement that is often referred to as a way of "cementing" the relationship

Mariolis (1975); Sonquist and Koenig (1975); Mintz and Schwartz (1981b); Mizruchi (1982); and Mizruchi (1989; 1990) documented the centrality of financial institutions within the interlocks and networks they have studied. Because of companies that are reliant on banks for capital, reciprocal agreements are set up whereby the banks and their directors and boards keep an eye on their investment and the management of the company. This would not even assume that an interlock is needed, because in some cases a bank would simply use a technocrat, a member of the technically skilled elite, rather than a board member to protect their interests.

Cox and Rogerson (1985) further argued that financial institutions use interlocking to their advantage through reciprocal deals between their clients, leading to increased borrowing. The financial group, not the individual company, forms the unit for power in understanding the economic system, acting in the best interests of the bigger group, but potentially acting to the detriment of the individual company. Interlocking frequently provides a basis for control. Cox and Rogerson (1985) asserted that interlocking acts as an instrument for financial institutions to control and monitor their investment. Koenig, Gogel and Sonquist (1979) and Cox and Rogerson (1985) contended that these patterns of interlock will form cliques associated with the core of financial institutions.

2.15.3 The environmental model

In contrast to the management control model, the environmental model relates to mutual beneficial arrangements between companies. According to Koenig, Gogel and Sonquist (1979), these reciprocal arrangements are set up between companies by so-called "trade relationship men". In contrast to the management control model in which corporate control is mediated via connections, Cook and Whitmeyer (1992:117); Burt (1983); and Mizruchi (1989; 1990) argued that intercorporate connections are created with the aim of maximising profits.

These agreements within the same sector, or even between sectors, may be used to limit or restrain the competitiveness of rival companies and to reduce the bargaining power of participants potentially competing in this same supply chain. According to Cox and Rogerson (1985), this pattern of shared directors and the exchange of resources would be an extension of the relationships between not only the directors, but also the companies involved. Koenig, Gogel and Sonquist (1979) believed that these agreements are simpler when formal and direct links exist by virtue of interlock. Cox and Rogerson (1985) supported this model, believing that interlocking can reduce or limit the potential influence of disruptions from other companies with whom scarce resources must be shared.

The reciprocal arrangements are also evident through certain patterns or tendencies within sectors and according to the environmental model interlocks facilitate "contacts for goods, services, and sales from other companies" (Koenig, Gogel and Sonquist, 1979:178). In such a situation, an interlock constitutes an important link between two (2) trading partners, and, on the collapse of the link, the link or connector is immediately replaced. Where the first type of arrangement was collusion-based, the second implies supply chain arrangements (such as vehicle manufacturers and dealerships) which are of mutual and reciprocal benefit.

Companies create links by means of strategic and tactical arrangements to facilitate their dependence upon one another for access to valuable resources. With directors sitting on one another's boards, the companies will provide access to the details of their financial position and operations. Information will be shared, and this may lead to the allocation of resources in favour of the interlocking companies.

2.15.4 The class hegemony model [8]

The class hegemony model developed its earliest roots from Marx and Lenin and was expanded upon by an Italian Marxist, Antonio Gramsci, in the 1920s and 1930s. Berle and Means (1932) saw the class hegemony model as power concentrated within leading circles; the power wielders sharing similar views and controlling the large companies in society (Martins, 2008). From a Marxist perspective, the hegemony model is explicitly about class, as postulated by Bazerman and Schoorman (1983). The notion of hegemony represents a synthesis of the control and reciprocity models. A new interest in the class hegemony theory emerged in the late 1950s amongst sociologists and economists. In this model, the interests of a social class, families, or individuals are served. The hegemonic model adopts the view that organisations do not act as agents of institutions but would rather act as the agents of families, of individuals or of a specific social class. This results in an elite class who controls companies, a class with considerable influence, while the companies have control over

[8] This is also sometimes referred to as the upper-class cohesion or network control model.

certain resources that can considerably influence suppliers and clients. The exceedingly dominant interests of the elite play an integral part in the selection and appointment of directors. In terms of status and social influence, the right people must be chosen for these roles. These directors must then also preferably be representative of the elite business circles and can channel, direct or influence the business decisions of the company boards on which they serve.

The system of social relationships among directors can be visualised as a classic network through which information and interactions flow. Koenig and Gogel (1981) described the network as “a sense of group consciousness” which exists among these interlocking directorates. Koenig and Gogel’s views (1981) were supported by Useem (1982) who contended that interlocked directorates form to protect the interest of a social class. Fennema and Schijf (1978:307) wrote: “Interlocking directorates is not a phrase, but it points to a solid feature of the facts of business life, and to a sociological anchor of the community of interest, the unification of outlook and policy that prevails among the propertied class.” The interlocks between companies and shared board seats create this dominance and supremacy of both the companies and the directors involved. This could also be true for management, depending on the control relationship between management and board.

Boards also assist in the creation of processes for the company to achieve its goals. Interlocks do not only assist companies in obtaining valuable and strategic resources. Pfeffer and Salancik (1978) argued that, by means of the manipulation of the accessible resources, interlocks create a platform or even a conduit for interlocking directorates, enabling some companies to exercise control over other companies. Useem (1982) saw companies as using interlocks to their own advantage in mitigating threats or uncertainties. Although Marx suggested that there would be a tendency for consolidation of capitalist class power through formal mergers rather than through this kind of interlocking, interlocking directorates are also sometimes studied from the intra-class perspective where individuals within the capitalist class have similar interests. Useem (1982) quotes an earlier study of Mace (1971) who observed a group of prominent companies whose executives created some form of a Roundtable. In pursuit of these, or their similar interests, interlocks are formed and Mizruchi (1989) therefore argued that interlocking directorships are used to protect class interest.

As the corporate elite have control over property-related investment decisions, they have significant influence over a company’s strategy and direction. Davis (1994:218) was in support of this notion, arguing that, as they exist on a higher social stratum, the corporate elite can even influence the direction of an entire economy.

2.15.5 The multi-level rationality model and the causes for director interlock

The multi-level rationality model seeks to be an enhancement to our understanding of governance models. This model may be superior to the models discussed before, as it seeks to describe all possible interpretations of interlock. The previous models had the following limitations: firstly, they relied on a secondary analysis of existing patterns of interlocks to explain their existence, secondly, they relied on rational considerations with the actor as being central in the decisions, and to explain 10 patterns of interlock without considering the complexity in the decisions involved to engage in an interlock and thirdly, they focused on the company as unit of analysis. A better understanding of all the levels involved is needed. For example, the individual director has to make a conscious decision to agree and commit to the interlock, the companies involved have to go through a structured process to form the interlock, and society creates a conducive environment within which the interlock is concluded (Bazerman & Schoorman, 1983).

The multi-level rationality model attempts to consolidate the multiple interpretations of interlock. Bazerman and Schoorman (1983) said it is only possible to understand why interlocks form if the formation is approached and the decision to interlock is examined from the angle of the interlocking director, the interlocked companies and the society which creates the operating conditions and environment within which the actors act. Bazerman and Schoorman (1983) believed that each of these actors makes an implicit or explicit decision to engage in the activity to interlock. These authors were supported by Mizruchi (1996), who regarded interlocks created by directors serving on multiple boards as powerful indicators of network connections between companies. The same authors also advanced a utilitarian argument that directors are only engaged in interlock if this participation will create a net benefit for society at large. The roles of the three (3) players are discussed next.

2.15.5.1 The participating director and considerations for engaging in interlock

Companies cannot function independently from the directors who decide to participate in the interlocking arrangement for their own net gain. According to Bazerman and Schoorman (1983), several of the considerations for engaging in interlock have been previously ignored. They believed that the first consideration is director benefit where the individual will decide to serve as a director for the prestige it holds, for the power and for the additional financial reward which will (presumably) be linked to the position. Accepting the position is an indication of the value of the individual in the business community and a public statement of his or her worth, providing more power as the individual gains access to, and control over more resources. The director and his [her] family are also elevated in society by the associated prestige of the board appointment. Bazerman and Schoorman (1983) believed that there is associated cost arising from a board appointment, such as the time such a commitment would require, and the legal cost should such a commitment and fiduciary duty not be fulfilled or be violated. In addition, there could be reputational cost that could be damaging if associated with the wrong board or a failing one.

2.15.5.2 The interlocked company and considerations for engaging in interlock

Companies, according to Bazerman and Schoorman (1983), have historically operated as the actors who decided to engage in an interlock, but the costs and benefits of why they decided to do so might not have been considered. These researchers assert that while reducing uncertainty as the main benefit, such an arrangement also creates the potential for horizontal coordination, vertical coordination, coordination of expertise and reputation. When competing companies interlock horizontally, they gain advantages through communication regarding, advertising, pricing and research and development, amongst other advantages. Vertical integration between suppliers and customers may result in less uncertainty through, for instance, better prices, more favourable payment terms, or more efficient delivery cycles and schedules. When acquiring an outside director, such an actor could reduce uncertainty and bring valuable technological and/or financial expertise to bear, such as knowledge about how to successfully deal with the government and public sector. Bazerman and Schoorman (1983) argued that a company’s reputation can be affected by the individuals who sit on its board. The selection of high calibre directors could, for instance, be an indication of a company’s drive towards social responsiveness and social responsibility. These authors asserted that engaging in interlock does come at a cost as a certain amount of autonomy and flexibility is lost. This may very well have legal implications that could result in associated costs, as anti-trust laws could potentially be violated.

2.15.5.3 The society within which the interlock occurs

Although directors and companies are the critical actors in any interlock, society creates the external context within which the perceived beneficial engagement of the interlock is created. So, while the thesis that "Power tends to corrupt, and absolute power corrupts absolutely" may be widely held, there is an equally strong antithesis that society does benefit from interlocks amongst others from their influence on the creation of a stable supply of consumer goods and the creation of production efficiency (Bazerman & Schoorman, 1983). Marxists and neo-liberals might agree with this notion. After all, the power concentration from a social perspective of restricting competition needs to be guarded. Bazerman and Schoorman (1983) asserted, however, that vertical interlocks may reduce the uncertainty of inputs, ensure an uninterrupted supply process during critical shortages, and stabilise the consistent delivery of a finished product. They argued that an interlock with a financial institution might also ensure stability during a financial crisis.

These authors posited that there is a societal cost to interlocks in that they may be to the benefit of the directors and companies, but to the detriment of the consumer. Interlocks' benefits to society seem limited and theoretical, while the costs seem real. Bazerman and Schoorman (1983) asserted that the initial impact is on free market conditions due to the restraint of trade and competition. This affects the consumer who pays this societal cost in the form of higher prices for goods and services. These authors stated that interlocks create a potential oligopolistic economy in which goods or services are sold at a higher price and that vertical interlocks might induce favourable treatment of companies in the form of product, resource availability and pricing. The impact results in unfair restrictions and a possible uncompetitive environment where opposing companies might be forced out of business. Although, interlocks are prohibited by law in some jurisdictions, they still occur because of the perceived benefits that will be created by their existence, and by the perception that the gains would exceed the potential liability.

The five (5) models discussed thus far are not mutually exclusive. Indeed, Koenig and Gogel (1981) consider them as complementary. Based on the discussion above, all the models are to some extent combined in Bazerman and Schoorman's multi-level rationality model. These authors argued that the minds of directors are influenced by two (2) factors: a) the actual state of the company (especially its financial state); and b) some sort of collective perception, a "shared consensus" influential members of the business community, especially fellow directors. And from this, it stands to reason that the normal day-to-day interactions of directors are important. When these directors are interlocked, these interactions are all the more important. These interlocked networks represent a social structure within which the decisions of managers and directors are embedded. As Ward and Feldman (2008) note: individual decisions are influenced and constrained by personal social relations with other actors and institutions in the environment within which they are embedded. In a sense an element of group-think emerges in which directors may make very different decisions in their network than they might outside of it (Landefeld & Cheung, 2004).

This group-think may of course have either constructive or destructive consequences. Certainly, limiting the personal relationships between directors in networks and especially interlocking networks seems likely to affect the functioning of boards. For one thing, companies are dependent on their environment for access to important resources and relationships between directors (and especially interlocking directors) may be vitally important for co-opting important external role players with certain skills. Furthermore, close personal relationships are the conduits through which important information can be exchanged. On the other hand, it could potentially lead to a type of inbreeding as the collective thinking of the group could supersede individual thinking. By means of the interaction and exchanges within the networks in which they are embedded, directors fulfil their board functions.

It would, however, appear that there are two (2) overarching governance meta-models that emerge: a control model and a reciprocity model. That is, the connections either provide a conduit for control to be exercised, or they provide a basis for reciprocal benefit. In 2003, Hung (p61) refined his earlier typology (1998) in what he called a duel network model based on two (2) approaches. Hung labelled these approaches the “Inter-organisational coordination” approach and the “Intra-class cooperation” approach. Ward and Feldman’s classification followed in 2008 and they expanded on Mizruchi’s, Bazerman and Schoorman’s, and Hung’s work. These authors’ research on how membership in the corporate elite network is gained and retained is divided into two (2) theoretical viewpoints: the inter-corporate and intra-class perspectives.

2.16 CONSEQUENCES OF INTERLOCK FOR DIRECTORS AND COMPANIES PERTAINING TO THE FIVE (5) GOVERNANCE MODELS

2.16.1 Intra class cooperation approach or intra corporate rationale

From the four (4) initial governance models that were discussed, the class hegemony and the environmental or resource dependency models would be incorporated into the first of the two (2) overarching meta-models, the reciprocity model. Useem (1984) saw the reciprocity model as the social, political and ideological coordination of the corporate elite and Hung (2003) pointed out that the reciprocity model uses the corporate elite as the unit of analysis. The reciprocity model then incorporates both the work of Hung (2003) who calls his approach the intra-class cooperation” approach, while Ward and Feldman’s (2008) intra-corporate rationale includes career advancement, social cohesion, strategic intent and three (3) corporate strategies (co-optation, contracting and coalescing) as well as the exchange of information and expertise, coordination and director benefit.

The role of career advancement can be studied from an individual (or director) perspective as well as from a company perspective. The assumption is that boards employ skilled individuals who join a board for the financial benefit, the prestige, the contacts and the potential opportunities that it will create (Zajac, 1988). From a company perspective, in a 20-year study of large Dutch companies, Stokman (1988) concluded that director appointments are made to gain access to the greater skill and expertise of a small number of individuals. Zajac (1988) expanded upon this notion, stating that this small number of individuals are chosen for the potential resources and access to the resources they might bring. Useem (1982:115) contributed by positing that companies prefer to appoint directors with prestige, such as CEOs of other organisations. Directors are required to know the business environment and the specific industry which would enable them to advise and provide strategic input and direction. Moreover, these directors must be reputable and "good citizens."

Mizruchi (1996) was of the view that social cohesion exists between companies themselves and that this creates unity. In this respect, Allen (1974) explained that companies function in a larger environment of other companies within the business environment and it is assumed that they are to an extent dependent on one another. Allen declared that this interdependence is displayed in the sharing of resources and directors by virtue of mutual connections forming the basis of the inter-organisational theory. Allen (1974:393) perceived interlocks as "partial evidence that contemporary industrial society is dominated by a coherent and cohesive economic elite", positing that inter-organisational elite co-optation is an attempt to decrease or anticipate uncertainties in the environment. This is affected by means of director interlocks which controls the relationships a company have with other companies. Mills (1956) viewed interlocks as social connections among members of an upper class. Useem (1982), on the other hand, described interlocks as "elements of capitalist class integration", which is constituted by intra-class social connections made up of an elite which shares the same social relationships. Inter-dependent companies adopt various strategies, according to Allen (1974), to mitigate, minimise or manage uncertainty in their environments.

Board appointments with a strategic intent ensure that companies are furnished with directors who possess relevant strategic knowledge (Carpenter & Westphal, 2001). Of importance here is the strategic context of their social network connections and not simply the number of connections. Carpenter and Westphal (2001) asserted that these connections have an important influence on corporate governance and that network connections influence a board's, and the individual director's, ability to contribute to the strategic decision-making process. These authors further found that the ability of the board to monitor activities, or to provide strategic direction is not affected or influenced by the number of board seats held by their directors on other boards. Two (2) opposing strategic viewpoints are proposed by Devos, Prevost, and Puthenpurackal (2009) as to why interlocking of boards may exist. These authors' first viewpoint links to the resource dependent theory which claims that environmental uncertainty is reduced by linkages created by directors who are interlocked. Their findings are further reinforced by conclusions from similar research undertaken by Richardson (1987) and Mizruchi and Stearns (1988). There are, however, conflicting viewpoints and contradictory research to indicate the circumstances under which interlocking is most likely to occur. One example of such a conflicting viewpoint is that of Fich and White (2005), who found that interlocking can only occur on boards where the directors hold a number of different board seats, adding that quality CEOs will be sought after to serve as members of other boards as well.

The primary motive for interlocking is, in the view of Allen (1974), the exchange of information and expertise between companies. In his opinion, interlocking provides stability to companies which are, to a certain extent, dependent on communication and interaction between themselves and others via their shared directors. These directors often advise companies on their relationships with the external business environment and trading conditions. Selznick (1957) said that directors represent and reflect the reputation of the company on the board of which they sit and Useem (1984), Haunschild and Beckman (1998) and Davis (1994) stated that interlocks are a source of information about business practices. Selznick refers to Useem (1984), who believed directors are chosen to become board members based on their reputation. Reputation can be perceived either positively or negatively, depending on the individual and circumstances. Davis (1994) referred to Zeitlin, who, as far back as 1974, found that when directors serve on more than one board, they are more likely to be nominated to serve on another board. The reputation and legitimacy that comes with these directors reside in the fact that they are well known (Useem, 1984) and that they will most likely be from what Mizruchi (1996:284) calls an “upper social stratum.”

When companies decide to engage in an interlock, there will be certain costs and benefits associated with this action. Bazerman and Schoorman (1983) asserted that, while reducing uncertainty is the main benefit, such an arrangement also creates the potential for coordination. This includes horizontal coordination (across industries) and vertical coordination (within the same industry), as well as coordination of expertise and reputation. Although directors and companies are the critical actors in any interlock, society creates the external context within which the perceived beneficial engagement of the interlock is created. The benefits of these interlocks are many, such as the creation of a more stable supply of consumer goods and production efficiency (Bazerman and Schoorman, 1983). Bazerman and Schoorman (1983) also asserted that vertical coordination may reduce the uncertainty of inputs, ensure an uninterrupted supply process during critical shortages, and stabilise the consistent delivery of a finished product.

2.16.2 The inter-organisational coordination approach or intercorporate perspective

Bazerman and Schoorman (1983) theorised that an interlock with a financial institution, a form of horizontal coordination, may ensure stability during a financial crisis[9]. From the initial four (4) governance models that were discussed, the management control and the financial control models would be incorporated into the second of the two (2) overarching models, the control model. The inter-organisational approach uses interlocks as indicators of corporate control, intercorporate cohesion or community of interest, and also as a form of inter-organisational resource dependency (Mizruchi, 1996). The unit of analysis for this approach is organisations.

Studies by Koenig and Gogel (1981); Mintz and Swartz (1981a); and Useem (1982) placed the focus on the formation of inter-corporate relationships. The next consideration combines the work of Bazerman and Schoorman (1983); Mizruchi (1996); Useem (2006); and Ward and Feldman (2008) into the inter-corporate perspective. Where the intra-corporate or class perspective is that of the director of a company, the inter-corporate perspective focusses on the potential actions of companies. In this case, the companies, and the networks to which they belong, form the units to be analysed. According to Hung (2003:47), any company will interlock with any other company through its directors, if the interlocks add economic or strategic benefit to the company. These include collusion, ownership control, co-optation as well as monitoring and legitimacy. Mizruchi (1996) and Ward and Feldman (2008) expanded on the four (4) components of the inter-corporate rationale, the first of which is collusion. Before the 1914 Clayton Act in the United States of America[10], no prohibition was placed upon the number of interlocks allowed, or indeed the number of parties in an interlock. Mizruchi (1996) pointed out that shared directors were particularly common in the financial sector. Mizruchi and Koenig (1991) opined that interlocks facilitated communication between competitors, and that this could potentially result in collusion. Koenig, Gogel, and Sonquist (1979) and Burt (2006) argued that interlocks between competitors could potentially restrict competition. These authors believed Section 8 of the Clayton Act of 1914 was indeed enacted to prohibit interlocks between companies that compete in the same markets.

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9 This links to the financial control model.

10 Section 8 of the Clayton Act of 1914 sought to prevent anticompetitive practices.

Despite these prohibitive measures, Mizruchi (1996) listed several price fixing scandals in which interlock featured, and he asked the following two (2) questions: 1) were the interlocks motivated by attempts to collude? 2) Did the interlocks contribute to or facilitate such collusion? To prove that no conclusive answers stemmed from the studies, Mizruchi (1996) listed the work of Pennings (1980) and Burt (1983) in this regard. This author referred to Carrington's 1981 study which investigated Canadian companies, the findings of which suggested that some interlocks might indeed have been established to restrict competition. Conflicting results within the collusion perspective suggest that using interlocks to collude with others may have either positive or negative effects. Mizruchi (1996) came to the conclusion that these conflicting findings might have been due to a lack of understanding of the process and supported his statement by quoting Pennings (1980) and Burt (1983) who reported positive effects of interlock on collusion, whereas Fligstein and Brantley (1992) found negative effects.

The second component of the intercorporate rationale resides in the notion of control. Mariolis (1975) examined Fortune 800 companies from 1969 and found that the control of companies in the United States of America was centralised in banks. Despite all the anti-interlock legislation, Mariolis (1975) found that interlocking was most prevalent in banks and that banks were highly interlocked with other companies which also had strong interlocks. Banks displayed highly centralised positions in the network of interlocked companies. Mariolis (1975) contended that banks might be able to control companies by means of stock ownership and/or loan capital. Mizruchi (1989) extended this argument by stating that companies who have directors who are strategically placed on boards of several other companies might exercise disproportionate power, although they do not actually control the other companies directly. By embedding such a director, the bank or other investors might be able to ensure that their interests are disproportionately represented. These findings correspond with those of a recent study by Senekal and Stemmet (2014) which examined the involvement of the four (4) large banks in interlock in South Africa. It is important to note that, because banks might not typically nominate a director to represent them, instead nominating a member of its management team, this type of control will not be identifiable as interlock. If the bank insists, however, on placing a director on the board, interlock might be detectible.

The third component of the inter-corporate rationale, according to Koenig, Gogel, and Sonquist (1979) and Burt (1983), is in instances where interlocks act as a mechanism for inter-organisational co-optation and monitoring. Burt (1983) believed that interlocks between financial institutions and businesses are used by financial institutions for two (2) main reasons. Firstly, to ensure management of risk and to control the return on their investment, these institutions aim to monitor the business they have invested in or with which they are associated and secondly, to monitor the sustainability and profitability of the business. Mizruchi (1996) added that the company and its operations that are monitored could be influenced by the co-optation and could be pacified and constrained. Mizruchi (1996:274) referred to the resource dependency theory where companies would establish “certain sources to eliminate what is believed to be environmental uncertainty.” An example of this is when a representative of a bank is appointed to the board of a company which is heavily indebted to the bank. This is a mechanism that companies might use to convince banks to extend credit beyond what they otherwise would have, and it would mean that they would co-opt capital providers. Mizruchi (1996) supported a study by Richardson (1987), who posited that bankers would rather join a board when a company is in financial difficulty and their profits at its lowest. Companies use board seats as a way in which to monitor other companies. Mizruchi (1996) in his 1985 research with Stearns, was strongly supportive of the monitoring perspective. These researchers believed that co-optation and influence occur simultaneously, and suggested that companies pursue profitability by means of interlocking, stating that the strategy may or may not be successful.

The fourth component of the inter-corporate rationale is described as legitimacy. This is when a company is perceived to be strong due to the quality of the management team leading it, which convinces investors to invest in it. Mizruchi (1996:276) saw this reflected in what he called “the signal of the directors’ connections to other important organizations.” These directors act as the legitimising agents; their connections are incidental because the legitimacy that they bring makes the company, and the investment, worthwhile. According to Mizruchi (1996:276), the prestige of the “association” with the directors’ connections is also important from a shareholder perspective. Selznick (1957) and DiMaggio and Powell (1983) bolstered the view that interlocks are a source of legitimacy. The latter authors (1983) added that banks are more likely to lend money to companies perceived to be managed by knowledgeable and trusted individuals. Scott (1991) describes co-optation as “a quest for legitimacy which lies at the formation of many interlocks” and which is an attempt to gain legitimacy for the addition of resources. Co-optation provides the instrument for companies to seek and on-board credible resources in the form of sought-after directors. The examples above also indicate how the reciprocity and financial control models could benefit society at large.

While the benefits of interlocks to society seem real, the costs are equally real, as agreed by the above-mentioned authors. The initial impact of interlock is on free market conditions which restricts trading and hampers competition. This affects the consumer negatively, having to pay this societal cost in the form of higher prices for products and services. The authors further stated that interlocks have the potential to create an oligopolistic economy[11] in which goods or services are sold at a higher price. In the case of vertical interlocks, some companies might receive favourable treatment in the form of products, resource availability, and pricing. This results in unfair restrictions and a possible uncompetitive environment where competitors might be forced out of business. Although interlocks are prohibited by law in some jurisdictions, oligopolies are still informally formed due to the perceived benefits created by their existence and the resulting gains that exceed any potential liability.

Network analysts such as Granovetter (1973); Marin and Wellman (2009); and Borgatti (2009), working in the specific context of companies and their boards, based their explanation of the specific outcomes of interlock as caused by the particular kind of network or the network positions held by the various participating actors. The explanations of these authors are grouped into the following four (4) classifications: transmission, adaption, binding and exclusion.

Transmission indicate flows, such as the flow of information, to two (2) different potential points - firstly to positions that is most likely to receive these flows and secondly to the widest distribution point of the network. This includes the changing patterns that these flows would create through varying structures and different circumstances. Marin and Wellman (2009) explained that adaption will occur when two (2) interlocked directors support board decisions – decisions which they did not make jointly or simultaneously. The interlocked directors, because of their shared network positions, have the same opportunities and constraints and make comparable choices under similar or different circumstances, by virtue of the similarity of their network positions.

According to Marin and Wellman (2009), binding occurs when the internal structure of the network influences the actions or outcomes, causing the network to bind together and act as one unit. These authors theorised that when networks, and in this case boards, are internally less fragmented, closer collaboration between companies is possible. On the other hand, when networks are externally fragmented, information is not transmitted, and indirect connections potentially fail to develop. This will impact on the trust facilitated by these indirect connections. Marin and Wellman (2009) stated that, with an internally or externally fragmented structure, the industry or company can be defeated easier as it is less

11 A market condition in which sellers are so few that the actions of any of them will materially affect price and have a measurable impact on competitors.

effective and less coordinated. Marin and Wellman (2009:11) also stated that: “Exclusion occurs when the relationship of one node with other nodes is affected by the fact that the existence of one tie inhibits the existence of another.” Bargaining power increases in networks where companies have a choice between readily available substitutable partners. Marin and Wellman (2009:12) called this an absence of “immediately visible alternatives,” such as access to information, access to resources and/or bargaining power. The company would also be missing out on the potential value that a second interlocked director could have added.

Ferris, Jagannathan, and Pritchard (2003) found no evidence that multiple interlocked directors have an impact on the effectiveness of boards, while Fich and Shivdasani (2007) found that boards with directors who sat on three (3) or more other boards are associated with weak governance. Rost (2014) listed seven (7) more consequences of director interlocks. He cited the work of Haunschild and Beckman (1998) which stated that companies with director interlocks would be more likely to embark on an acquisition strategy. This author referred to the work of Palmer, Jennings, and Zhou (1993) who said that such companies would adopt a multidivisional structure. He also cited the work of Young, Charns and Shortell (2001), who indicated that these companies are likely to introduce total quality management and that the interlocks would explain similarity in political behaviour (Burris, 2005) and Rost (2014) referred to the work of Davis (1994), stating that boards have a preference to recruit new directors through social connections and that interlocks set a reference point which impact in the determination of salaries at an appropriate level of compensation for CEOs. Interlocks also assist companies to prevent a deterioration in profitability (Vedres & Stark, 2010) and are used as platforms to facilitate and channel strategic information to improve overall company performance.

2.17 INTERNATIONAL STUDIES OF DIRECTOR INTERLOCK USING NETWORK ANALYSIS

The earliest studies of director interlock were conducted in 1905 when Jeidels published his findings in what he called “Other people’s money”. This research scrutinised the personal relationships between banks and companies. Jeidels found 1350 interlocks in Germany, predominantly between the six (6) Berlin banks, their boards and rest of German industry. Mintz and Swartz (1981a) indicated that the interest was given impetus in 1913 by the Pujo Committee that attempted to assess the role of financial institutions in the American economy. This investigation, combined with other non-governmental studies, lead to the Clayton Anti-trust Act which resulted in the proscription of certain types of interlock. Allen (1974) elaborated on this and pointed out that the restrictions which were already imposed by the Sherman Antitrust Act of 1909, were then followed by the Clayton Antitrust Act of 1910, which prohibited any contractual agreement which would restrain competition. Louis Brandeis, the United States Senator and later Supreme Court Judge, followed in 1914, arguing that bankers remain dominant in the boards of companies to which they have lent money. Buch-Hansen (2014) noted that Lenin (1939) may have been influenced by the work of Jeidels (1905), describing the tendency of the concentration and formation of economic power. Legislation by the United States Congress in 1965 prohibited interlocks between competing companies.

Early reference was made to Domhoff who identified business-specific power in the form of companies that have a strong basis for cohesion in their attempts to maximise profits. The Steinhoff scandal is a good local example of this notion, Mizruchi (1982), Useem (1984), Scott (1991) and Murray (2000) were all advocates of an inner circle of individuals and what they described as a social elite with a significant concentration of power within the circle. Table 2.3 compares earlier international findings of Santella (2008), who identified interlocks for the Top 40 companies in each country. The table combines Santella's findings with the work of Cardenas (2016), analysing interlocking patterns in emerging economies for the 100 largest companies in Latin American countries in Latin America. Santella and Cardenas found the following:

Table 2.3: Santella (2008) - Comparison of number of companies, and number of interlocks, in 6 countries, including South Africa and Cardenas (2016) for 5 emerging economies in Latin America

Study by	Published date	Country	Companies included	Interlocks found
Santella	2008	United Kingdom	Top 40	30
		United States	Top 40	43
		South Africa	Top 40	68
		Italy	Top 40	84
		France	Top 40	108
		Germany	Top 40	112

Study by	Published date	Country	Companies included	Interlocks found
Cardenas[12]	2016	Mexico	Top 100	306
		Chile	Top 100	159
		Peru	Top 100	111
		Brazil	Top 100	74
		Columbia	Top 100	61

In Germany, Heemskerk (2011) found that 100% of all directors and 46% of all managers of the Top-100 companies are interlocked; and 50% of the directors sit on five (5) additional boards. In Switzerland, the average number of multiple directorships, in the Top-200 companies, amount to 4.5 (Ruigrok, Peck, & Keller, 2006). Of further interest is conflicting results in Latin America, as reported by Salvaj and Lluch (2011). These researchers compared interlocking directorates in Argentina for the Top-100 companies, banks, and all Chilean companies in 1970. In Argentina, the researchers found 63 interlocks after analysing 116 companies with 861 directors. In Chile, these researchers found 159 interlocks after analysing 165 companies and 588 directors. Table 2.4, courtesy of MacCanna, Brennan and O'Higgins (1999), contains a comparison of the number of directors and interlocks in 11 countries.

Table 2.4 : MacCanna, Brennan and O'Higgins (1999) – International comparison of number of directors and number of interlocks in 11 countries

Country	Number of directors	Number of Interlocks	Average by director
Austria	2,430	156	0.06
Belgium	2,203	270	0.12
Switzerland	2,999	514	0.17
Germany	3,943	378	0.10
France	1,931	378	0.20
Britain	2,682	37	0.01

[12] **Cardenas** studied the Top-100 companies, whereas Santella studied the Top 40 companies. Although the sample sizes differ, the results display a similar trend.

Country	Number of directors	Number of Interlocks	Average by director
Italy	1,737	272	0.16
Netherlands	2,321	380	0.16
Finland	3,110	423	0.14
United States	3,108	307	0.10
Ireland	1,751	66	0.04

2.18 SOUTH AFRICAN STUDIES OF DIRECTOR INTERLOCK USING NETWORK ANALYSIS

2.18.1 Domination by the few

In 1987, Savage listed five (5) important studies which preceded his 1987 research. These studies highlighted the concentration of power and control in companies within South Africa as well as the evolution of interlock. In the late 1970s, Tregenna-Piggott was the first researcher to investigate the capital employed by companies listed on the Johannesburg Stock Exchange between 1955 and 1974. This author found that the control of the economy by the top 50 companies progressively increased over the period in question, with the highest level of economic control residing in the manufacturing industry. In 1955, the top 20 companies in all industries accounted for 44% of total capital employed and this increased to 47% in 1974. The corresponding figures for manufacturing were 41% and 50% respectively. In the manufacturing industry, larger companies had become comparatively larger at the expense of smaller firms.

The Mouton commission investigated the Regulation of Monopolistic Conditions Act of 1955, publishing its findings in 1977. The commission investigated listed companies and reported on what it called "inconclusive and fragmented results" in its attempts to identify the formation of monopolies. The investigation indicated that in 1972, 5% of companies in four (4) sectors of the economy controlled 63% of the turnover, and that 15% of companies controlled 80% of turnover in all sectors.

Savage quoted a doctoral study by Du Plessis (1978) in which 12 105 manufacturing companies were researched. Du Plessis reported that 75% of companies controlled less than 12% of the turnover, but that, in the manufacturing industry, 332 companies controlled 50% of the turnover. By grouping the major players and analysing their stakes in manufacturing sub-industries, Du Plessis (1978) found that three (3) to four (4) companies controlled the turnover in these industries. The fourth study quoted by Savage (1987) is that of Lombard *et al*. (1984), which used gross assets of private companies as a measure of economic concentration. These authors found that in 1982, five (5) companies controlled 54% of total assets of listed companies on the Johannesburg Stock Exchange. The five (5) companies were: Anglo American, Sanlam, Barlow Rand, SA Mutual, and Volkskas. In 1984, Lombard *et al*. found that this control would increase to 80% if the following 7 companies were added to the list: Barclays Bank, Stanbic, Rembrandt, United Building Society, Liberty Life, SAB and AngloVaal. Savage (1987) also quoted McGregor on the ownership of shares of publicly listed companies in the publication 'Who Owns Whom'[13.] Over the years, McGregor's findings have been illuminating, revealing in 1983, for instance, that three (3) companies, Anglo American, Sanlam, and Barlow Rand, controlled 73% of the assets of publicly listed companies. Savage (1987) continued to quote McGregor who reported in 1985 that this control by a central group of nine (9) companies increased to 84.3%. Savage concluded that the five (5) studies provided proof of a high concentration and centralisation of economic power, again quoting McGregor's finding that the control of market capitalisation by the three (3) leading companies increased from 69.3% to 76.4% between 1983 and 1985.

In the first chapter, (1.3), the work of Durbach and Parker (2009) and their analysis of corporate board networks of companies, as listed in 2008, were discussed. Durbach, Katshunga and Parker (2013) did a study on what they called the "community structure" of the South African company network. In 2014, Pretorius conducted research on power formation in the mining sector. Senekal and Stemmet, 2014; and Williams, Deodutt and Stainbank, 2016, concentrated on power formation, within a specific sector of the South African economy.

[13] **McGregor** is an independent research organisation which researches the South African business and economic environment.

Table 2.5: Summary of historic studies in South Africa on the number of directors and interlock

Researcher	Number of directors	Number of interlocks	Ave director involvement
Cox and Rogerson (1985)[14]	1,142	757	0.66
Savage (1987)	2,254	704	0.31
Williams, Deodutt & Stainbank (2016) – Top 40 [(15)]	458	68	0.14

From the discussion thus far, indications are that the increase in network density it is not caused by director interlock, but by company interlock. In 2010, 309 of 393 South African companies were interlocked, while in 2016, 335 out of 394 companies were interlocked. That is an increase from 79% interlocked companies in 2010 to 85% in 2016. Williams, Deodutt and Stainbank (2016), comparing 2008 South African data for the Top-40 JSE companies, found 68 interlocks (Table 2.5).

2.18.2 Two (2) governance models

Cox and Rogerson (1985) and Savage (1987), have shown that there has been a high degree of centrality as portrayed by company and director interlock in South Africa's economy. Cox and Rogerson (1985) illustrated the dominance and presence of mining houses and financial institutions, especially banks, as displayed in Figure 7. With reference to the governance models associated with literature on network analysis, Savage (1973), Cox and Rogerson (1985) and West (2006b) saw two (2) models as being dominant in South African companies. The first is the control model which is also dominant in the United States and other English-speaking countries. This includes the management control model and the financial control model. The second is the environmental control and reciprocity model. In this model, the beneficial integration of shared directorships is used for the exchange of predominantly knowledge, resources and information. The typology of Bazerman *et al* (1983) has, however, shown that not only one or two (2) models should be

[14] The 1985 study of Cox and Rogerson investigated the Top 115 companies out of a total of 169 listed companies, which is regarded as a representative sample and their findings of a smaller group of companies displayed a similar trend.

[15] The 2016 study of Williams, Deodutt and Stainbank analysing 2008 data studied the Top 40 companies and not all listed companies, but their findings of a smaller group of companies displayed a similar trend.

applied in isolation, but that all the models can be used to interpret the South African economic landscape.

2.18.3 Patterns of interlock

Cox and Rogerson (1985) focussed on the concentration of power within the 11 most dominant companies in South Africa (Figure 2.7); companies that played a leading role in the country's economy. The 11 most dominant companies included five (5) banks and the authors analysed the potential shared links of directors between these companies. The 11 companies were: Barclays Bank, Standard Bank, Volkskas Bank, Nedbank, Trust Bank, Anglo American, Barlows, Federale Mynbou, Gencor, South African Breweries and Sasol. In their 1985 study, Cox and Rogerson found 2 554 directors for listed companies, of which 704 held two (2) or more directorships. They also found that this group of 704 directors shared 2 676 board seats between them. This meant that 27.6% of the group of directors held 59.1% of the board seats and that each individual in this group, on average, held 4 directorships. The authors found an average of 24.5 links which were shared between the top 11 companies. Keeping the financial control model in mind, the central position of all the major banks was evident.

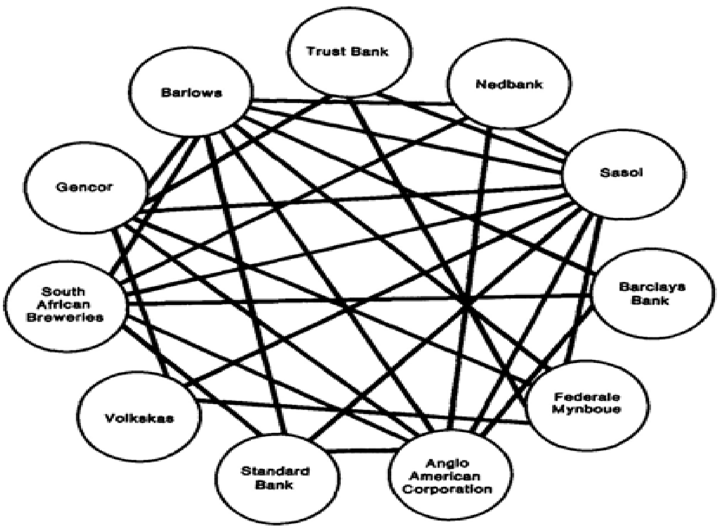


Figure 2.7: Patterns of interlock between the South African 10 largest companies (Cox & Rogerson, 1985)

Savage (1987) also noted that, despite growing global interest and research into director interlock, the trend did not continue in South Africa. This author already stated that 'the most prevalent type of interlock found, is among companies which are involved in a clique or interest group', and that such groups do exist. His analysis of the interlocks within the top 100 industrial companies indicated that 70 of them could be placed in 12 interest groups, based on the patterns of shared ownership. Savage was also the first researcher to identify the existence of cliques within the South African context and to indicate that cliques, by definition, also indicates interlock. Earlier studies indicated that this interest formation was centred on the mining houses and banks. The clear presence of director interlock within South African listed companies links back to the objectives of the study and the questions raised by Savage in 1987: what does this pattern of interlocks look like for South African companies, and how far does it extend?

2.18.4 Centrality

Following on the work of Savage, the authors Durbach and Parker (2009) analysed listed companies as extracted from the 2008 McGregor BFA database. [16] These authors found the 10 most central companies to be different from the ones Savage initially identified, although still with a strong financial services presence: Sun International, Standard Bank, Mutual and Federal, Bidvest, Imperial Holdings, ABSA, Illovo Sugar, First Rand, Aspen Pharmacare Holdings and Sanlam. The authors further found that the average South African company is connected to 5.2 others and the average director to 11.4 other directors. This is comparable with results found by Conyon and Muldoon (2006) for the United States of America, the United Kingdom and German companies, as well as results reported by Sinani *et al*. (2008) for Swedish companies.

In 2013, Durbach, Katshunga, and Parker found clustering in the following sectors of the South African economy: financial, industrial, mining, retail, telecommunication, food and beverage, real estate, and media. The only conclusion they could come to was that these clusters exist in all sectors of the economy. Pretorius (2014) was interested in the notion of power formation. He investigated what he defined as the relative central position of actors, the power or influence a central position has on other actors in the network, as well as the influence of the central position on relationships within the network. He created a visual representation of the most dominant role players, companies, and individuals in the South African mining industry, extending his investigation beyond listed companies.

Pretorius's work was followed by that of Senekal and Stemmet in 2014. These authors were also interested in central control formation and examined the South African banking director network, using social network analysis to investigate how the banking director network interlocks with the healthcare, mining, and education sectors in South Africa. They managed to show the densely connected interlocking network of directors of the banking industry, in turn interlocked with the network of directors in other industries in South Africa. Whereas

[16] Financial data and company report for South African listed, de-listed and unlisted companies.

previous studies largely indicated power formation towards the banking sector and, in some cases, the dominance of the mining sector, these authors found a shift in the sense that the healthcare industry was the closest connected to the banking industry. Senekal and Stemmet's research (2014) attempted to explain how network structure, and more specifically network centrality and social embeddedness, connect with power formation and the formation of a corporate elite. Their study revealed the high density of interlocking directorates of the South African banking industry, but without any explanation of why the network of directors of banks are more interlocked with the healthcare industry than the mining industry. With reference to the potential causes of interlock addressed in point 2.16 and a review of the historic studies of interlock in the South African context, two (2) prominent models, management control and financial control and the environmental control or reciprocity model apply to the current study.

2.18.5 The corporate elite

In accordance with the hegemony model, Useem (1984) identified the existence of a corporate or business elite. Scott (1991) labelled these corporate decision-makers as "an inner circle" which exercises power and influence over and across the entire business system. In South Africa, race also played a role. The South African network of directors was historically exclusively dominated by white directors, with black individuals unrepresented on boards until 1995 and less than a half a percent of the market directly under the control of blacks (Murray, 2000). This concentration was created on racial basis alone as a small concentration of white individuals held the majority of the shares in the largest, most dominant companies in the country. These individuals are seen by Murray (2000) as part of a South African inner circle, created through individuals that attended elite secondary schools and typically graduated from the same or similar traditional and historically white universities. Although no formal mention was made of an English Afrikaans schism in the pre-democracy period, it certainly existed. Some companies were profoundly and explicitly Afrikaans and others were English. Although not formally defined, the close ties of the Broederbond with a bank like Volkskas and a mining house like Federale Mynbou was a well-known fact.

The network of directors had often reciprocally sat on one another's boards and there was also a very clear English/Afrikaans divide. This is evident in the societal fractures that were manifest in South Africa's past and the fractures which the study revealed. These directors were regarded as having extensive business experience and holding "elite" qualifications as represented by the large number of chartered accountants (CA SAs) and/or individuals with master's degrees in business administration (MBAs). According to Andrews (2007), these qualifications are especially important in a society like South Africa's for the sense of legitimacy and prestige they bring. These qualifications open up opportunities to business networks and board appointments. Holding these elite qualifications is, in fact, a prerequisite to holding a board position. CAs are the most prevalent in the ranks of directors, with the rest of the directors holding MBAs, law degrees or engineering degrees (Andrews, 2007). CAs hold professional accreditations and membership of the South African Institute of Chartered Accountants (SAICA) which creates a platform for the formation of a social network, especially with the view of several high-profile directors also playing leading roles in such professional organisations. Similar formal and informal forums, discussion groups or associations do exist for MBA alumni, for lawyers and for engineers.

2.19 THE KNOWLEDGE GAP

From this literature review, the following knowledge gap is apparent: There is a long succession of papers in South Africa that investigated the notion of interlock. However, all of these have focussed on a single point in time, failing to recognise that circumstances are dynamic and that, inevitably, the causes of interlock will differ from one time point to the next. The most prominent models appear to be management control, financial control and the environmental control or reciprocity model. However, the typology of Bazerman *et al.* (1983) has shown that these models were relevant at different times, illustrating the dynamic nature of interlocks. No previous study has investigated interlocks with the intention of focussing on its structural dynamics.

Of interest would be whether the transformation of South Africa has led to any changes in the patterns of the structures that were investigated. It would also be of interest to understand whether the global financial crisis of 2008/2009 has had any impact on the patterns and structure of interlock. Lastly, we need to understand whether changing governance frameworks have had any impact on interlock and whether the changing economic structure in South Africa influenced the formation of pattern structures at all.

Previous studies on interlock suggested changing reasons for the interpretation of its causes and consequences. This in and of itself is indicative of the dynamic character of interlock, something that was largely left untouched by previous research. Ironically, transformation is by definition dynamic, suggesting a marked change in nature over time. Previous studies on transformation have suffered from this lack of consideration of dynamism. A long progression of researchers has compared interlock patterns between jurisdictions. However, most of the research related to developed countries, with a distinct lack of comparative research relating to South Africa.

In chapters one and two (2), the phenomenon of director interlock and arguments in favour of its beneficial contributions were highlighted, while arguments for the detrimental effect of director interlock were also presented. It is evident that the topic is still fiercely debated, and a significant gap in the knowledge about this phenomenon is that no conclusive outcome was ever reached. This study provides evidence to show that the value of interlock depends on the way in which the practice is applied.

2.20 CONCLUSION TO THE LITERATURE REVIEW

In this chapter, the importance of social relationships and individuals' embeddedness in social structures was explained. The exchanges that take place between people and the evolution of the exchange theory was explored. However, it became clear that, to reveal the patterns of connections which exist in relationships, there must be an inclusion of exchange theory, related to an individual level model - that of the actor. The pattern of the relationships as represented by the connections between individuals and the detail of the network structure is of interest in the current study. This will contribute to provide an improved understanding of the social networks of listed companies and their directors. The revelation of the pattern of connections can be achieved using social network analysis. Social embeddedness and the related network embeddedness reveal themselve in the existence of these connections, and interlocks also act as indicators of network embeddedness. From this embeddedness, the structural processes and the relational connections that influence the formation of networks were explained. The unique characteristics or structural properties which are normally found within networks were discussed, leading to the question whether a pattern of director interlock in South Africa exists, and if so, how it has changed. While causes and consequences of director interlock were explained in Chapter 1 (Section 1.2.1), it was further elaborated on in Section 2.16 of the current chapter, clearly indicating both the potential benefits as well as disadvantages of director interlock which provided the framework for this study. With South Africa's transformation agenda in mind, it would be important to understand whether and to what degree power formation and an elite group exist in this country. The methodology for this study is addressed in the following chapter.

CHAPTER 3 - RESEARCH METHODOLOGY

3.1 INTRODUCTION

The collection and analysis of social network data and efforts to combine content and methodology remain a challenge, as it involves theoretical as well as empirical problems. This has stimulated much research in the past. Duijn and Vermunt (2006) believed that a social network perspective provides the theoretical framework for data collection and simultaneous data analysis. The approach that was followed in this study is inductive which means that the researcher investigated the collected data for a pattern or patterns of meaning aligned to the purpose of the study and based on the revelation of the change in the structure and pattern of the networks concerned.

This study addresses the following basic elements: Firstly, it statistically characterises the structure of the South African network of listed companies and their directors in 2010 and in 2016. Secondly, it compares these structures with a view to noting changes and characterising key structural dynamics. Thirdly, it compares these structures with structures described in earlier network studies to further deepen the understanding of structural dynamics over a longer timeframe. Finally, it comments on the causes and consequences of these structural dynamics.

From the literature review and theories presented, two (2) dimensions of the interlock came to the fore. Firstly, the character of the relationship that revolves either around control, or reciprocity. Secondly, the various groups (classes) that are involved. To understand and interpret the networks it was also important to comprehend what network components were included, and on what level, and how they were measured. In support of Butts (2008), the networks that were studied were a construction of companies that were interlocked through directors of listed companies.

Butts' approach is deemed suitable as it applied to an organisational and small group study comprising of the South African listed companies on the Johannesburg Stock Exchange and their interlocked directors. To address the research questions, I started out by including the companies and their directors and applying social network analytical tools to the examination. This was made possible by an empirical methodology and analysis of two (2) sets of databases of directors of South African listed companies through a Social Network Analysis to reveal the graphical representation of the director interlock of directors and of the listed companies in South Africa. I subsequently compared the pattern that arose from the analysis to historical patterns as reported in South Africa in the past as well as to previously reported global patterns.

The graphical display visualised as sociograms for 2010 and 2016 were completed and three (3) indicators of network centrality were computed. Degree centrality which measured the number of ties or connections of a company or director had with other companies and directors. Closeness centrality which measured the distance of companies or directors, to other companies and directors in the network. Closeness centrality is an indicator of the closeness of that company or director to other companies or directors within the network and betweenness centrality which measured the centrality of the companies and directors and the extent to which the companies or directors connect to other well connected companies and directors in the network. To enable a meaningful comparison to other global and local studies both data sets, for 2010 and 2016 were reduced to a manageable and comparable size. The researcher ranked the data by using firstly, the computed degree centrality scores, then the closeness centrality scores and lastly the betweenness centrality scores, of the top 40 companies and directors for the 2010 and 2016 networks. Williams, Deodutt and Stainbank (2016) performed a similar ranking based on the economic landscape in 2008 and any change in the ranking position from 2008 and the findings of Williams *et al*. (2016), to the current 2010 findings and to 2016 findings, were documented. The data sets for all the interlocked companies and interlocked directors for both 2010 and 2016 are fairly large and previous studies, of which the study by Williams *et al*. (2016) is a good example, only focused on a certain portion of the network. To enable any meaningful comparison the rest of the observations and analysis, and by following the inductive approach, the comparisons were reduced to the top 40 ranked companies and directors, based on their computed centrality scores.

The top 40 ranked directors were then coded by race and gender, and the observed change in the diversification with regards to race and gender from the 2010 network to the 2016 network were documented. The changing elite was categorised as the ultra-elite (ranked positions 1-10), the very elite (ranked positions 11-20), the elite (ranked positions 21-30) and the fairly elite (ranked positions 31-40). The observed changes in the demographic make- up of the elite (ranked positions 1-40) from the 2010 network to the 2016 network were documented.

3.2 SOCIAL NETWORK ANALYSIS AS RESEARCH METHODOLOGY

O'Malley and Marsden (2008) defined a social network as constituted by actors, with the actors represented by nodes. The social network includes the relationships or ties between the various actors. In line with Martinson and Campbell's research (1979), this study focussed on the revelation of the structure of such a network and of the patterns of ties created by social entities - in this case, the companies, and directors on their boards. The study also investigated the possible impact of the structural properties representing the characteristics of the network. To accomplish this, the analysis is divided into two (2) sections. One section focuses on companies as nodes, while the other section focuses on directors as nodes.

The chosen social network analysis technique evaluated all the relationships and the network itself, including the shared board seats as social ties. A social network analysis provided the empirical tool to identify all actors involved in the network, revealing the structure and pattern of the network of interlocked companies and directors. However, this will still only be a partial disclosure of the real interlock. The unique network visualisation of the analysis displays network connections and creates some visibility into the dense, previously unknown, and difficult-to-interpret relationships.

3.3 THE RESEARCH UNIVERSE AND BOUNDARY SPECIFICATION

Butts (2008) and Heath and Fuller and Johnston (2009) acknowledged that the key challenge in a social network analysis is the establishment of network boundaries. In this study, two (2) approaches for setting the boundaries were applied. The two (2) approaches are described by Scott (1988, 1991); Wasserman and Faust (1994); Hatala (2006); and Duijn and Vermunt (2006) as the realist approach and the nominalist approach. Marsden (1990) explained a realist approach as based on subjective perceptions and a nominalist approach which takes an observer standpoint. Duijn and Vermunt (2006) favoured realist strategies where the individuals would enforce the boundaries themselves and (2006:650) "where actors and their relations are included or excluded to the extent that the other actors judge them to be relevant". This study is constrained in that it presents only ties, and it does not address or investigate the qualities of the social relations.

In nominalist strategies, on the other hand, the researcher establishes the boundaries by imposing a conceptual framework that provides the theoretical purpose. From a realist point of view, membership of boards of South African listed companies was used to reveal ties (interlocks). From a nominalist point of view, the boundaries were set as comprising of companies listed on the Johannesburg Stock Exchange for 2010 and 2016, and the directors who served on their boards.

The decision to constrain the research to directors of listed companies was based on work of Marin and Wellman (2009:2) that identified two (2) possible approaches. The position-based approach considers those actors who become network members by virtue of their membership of a company in specifically pre-defined positions, such as directors who were elected to the board. The relation-based approach starts with a small set of nodes which form part of the population of interest, expanding to include other nodes which were added before and that share similar relations with the initial nodes. The directors in the network are analysed together with the respective boards on which they serve and the seats on other boards which they occupy mutually or reciprocally. The said approaches were deployed with two (2) objectives in mind: firstly, to identify the directors who serve on the greatest number of boards and to establish which directors among themselves had the most ties. (Both the positional and relational approach relates to structural and relational embeddedness which were discussed during the literature review, point 2.3.) The relational-based approach was also applied in trying to identify the existence of a corporate elite and to identify the possible rise of an upcoming black elite.

Following the approach by Butts (2008:17), who stated that it is “vital to define the network boundary in a substantively appropriate manner”, it was important to define the exogenous boundaries. It was important to include substantive theory which assisted with the incorporation of the fields that were relevant and therefore marked for investigation, that is, ties between directors who mutually sit on company boards. In this study, group membership and the interaction between the directors of listed companies as represented by the interlock were clearly defined. The interaction and relational ties concluded the relational boundary. The network boundary was defined by the research methodology and the social analysis which was used to identify the network to be studied. Butts (2008) regarded this approach as being sufficiently substantive to justify the study of these ties.

Marsden (1990) added that it is important to understand who is included in the network and who is not. Although only part of the social ties is known, it was also important to understand which of the directors in the network have social ties to others. He called such gathering of data egocentric because it involves individual directors. A similar approach to that of O’ Malley and Marsden (2008) was followed, defining the selected closed population and the rules to define which actors will be included and which will be excluded. In this study, the theoretical population was selected to include South African listed companies and the directors who occupy seats on their boards. In this research, defining which entities to include was limited to two (2) time slices. The data for listed companies in 2010 and 2016 contains the names of directors who occupy seats on their boards (Heath et. al. 2009). The patterns that were revealed in this data disclose the nature of the ties between the directors and their boards.

3.4 DATA GATHERING AND EXTRACTION

Once the boundaries were defined, and in line with Coviello (2005) and Hatala (2006), the following considerations for gathering data were considered. The time that was needed to complete the analysis had to be considered and the duration of the analysis had to be catered for. The data was publicly available and therefore readily accessible. The data sets were extracted, both mid-year, from two (2) sources: the 2010 data from the internal database of the Johannesburg Stock Exchange, while the 2016 data was based on an extract from the INET BFA[17] data base. The two (2) datasets were selected to coincide with periods which occur shortly after times of financial turmoil or contracting of economic growth, where, in line with global trends, financial consolidation and a possible decline in economic activity and board sizes of companies would be expected.

The data for both datasets was received as Excel files, but upon inspection, it was found that several initials were missing or incomplete. This added complexity to the identification of directors. It was necessary to manipulate the data to render it meaningful and as a result, over 800 of the records and entries had to be validated and verified. The data was examined and cleaned manually by removing duplication and by then standardising the data format to initially read just the surnames and only then the initials or names. To enable a further analysis on the progress that was made, and with the transformation agenda in mind, the data was manually coded to separate previously disadvantaged individuals by race and by gender. The group that was regarded as previously not disadvantaged was similarly coded. Durbach and Parker (2009) and Durbach, Katshunga and Parker (2013) experienced comparable problems when utilising an inventory of director listings. Finally, the data was transferred to a database that was re-created as part of the SAS software application, Enterprise Guide. ©™.

3.5 DATA ANALYSIS AND SOFTWARE APPLIED

The feasibility of the social network analysis is, according to Duijn and Vermunt (2006), dependent upon the choice of the correct software application. Historically, software applications analysing the quantitative and individual or attribute-based alliances do not usually make use of individuals as their units of analysis to complete relation-based analyses. Social network analysts have developed several software applications to analyse social network data, and the application that was used, Enterprise Guide®, was obtained

[17] INET BFA is the pre-eminent provider of stock market, fundamental research data and news to the Financial sector and the corporate market at large.

through Statistical Analytical System (SAS). The final analytics and spatial manifestation were performed with SAS Analytics Pro®.

Since the data sources in this research study were large and complex, the majority of statistical software products were not able to optimally store, process and manage the information. SAS Enterprise Guide® and SAS Analytics Pro provided the integrated software platform for optimal data reading and transformation. The analytical tool, SAS Analytics Pro, facilitated information storage and retrieval and provided the basis for the statistical analysis, report writing and visualisation. A combination of Base SAS®, SAS/STAT® and SAS/GRAPH® provided an alternative to mixing and matching software packages.

SAS Enterprise Guide® catered for the graphical interface which made provision for the inclusion of a range of data fields, enabling the simultaneous analysis of interlocked companies and directors. Through the simulation of the network of interlocked directors of listed companies for 2010 and 2016, and by using SAS Analytics Pro, a similar approach to that of MacCanna, Brennan, and O'Higgins (1999) was followed to see how many companies and directors were involved in interlocks. The SAS query that was written for the analysis consisted of several procedures, a copy which is attached as Appendix 4.

3.6 METHOD OF ANALYSIS

An inductive approach was followed as described by Thomas (2003) as this approach provides a systematic set of procedures for analysing qualitative data that can produce reliable and valid findings, and basic steps were followed. Once the SAS software was applied as described above, clear links were established between the research objectives and the summary findings derived from the data. The aim was to ensure that the links were transparent and would enable the researcher to demonstrate the change in the structural patterns of the networks and that this would be defensible and justifiable against the objectives of the research.

Having accepted that director interlock is identified by Martinson and Campbell (1979:476) as a "socially meaningful relation," it was essential to pinpoint the patterns arising from these relations. Social network analysis as research method reveals these patterns; Martinson and Campbell (1979:477) named the technique for the analysis "a branch of mathematics" represented by graph theory which links "abstract properties of sets of distinct points" by means of a line. O'Malley and Marsden (2008) developed this technique and deemed directors to be social entities (actors) represented as distinct points or nodes. The "meaningful relationships" joining companies (boards) and directors [nodes] using lines are the director interlock, which then creates the mathematical models of an empirical social system and the relations or “linkage patterns”.

In the analysis of the network as represented by the directors of listed companies and the ties or interlock between them, the following approach was used: using graph theory, visibility was created of the mathematical model of the social network. It was firstly made possible by the application of descriptive methods which, according to Duijn and Vermunt (2006), are the graphical representations of the network of ties between the directors and the network data assisted to provide a summary of theoretical and structural components. The analysis was based on a breakdown of the data and subsequent creation of the adjacency matrix. SAS Enterprise Guide was applied to make calculations of the data. The basis for this analysis was the presence or absence of a relationship which created the network of ties. This made the display of the network structure visually possible in the form of a graph. Originating from mathematical graph theory, the mathematical representation is expressed through what Martinson and Campbell (1979) called the adjacency matrix or the “reachability matrices” of the graph. This matrix is represented by “meaningful ties”, in other words, the interlock and the length of the respective paths or links between these directors and their relationships. In this way, by using what Martinson and Campbell (1979) designated “graph theorems and matrix manipulation techniques”, the unique position of each company and the interlocked directors could be determined. An example of such a matrix is presented in Figure 3.1.

	A	B	C	D	E	F
A	-	1	1	1	1	
B	1	-		1	1	
C	1		-			1
D	1	1		-		1
E	1	1			-	1
F			1	1	1	-

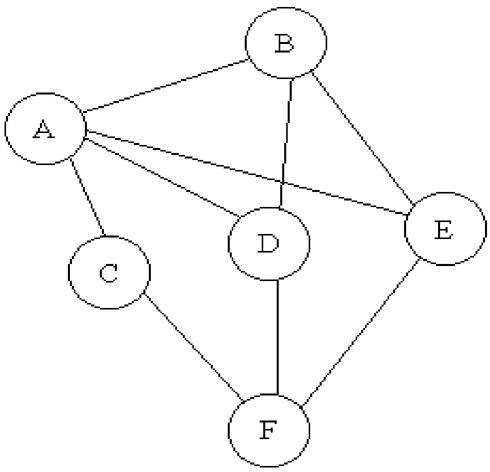


Figure 3.1: Diagram Source: Internet– example of an adjacency matrix

Example of an adjacency matrix [online]. Available from: < https://www.google.co.za/search?q=picture+of+adjacency+matrix&rlz=1C2CAF>

The network was further analysed using statistical models which use probability distributions as well as through the identification of the spatial manifestations as represented by pattern of the ties between the directors. From graph theory and the adjacency matrix, visibility of the structure and pattern of the networks were created through sociograms. The degree to which directors are related, or connected, either through the absence, or presence of a relation, is termed a sociogram. Through the dissection of the sociograms, visibility was created of the individual relational ties, the actual interlock, by means of bipartite graphs. Through these representations, the logical implications of interlock were made visible. The method used to create and visualise the ties of the relationship between the individual directors is known as sociometry. Conway (2014) credits Moreno (1934) with the first attempts to create visibility in social networks by hand drawn depictions; the first sociograms. In the current study, the sociograms were representative of datasets for both 2010 and 2016.

It was explained before that the entire web of connections, the sociogram, creates a complex and dense system of links and interchanges. For Durbach and Parker (2009), the links and interchanges were the companies and directors representing the respective nodes in the network. The social relationships are represented by the lines, while the lines also depict the interlock. A director-centric network can be observed when the nodes represent the individual directors connected through interlock. A company-centric network can be observed when companies are regarded as the nodes, connected because of sharing common directors. In this study, both the company- and director-centric networks were analysed.

To complete the analysis, the sociograms had to be dissected in more detail and visibility was created by means of bipartite graphs. Durbach and Parker (2009) explained that, in Figure 9, the red nodes represent the directors, while companies are represented by the blue nodes. The red nodes, or directors, are connected through ties, which are indicated by the black lines. When the red nodes (the directors) and the blue nodes (the companies) are displayed on one graph, it is known as a bipartite graph. Figure 3.2 shows an example of a complete bipartite graph, illustrating how the nodes (directors in red and companies in blue) are connected through the black lines, which are representative of the interlock. In simple terms, a bipartite graph is a consolidation of director- and company-centric sociograms.

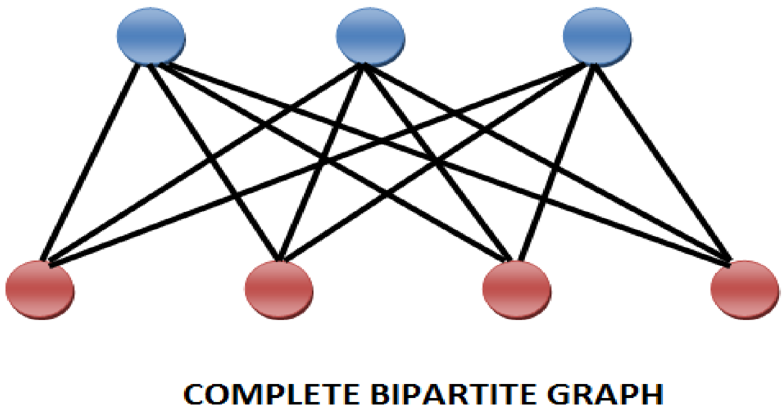


Figure 3.2: Diagram source: Internet – example of a complete bipartite graph

Example of a complete bipartite graph [online]. Available from: < https://www.google.co.za/search?q=picture+of+bipartite+graphs&rlz=1C2CAFB_enZA658ZA658&biw=1366&bih=667&tbm=isch&tbo=u&source=univ&sa=X&ved=0a

Bipartite graphs include a variety of the concepts describing the properties of the networks identified by Duijn and Vermunt (2006) as reciprocity,[18] stars,[19] and cliques[20]. Martinson and Campbell (1979) made further contributions, describing “liaison persons”, cliques, redundancies, and path lengths, pointing out that in this process the strengthening and weakening relationships between group members could potentially be revealed. When matrix manipulation techniques are applied to the adjacency matrix, the unique positions of the nodes in the sociograms and bipartite graphs can be investigated. The unique positions or connectedness are described as properties of the network and explained as the degree and centrality of the empirical group of directors on boards of listed companies. Three (3) components of these properties of the network were measured. Degree centrality which is an indicator of the activity of companies, and directors, in the network, and which measured the number of connections of a company, or director. Closeness centrality which is an indicator of the closeness of that company, or director, to other companies, or directors, within the network, and the number of steps to other companies, and directors in the network. Betweenness centrality is an indicator of the extent to which the companies or directors director act as a bridges to other companies or directors, and measured the centrality of the companies and directors and the extent to which the companies or directors connect to other well connected companies and directors in the network.

[18] Two nodes, in this instance, directors, indicate the existence of a tie between them.

[19] One central director connected to a few other, unconnected directors.

[20] A group of at least three (3) directors who are all connected to each other.

Lastly, the inductive approach could be completed in terms of a framework that was developed from the underlying structural pattern that became evident and which allowed the researcher to theorise on the change and possible reasons for change in structural patterns over time (Thomas, 2003). The social network analysis, which was applied in this study, made it possible to analyse the properties of the respective interlocked directors and companies and to characterise the pattern of interlock that was found. From the findings questions could focus on providing answers to the change in the structural pattern. Degree centrality, closeness centrality, and betweenness centrality scores for the companies and the directors on their boards were obtained by running the query and using the SAS procedures involved.

3.7 THE PROPERTIES AND STRUCTURAL ASPECTS OR SUBGROUPS OF THE NETWORK

In the presentation of the results, the properties of network positions will be described as the number of relations a node has, and the extent to which the node is tied with other nodes. Once the network data was collected, it was used to calculate degree centrality, closeness centrality, and betweenness centrality, which constitute an investigation into probability distributions and networks of the companies and directors for both periods. Marin and Wellmann (2009) were the leading authors to describe the properties of network positions as represented by the relations created between the nodes. In this study, a similar approach to their work was followed. In calculating these variables, both a director-centric and company-centric perspectives were used.

SAS Enterprise Guide was used to analyse the interlock between companies and directors on their boards and, in doing so, identifying which companies and directors are the most prominent. The prominence could be investigated by means of the individual components or the structural properties of the network which was investigated. Ultimately, to identify the existence of power formation and /or the existence of an elite group, this had to be investigated by identifying potentially developing cliques or clusters in the network. From the visual representation illustrated in the sociograms, the focus was to start investigating clustering and to see if any dominant actors could be revealed.

3.8 LIMITATIONS AND PROBLEMS WITH SOCIAL NETWORK ANALYSIS AND INTERLOCKING DIRECTORATES

The current study is limited solely to revealing pattern. The researcher did not engage with any director or representative of the companies directly and did not engage in any structured interaction or unstructured interviews. Network analysis is criticised for not catering for the complexity of human behaviour. The researcher concurs with Pettigrew (1992); and Pye and Pettigrew (2005) who pointed out that network analysis is too methodological while insufficiently theoretical. Pye and Pettigrew (2005) further advocated a re-focus on historical narratives with less attention on variables. This would include “a detailed description of the processes that variably are presumed to capture the systematic means of describing patterns to permit generalisation.”

The question certainly arises whether the pattern that emerged would be similar for non-listed companies, privately owned companies, non-profit organisations or companies and government parastatals. By limiting the universe to the boards of listed companies, a view of the tip of the iceberg is created. Ties might form between companies indirectly through all manner of associations ranging from managers from one company sitting on boards of another, to family relationships between directors, to directors playing golf together, and through ties with non-listed companies or parastatals. Centrality of certain directors may likewise be completely obscured by incomplete sets of ties.

Mizruchi (1996) highlighted two (2) criticisms which can be identified for research into company and director interlock. The first criticism, the use of qualitative indicators, applies to the current study, as qualitative indicators are used to predict corporate behaviour, while interlocking directorates cannot explain why these behaviours occur. In this study, no qualitative indicators were applied. Mizruchi (1996) argued that interlocks have been unsuccessful in explaining corporate behaviour. However, interlocks do influence the strategic direction which companies take and the decisions they make. In the current study, the same applies: the findings on the possible causes and consequences of director interlock remain purely speculative.

According to Mizruchi (1996), the second category of criticisms questions the use of quantitative indicators altogether, stating that these indicators cannot comprehend the complex extent and nature of corporate behaviour, company relations, and board dynamics. In the current study, only quantitative indicators were applied. Mizruchi (1996) cited only two (2) researchers (Hirsch, 1982; Useem, 1984) who had conducted systematic board interviews. The authors who were the most critical about the use of quantitative indicators were Hirsch (1982), Davis and Powell (1992); and Pettigrew (1992). Interviews with directors resulted in a finding that outside directors have very little influence on board dynamics. Even the outside directors themselves believed their power is extremely limited. From the interviews it was further concluded that the result and impact of the interlock was limited for the organisations or companies involved. Hirsch (1982) made three (3) insightful observations. Firstly, this author stated that board members do not engage by investigating the detail of company activities and board behaviour but would rather express themselves in generalised norms about appropriate board behaviour. Secondly, he stated that the respondents themselves reported in a conflicting and untrustworthy manner on the impact and importance of their own contributions and influence. Lastly, Hirsch quoted Mizruchi (1996), who had reported that when interlocked, board members might not be completely honest and might fail to fully disclose to what level their business dealings extend with any of the companies with which they are interlocked. In this study, interviews were not conducted, but might have contributed to shed some light on the possible causes and consequences of director interlock.

3.9 ETHICAL CONSIDERATIONS

No ethical difficulties arose in this study, as the names of the individual directors and the organisations to which they belong reside in the public domain and there is no "quid pro quo exchange of perceived and desired results" as termed by Borgatti and Molina (2005). The required documentation was completed and submitted as a proposal to the ethics committee of the University of South Africa Business School (SBL) where it was scrutinised and found to represent no risk.

3.10 CONCLUSION

Based on an inductive research methodology, social network analysis tools were applied during the examination of the data. The methodology assisted to statistically characterise the structure of the South African network of directors of listed companies in 2010 and in 2016. Secondly, these tools made it possible not only to compare these structures but also to note important changes in the key structural dynamics. Thirdly, through the revelation of the sociograms and further graphical representation of bipartite graphs, the social network analysis tools made it possible to compare these structures with structures described in earlier network studies to further deepen the understanding of structural dynamics over a longer time frame, and in more than one jurisdiction. The findings are reported next.

CHAPTER 4 – RESULTS

4.1 INTRODUCTION

This chapter reports on the results of the social network analysis, revealing the board characteristics and features of listed South African companies for 2010 and 2016. The results are comparatively displayed. By means of bipartite graphs and sociograms, the directors of listed companies for the two (2) respective periods are depicted. Because of both the density and complexity of the complete network of all listed companies, and to gain better visibility into the positioning of all directors of listed companies, the networks were dissected in levels, and the results displayed thereafter.

Degree refers to the extent to which companies and directors are connected, depicted in sociograms in this chapter. This is followed by a calculation of the centrality scores for companies and directors to show the companies and directors involved. In the presentation of the results thereafter, a distinction is made between degree centrality, closeness centrality and betweenness centrality. Degree centrality indicates the number of connections held by a company or director, closeness centrality calculates the impact or value of the connection, while the betweenness centrality of companies and directors indicate to what extent they connect with other companies or directors in the two (2) respective networks. The centrality and betweenness scores also illustrate the denser part of the networks, and it shows which companies and directors are most central, most active, and most interlocked. A dramatic shift in the structural pattern of the network between 2010 and 2016 occurred, and this change is presented.

This study had four (4) striking findings:

1. The massive increase in board sizes is profoundly important and deserves much reflection in terms of the broader trends, the causes, and the consequences of this phenomenon.
2. The obvious increase in network density which does not seem to be simply a product of the increased number of directors. In fact, the number of directors involved in this densification has far less changed than the increase in the total number of directors.
3. There is a definite move away from the dominance of mining houses to that of financial and financial services companies. These companies historically occupied positions in the ultra-elite (Top 10 ranked companies) up until 2010. Since 2016, there has been a dramatic veer to retail companies - companies that took over the top 10 positions in 2016.
4. Considering the transformation agenda, good progress had been made with

increased racial diversification and the inclusion of predominantly black male directors in the top 40 companies in 2010. However, in the upper echelons of the ultra-elite there was a reversal to white male dominance from 2010 to 2016.

4.2 BOARD FEATURES FOR 2010 AND 2016

The boards of companies listed on the Johannesburg Stock Exchange in respectively 2010 and 2016 are recorded in Table 6. Two (2) results are particularly striking. Firstly, while the total number of companies remained almost unchanged (393 listed companies in 2010 and 394 in 2016), the total number of directors in these companies had more than doubled in this period (2 970 directors in 2010 to 6063 in 2016). The number of available board seats almost doubled in this period (3 598 available board seats in 2010 to 7 017 in 2016). The average number of directors per company also increased from 7.56 in 2010 to 15.34 in 2016, and the average board size increased from 9.16 in 2010 to 17.81 in 2016. Similarly, the number of directors sitting on multiple boards increased from 403 in 2010 to 661 in 2016. However, the average number of board seats per director declined slightly during this period (1.21 average board seats per director in 2010 to 1.16 in 2016) and the percentage of interlocked directors showed a marked decline (from 13.57% interlocked directors in 2010 to 10.94% in 2016).

The number of CEOs sitting on other boards also increased (from 53 in 2010 to 89 in 2016). The same pattern occurred among the Chairpersons of boards, where the number who sits on other boards increased (from 173 chairpersons sitting on other boards in 2010 to 178 in 2016). Other changes observed during this period were the ratio of board sizes (2016:2010 [2.04] and the ratio of CEOs on boards 2016:2010[1.68]. The ratio of Chairpersons on boards 2016:2010 was 1.02 - essentially, this ratio showed an insignificant change.

Table 4. 1: Comparative summary of the features and findings for the 2010 and 2016 data

All listed companies on the JSE	2010	2016
Number of Companies included	393	394
Numbers of Directors	2,970	6,044
Numbers of board seats available	3,598	7,017
Average directors per company	7.56	15.34
Average Board Size	9.16	17.81
Number of directors on multiple boards	403	661

All listed companies on the JSE	2010	2016
Average no of boards that a director sits on	1.21	1.16
Percentage of directors that are interlocked	13.57%	10.94%
Number of CEOs on Multiple Boards	53	89
Number of Chairs on Multiple Boards	173	178
Number of CEO who are also Chairs of same board	1	8

The first important finding is shown in Table 4.1. The number of companies listed on the Johannesburg Stock Exchange increased by only one company between 2010 and 2016 whilst the number of companies basically remained static, the number of directors serving on the boards of these companies more than doubled (103.5%). Clearly, board sizes increased dramatically between 2010 and 2016 as the average board size increased by 94.4%

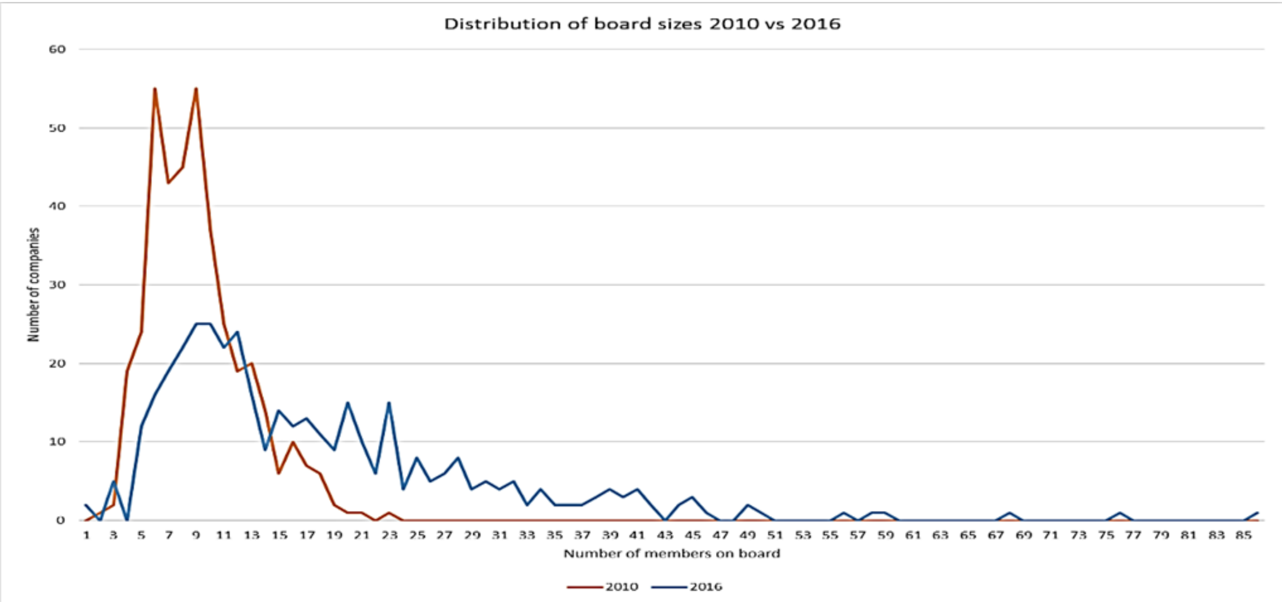


Figure 4.1: Frequency distributions of the size of boards in 2010 and 2016

Figure 4.1 displays a key exhibit of the study in the sense that it establishes that there has indeed been a massive change in the size of boards. The increase reported is not just a result of a handful of outliers.

4.3 SOCIOGRAMS FOR NETWORKS IN 2010 AND 2016

Superficially, (Figure 4.2:2010, Figure 4.3:2016) it is difficult to differentiate between the companies and directors in these time slices due to the condensed interlock in the centre. On the outer perimeter of both networks, the companies and directors are, in fact, detectible. The 2010 network of both directors and companies (Figure 4.2) appear not to be that dense, relative to the 2016 network (Figure 4.3), but there appears to be many more companies in the outer perimeter or on the edge of the 2010 network than in 2016.

The dense network of interlocked companies, represented by dark blue nodes, appears in the centre of the sociograph. The outer perimeter of the network, denoted by pale blue nodes, represent the directors which sit on their boards. On the outer perimeter of the 2010 network there are 4 layers of concentric circles, representing companies and their boards of directors, where there appear to be a few minor interlocks.

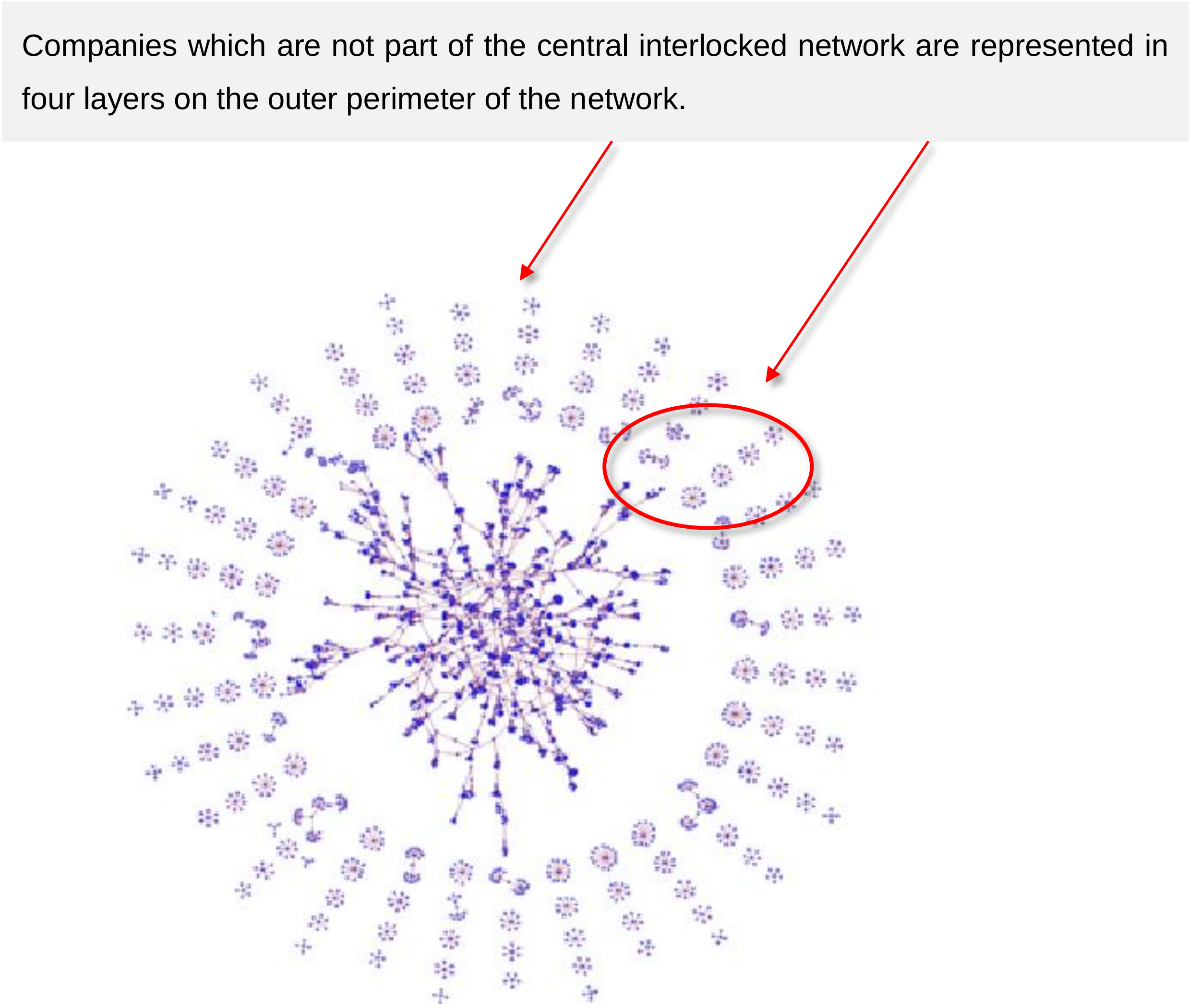


Figure 4.2: Sociogram of the 2010 network of South African listed companies and the directors on their boards

The 2016 network of both directors and companies appear to be profoundly different. Unlike the 2010 network, the density of a central network of directors is significantly more densely interlocked than in 2010. To keep in mind and looking back at table 4.1, there is a decrease in the average number of boards that a director sits on from 1.21 in 2010, to 1.16 in 2016. The percentage of directors that are interlocked declined from 2010 to 2016, from 13.57% to

10.94%. This is explained by the massive expansion in the number of directors and this happened while the number of companies from 2010 only increased from 393, to 394 in 2016.

The companies on the outer perimeter, with the directors sitting on their boards, appears to be significantly less in 2016 compared to 2010. These companies are now represented by only one concentric circle on the outer perimeter of the sociogram. It is evident that more companies are involved in the dense interlock in the middle of the 2016 sociogram (Figure 4.3). That would correspond with the massive increase in the number of directors from 2010 to 2016. Again, as illustrated by the data in Table 6, there are considerably more directors in absolute terms.

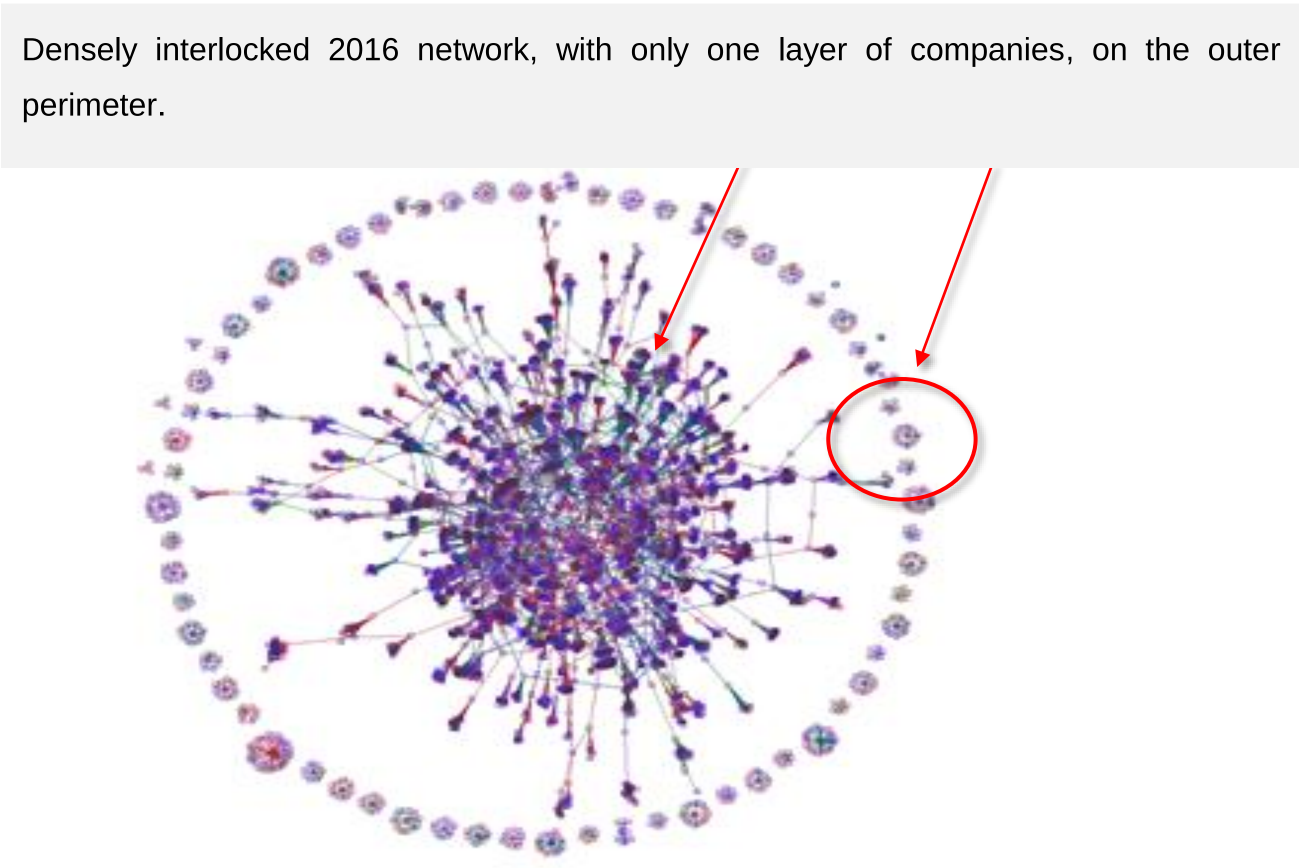


Figure 4.3: Sociogram of the 2016 network of directors of South African listed companies

Of a total of 393 companies in 2010, 84 companies were in the four (4) circles on the outer perimeter and this decreased to 59 companies in 2016 (Table 4.2). In 2010, 309 companies were situated within the dense interlocked jumble in the centre of the sociogram and this increased to 335 companies in 2016. The ratio of the outer perimeter to the dense interlocked inner circle changed from 1:3.67 in 2010 to 1:5.68 in 2016. The average connection of companies was calculated by looking at how many directors from their boards, hold multiple directorships in other companies. If the number of directorships held by board members is subtracted from the number of board seats available within the company, the result provides the number of connections which the company has with other companies. This calculation was performed for all companies and, in doing so, the average connections for all the companies was established. The average connection therefore denotes the average number of connections to other boards for the year in question. This includes both the inner and outer circle. The average connection of companies within the inner circle changed from 5.21 in 2010 to 7.64 in 2016.

Table 4.2: Comparison of the interlocked companies in the inner circle against companies on the outer perimeter which are not interlocked from 2010 to 2016

	2010	**2016**
Total companies	393	394
Inner circle	309	335
Outer circle	84	59
Ratio between outer and inner circle	1:3.67	1:5.68
Percentage of companies interlocked	79%	85%
Average connection	5.21	7.64

The second most important finding is presented in Table 4.2: when comparing the networks in the two (2) time slices, the 2016 network became denser. The percentage of interlocked companies increased from 79% in 2010 to 85% in 2016 (6%). Companies on the outer circle of the network decreased by 29.76%, whereas companies in the inner circle increased by 8.41%.

The network density in respectively 2010 and 2016 emerged after calculation of the degree centrality, closeness centrality and betweenness centrality for each network had been investigated, including companies and directors. To gain an understanding of the extent to which network density had increased between 2010 to 2016, the average connection of companies was calculated by studying the number of directors from their own boards with multiple directorships in other companies. The average connection of such companies within the inner circle interlocked with other companies in the inner circle increased from

5.21 in 2010 to 7.64 in 2016. The South African company interlock network clearly increased in density from 2010 to 2016 while average director interlock decreased.

Table 4.3 displays a 1999 study by Mac Canna, Brennan and O'Higgins which indicate the number interlocks and the average number of interlocks by director for 11 countries. For South Africa, at later points in time, the average for 2010 was 0.13 which decline in 2016 to 0.10.

Table 4.3: MacCanna, Brannan and O'Higgins (1999) – International comparison of number of directors and interlocks in 11 countries

Country	Number of directors	Number of Interlocks	Average by director
Austria	2,430	156	0.06
Belgium	2,203	270	0.12
Switzerland	2,999	514	0.17
Germany	3,943	378	0.10
France	1,931	378	0.20
Britain	2,682	37	0.01
Italy	1,737	272	0.16
Netherlands	2,321	380	0.16
Finland	3,110	423	0.14
United States	3,108	307	0.10
Ireland	1,751	66	0.04

The phenomenon of the significant number of directors serving on more than one board was investigated by Wong and Gygax (2007) and the same question is relevant in the South African context. This also raises the question as to the reason for the increase in average board size. Are there simply not enough qualified or experienced directors? Are directors expected to serve on too many boards? In a personal interview, Judge Mervin King[21] suggested that the character of pre-democracy South Africa resulted in the inability to

[21] **Judge Mervyn King** is recognised internationally as an expert on corporate governance and sustainability. He is Chairman Emeritus of the Global Reporting Initiative, Chairman of the International Integrated Reporting Council and Chairman of the King Committee on Corporate Governance. Judge King was the influential force and leading author of the South African King codes of governance.

provide enough skilled and experienced directors. Judge King's observation was tested for substance against local and international findings. Immediately, the question springs to mind: who interlocked with whom in 2010 and 2016? The answer is still not that simple. From the sociograms above, it is clear that both the 2010 and 2016 networks are not only dense, but also complex. To understand any of these complexities, visibility had to be created by dissecting the networks into granular layers.

4.4 CENTRAL DIRECTORS AND COMPANIES IN THE 2010 AND 2016 NETWORKS

It is important to understand the significant shift in the pattern of the structure from 2010 to 2016. These changes can only be understood by dissection of these complex networks into smaller fragments. The networks were systematically dissected to reveal directors' level by level. This was done to isolate directors occupying two (2) board seats, then those occupying three (3) and those occupying 10 board seats. The results of this dissection are presented in Table 4.4.

Table 4.4: Segmentation of the number of board seats held by the number of directors in 2010 and 2016 and measured as a percentage of the total number of directors

No. of board seats	Available seats 2010	2010 No. of Directors	Representative Percentage	Available seats 2016	2016 No. of Directors	Representative Percentage	Percentage Increase
10	0	0	0.00%	10	1	0.02%	100.00%
9	0	0	0.00%	0	0	0.00%	0.00%
8	8	1	0.03%	16	2	0.03%	100.00%
7	28	4	0.13%	21	3	0.05%	-25.00%
6	42	7	0.24%	48	8	0.13%	14.29%
5	70	14	0.47%	70	14	0.23%	0.00%
4	128	32	1.08%	160	40	0.66%	25.00%
3	195	65	2.19%	369	123	2.04%	89.23%
2	560	280	9.43%	940	470	7.78%	67.86%
1	2567	2567	86.43%	5383	5383	89.06%	109.70%
Total	**3598**	**2970**	-	**7017**	**6044**	-	-

A few distinct features can be observed. There is a clear concentration of more directors added to both the top and lower levels in terms of the number of board seats held by a director. An anomaly can be observed in 2010, when there were no directors occupying 10 board seats, although one director did hold 10 board seats in 2016. In neither time slice do we observe a director holding nine (9) board seats, but in 2010, one director held eight (8) board seats. This number increased to two (2) directors holding eight (8) board seats in 2016. In 2010, four (4) directors occupied seven (7) board seats, while only three (3) directors occupied seven (7) board seats in 2016. In 2010, seven (7) directors held six (6) board seats and this number showed an increase to eight (8) directors occupying six (6) board seats in 2016. The number of directors sitting on five (5) boards remained static for both time slices (14 directors). Between 2010 and 2016, we can observe a 25% increase in the number of directors sitting on four (4) boards - 32 directors sitting on four (4) boards in 2010 and 40 directors sitting on four (4) boards in 2016. Directors sitting on three (3) boards increased by 89.23% between 2010 (65 directors) and 2016 (123 directors). From 2010 to 2016, the number of directors sitting on two (2) boards increased by 67.86% (280 directors in 2010 and 470 directors in 2016). The single biggest shift, however, occurred on the lowest level, with the number of directors sitting on one board increasing by 109.7% (2,567 directors in 2010 to 5,383 directors in 2016).

Despite an increase in the number of directors on each level for the number of seats they occupy, Figure 4.4 indicates that the distribution for 2010 and 2016 is similar. The number of directors on each level simply increased, but as a percentage of the total population on each level, no significant changes occurred.

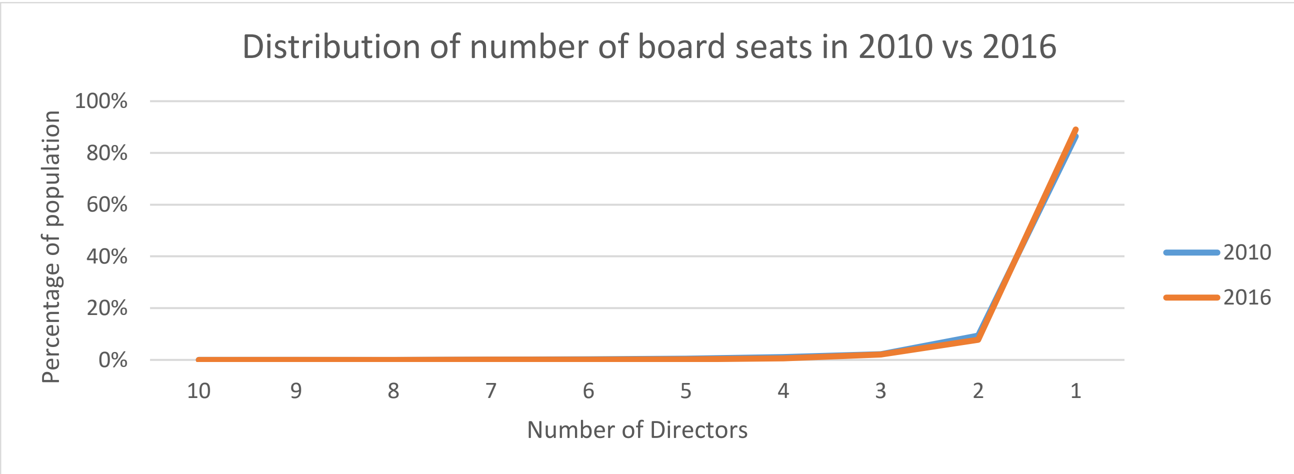


Figure 4.4: Distribution of the number of board seats comparing 2010 to 2016

Cox and Rogerson analysed the same distribution of directors occupying the number of board seats in 1985. Their rationale for including the Top 115 companies out of the 169 listed on the Johannesburg Stock Exchange (68%) is unknown. The comparison in Table 4.5 further down below, is included to see if similar patterns can be identified, and to see if a change in the pattern could have occurred at this time[22]. The most significant increases from 1985 to 2010 as well as from 2010 to 2016 were in the number of directors who sat on

[22] Their study of the Top 115 listed companies out of a total of 169 listed companies on the JSE, representing 68%, is regarded as a statistically adequate sample size to see if any change in patterns occurred. Although not a like for like comparison of all listed companies and directors on their boards, certain structural patterns could be identified.

only one board versus the number of directors who sat on two (2), three (3), or four (4) boards. The increases in the number of directors sitting on one, two (2), three (3), or four (4) boards are highlighted in Table 4.5.

Table 4.5: Comparison of the 1985, 2010 and 2016 number of board seats held by number of directors

Category	Seats			Directors		
Authors	Cox and Rogerson	Current		Cox and Rogerson	Current	
Data extract	1985	2010	2016	1985	2010	2016
10	0	0	10	0	0	1
9	36	0	0	4	0	0
8	8	8	16	1	1	2
7	21	28	21	3	4	3
6	48	42	48	8	7	8
5	65	70	70	13	14	14
4	68	128	160	17	32	40
3	105	195	369	35	65	123
2	230	560	940	115	280	470
1	561	2567	5383	561	2567	5383
Total	**1142**	**3598**	**7017**	**757**	**2970**	**6044**

Table 4.5 again indicates that by 2016, board sizes had increased significantly, but as mentioned before, fewer companies were involved. The number of directors holding one, two (2), three (3), or four (4) board seats increased substantially from 1985 to 2010, and again from 2010 to 2016. It was of interest to investigate which companies and directors were involved A further analysis was needed to see who they were, how influential they were and which positions within the network of interlocked directors they held.

This was made possible by calculating the degree centrality, closeness centrality and betweenness centrality scores for each director, and then by ranking them firstly by degree, then by centrality and lastly by betweenness scores. Degree centrality was firstly calculated for companies and then for directors and illustrates how well connected the companies and directors are. Closeness centrality and betweenness centrality were also calculated for companies and then for directors and refers to the impact the connection has for both the companies and directors. Betweenness centrality is an indication of the strategic importance created by the connection. (Table 4.6, below)

Table 4.6: Comparison of centrality scores for the total population of companies and directors of listed companies and the top 40 ranked companies and directors according to centrality scores for both 2010 and 2016

Total population				
Year	**Name**	**Degree**	**Closeness**	**Betweenness**
2010	Companies	9.16	0.05	0.005
2010	Directors	1.21	0.05	0
2016	Companies	17.81	0.09	0.008
2016	Directors	1.16	0.09	0
Top 40 ranked directors				
Year	**Name**	**Degree**	**Closeness**	**Betweenness**
2010	Companies	16.5	0.06	0.02
2010	Directors	3.8	0.06	0.02
2016	Companies	43.4	0.11	0.02
2016	Directors	5.25	0.11	0.02

4.5 NETWORK PROPERTIES OF THE SOUTH AFRICAN NETWORK

In identifying which companies and directors are the most prominent[23], the findings on the structural properties of the network are reported next. The 2010 network consisted of 2970 directors. This resulted in a large dataset which makes presentation of the data problematic. The researcher therefore presents only the degree centrality, closeness centrality and betweenness centrality scores for companies and directors ranked in the top 40 in the respective time slices. The ranking was done by extracting the 40 companies or directors who have the highest centrality scores. The ranking is then compared to the research of Williams, Deodutt and Stainbank on the top 40 ranked South African companies and directors in 2008. The same was done for the companies who ranked in the top 40, and for then for directors who ranked in the top 40. The results for 2010 are displayed first, followed by the results for 2016.

[23] In this case, 'prominent' is defined as the directors ranked firstly according to the highest degree centrality, then highest closeness centrality and lastly highest betweenness centrality.

Table 4.7: Degree centrality, closeness centrality and betweenness centrality calculations of the top 40 highest ranked – companies for 2010

Rank	Name	Degree	Closeness	Betweenness
1	The Bidvest Group Ltd	23	0.062	0.032
2	Standard Bank Group Ltd	21	0.065	0.070
3	Absa Bank Ltd	20	0.062	0.017
4	Remgro Ltd	19	0.061	0.029
5	Steinhoff International Holdings Ltd	19	0.058	0.016
6	Sanlam Ltd	18	0.063	0.052
7	Nedbank Group Ltd	18	0.062	0.014
8	FirstRand Ltd	18	0.060	0.016
9	Anglo-American Platinum Ltd	18	0.059	0.006
10	Absa Bank Ltd	18	0.059	0.002
11	Comair Ltd	18	0.053	0.010
12	Imperial Holdings Ltd	17	0.064	0.068
13	Mr Price Group Ltd	17	0.063	0.040
14	Illovo Sugar Ltd	17	0.062	0.019
15	SABMiller PLC	17	0.062	0.008
16	JSE Ltd	17	0.062	0.024
17	Pioneer Food Group Ltd	17	0.054	0.008
18	Discovery Holdings Ltd	16	0.063	0.015
19	African Rainbow Minerals Ltd	16	0.062	0.022
20	Investec PLC	16	0.062	0.011
21	Investec Ltd	16	0.061	0.009
22	Distell Group Ltd	16	0.061	0.019
23	Medi-Clinic Corporation Ltd	16	0.061	0.014
24	Tongaat Hulett Ltd	16	0.060	0.020
25	Liberty Holdings Ltd	16	0.052	0.005

Rank	Name	Degree	Closeness	Betweenness
26	Sa Corporate Real Estate Fund	16	0.049	0.005
27	Grindrod Ltd	16	0.035	0.000
28	Growthpoint Properties Ltd	15	0.062	0.020
29	Allied Electronics Corporation Ltd	15	0.060	0.008
30	Murray And Roberts Holdings Ltd	15	0.059	0.023
31	Barloworld Ltd	15	0.058	0.008
32	Reunert Ltd	15	0.058	0.005
33	Compagnie Fin Richemont	15	0.057	0.007
34	MTN Ltd	14	0.063	0.032
35	Massmart Holdings Ltd	14	0.063	0.037
36	Woolworths Holdings Ltd	14	0.063	0.007
37	Naspers Ltd	14	0.062	0.008
38	Metropolitan Holdings Ltd	14	0.062	0.024
39	PSG Financial Services Ltd	14	0.060	0.041
40	Santam Ltd	14	0.060	0.015

Table 4.8: Degree centrality, closeness centrality and betweenness centrality calculations of the top 40 highest ranked- directors for 2010

Rank	Name	Degree	Closeness	Betweenness
1	Dube EG	7	0.059	0.026
2	Ramaphosa C	6	0.064	0.028
3	Vallet P	6	0.056	0.010
4	Titi F	5	0.063	0.031
5	Nurek D	5	0.062	0.028
6	Herman H	5	0.061	0.012
7	Otto CA	5	0.058	0.009
8	Swana S	5	0.058	0.010

Rank	Name	Degree	Closeness	Betweenness
9	Phaswana F	4	0.064	0.025
10	Sebotsa S	4	0.063	0.031
11	Cuba YZ	4	0.063	0.016
12	Leeming M	4	0.063	0.018
13	Motsepe PT	4	0.062	0.011
14	Payne NG	4	0.062	0.021
15	Koseff S	4	0.062	0.015
16	Njeke MJN	4	0.060	0.023
17	Magwaza JB	4	0.059	0.011
18	Mouton JF	4	0.058	0.007
19	Mouton PJ	4	0.058	0.006
20	Molefe PS	4	0.054	0.009
21	Shaw M	3	0.064	0.023
22	Ruck MJD	3	0.064	0.031
23	Wixley TA	3	0.063	0.040
24	Langeni P	3	0.063	0.025
25	McAlpine R	3	0.063	0.055
26	Lucas-Bull WE	3	0.062	0.009
27	Willcox M	3	0.062	0.017
28	Mageza NP	3	0.062	0.019
29	Matthews N	3	0.062	0.013
30	Xayiya M	3	0.062	0.004
31	Madi PM	3	0.062	0.008
32	Khoza RJ	3	0.062	0.009
33	Combi ZL	3	0.062	0.043
34	Botha A	3	0.062	0.007
35	Serobe GT	3	0.061	0.009

Rank	Name	Degree	Closeness	Betweenness
36	Nkosi S	3	0.061	0.022
37	Jakoet F	3	0.061	0.019
38	Sonn F	3	0.061	0.008
39	Boardman TA	3	0.061	0.012
40	Vusi Khanyile	3	0.061	0.018

Due to the magnitude of the network and its extreme density, only an extract and example of the sociograms will be shared. It was decided to select the top 40 highest ranked companies on their centrality scores as representative sample of the most interlocked companies. The top 40 ranked companies are also a good representation of the general findings. As part of the example, some of the directors who held more than five (5) board seats in the 2010 network are shown in the 2010 sociogram in Figure 4.5. In Figure 4.5, the 2010 network positions for Sandile Swana, Phillip Vallet, Tom Boardman, Fani Titi, Hugh Herman, Ethan Dube, Cyril Ramaposa, Dawid Nurek and Chris Otto are displayed. This corresponds with the variable of degree within Table 4.8. Degree is an indicator of connectedness, but by adding centrality and betweenness as additional variables, the importance and influence of the connections of the individual directors are indicated.

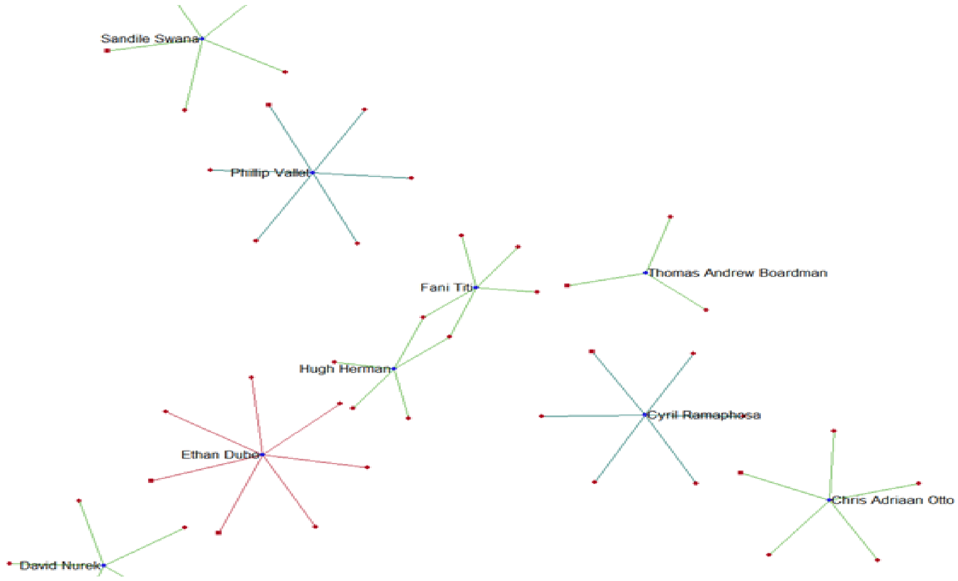


Figure 4.5: Example of nine (9) out of the 14 directors holding five (5) board seats in the 2010 network

In Figure 4.5, Ethan Dube, Cyril Ramaphosa and Phillip Vallet are examples of some of the most prominent and interlocked directors, but none of these directors are interlocked with one another. They are interlocked with other companies, implying an empire of sorts for each of these directors. This figure is an indication of how the South African economy has been carved up. It has, however, little meaning if the companies involved are not included. The companies on whose boards these directors serve is therefore included in Figure 4.6 below. No interlock exists between these companies.

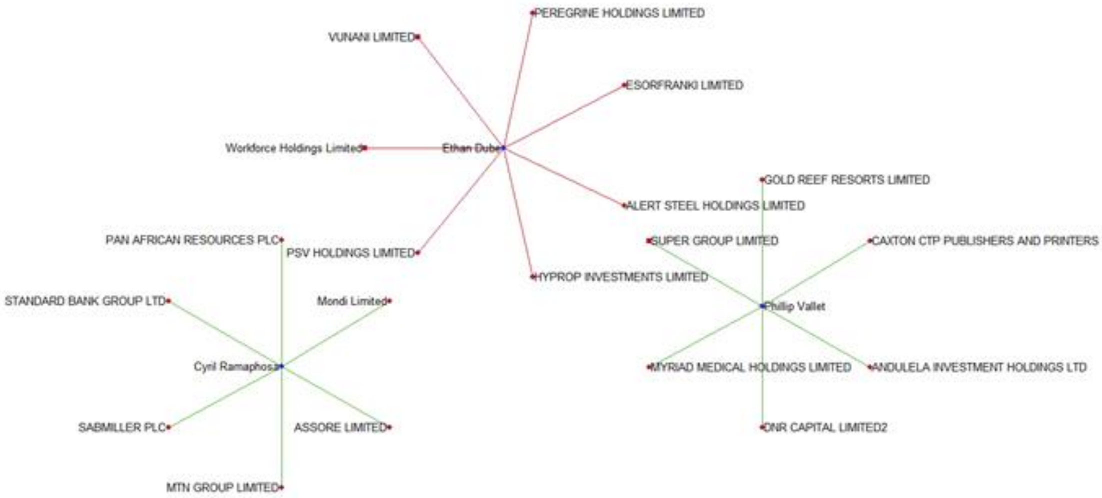
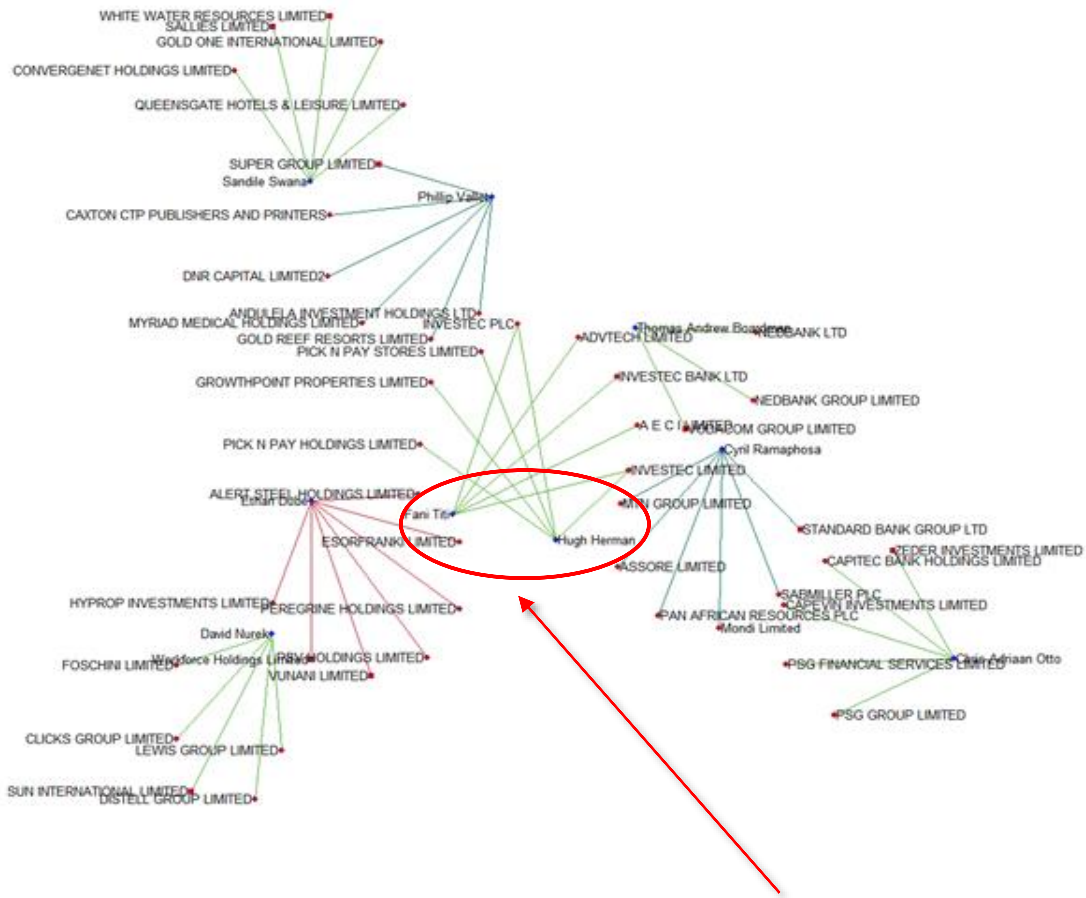


Figure 4.6: Example of three (3) central and prominent directors and companies in the 2010 network

In 2010, Ethan Dube sat on the boards of Hydprop Investments Limited, Alert Steel Holdings Limited, PSV Holdings limited, Workforce Holdings Limited, Vunani Limited, and Peregrine Holdings Limited. Cyril Ramaphosa held board seats of MTN Group Limited, Standard Bank Group Limited, Assore Limited, SABMiller PLC, Mondi Limited and Pan African Resources PLC. Phillip Vallet sat on the boards of ONR Capital Limited, Caxton CTP Publishers and Printers, Andulela Investments Holdings Limited, Gold Reef Resorts Limited, Myriad Medical Holdings Limited and Super Group Limited. A fragment of the 2010 sociogram (Figure 4.7) is used as an illustrative example to divulge the interlock between Fani Titi and Hugh Herman who were jointly interlocked through their shared board seats on the boards of Investec PLC and Investec Limited. In 2010, Investec was the anchor.



Illustrative example of the interlock created through the shared board seats of Fani Titi and Hugh Herman as joined directors of Investec and the rest of companies that are involved.

Figure 4.7: Interlock created by the joined board seats of Fani Titi and Hugh Herman on the board of Investec

It was of interest to see if there were any similar central or prominent interlocked directors in the 2016 network. The inner core of directors holding five (5) or more board seats in the 2016 network displays an equally interesting pattern. When scrutinising directors holding five (5) or more board seats, in the 2016 network, there appears to be an inner circle comprising of predominantly Mageza, Patel, Patmore, Wiese, Seabrooke, Langeni, van der Ross and Durand. Their individual positions among the Top 40 ranked directors appear in Table 4.10. The extract of the sosiogram of the 2016 network displaying only these 5 directors sitting on 5 boards or more follow in figure 4.8, 4.9 (hierarchical displayed) and 4.10 (hexagonal view displayed), below.

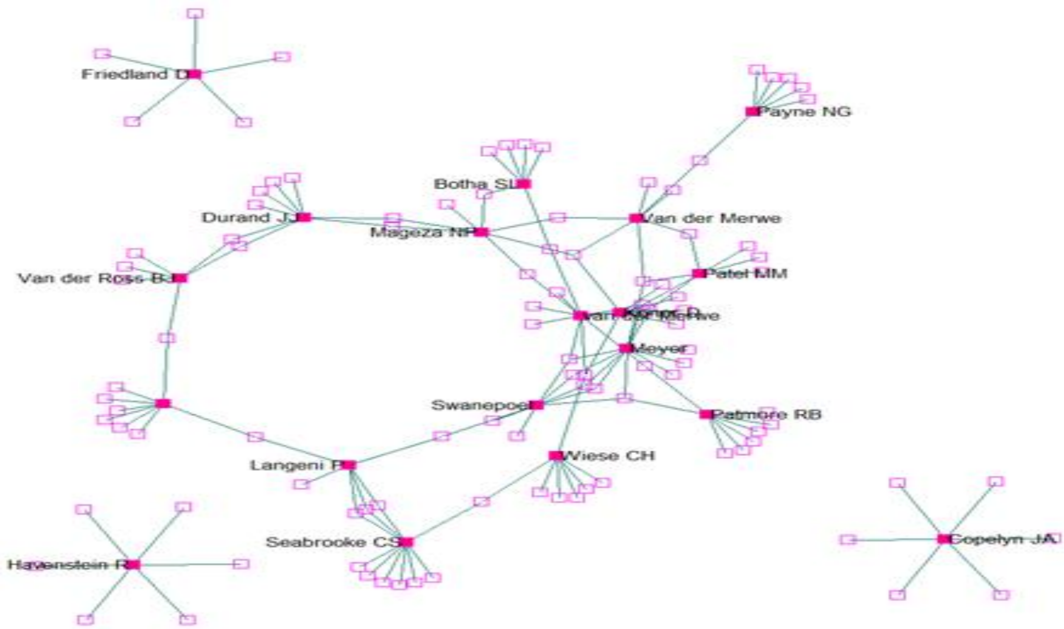


Figure 4.8: Visualisation of direct interlock between directors sitting on five (5) boards or more

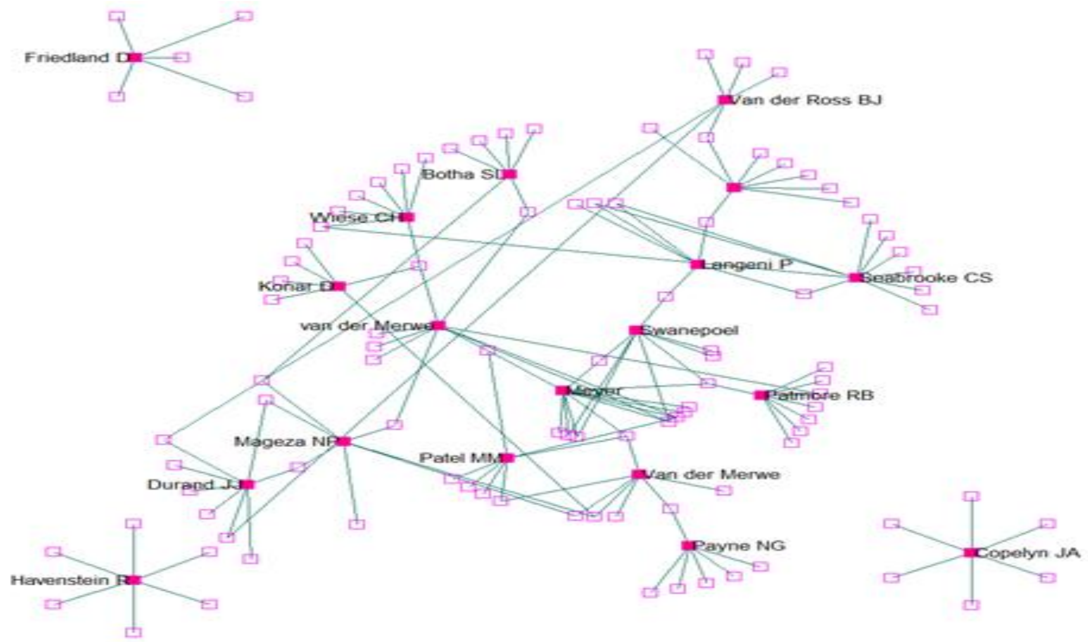


Figure 4.9: Visualisation of hierarchical interlock between directors sitting on five (5) boards or more

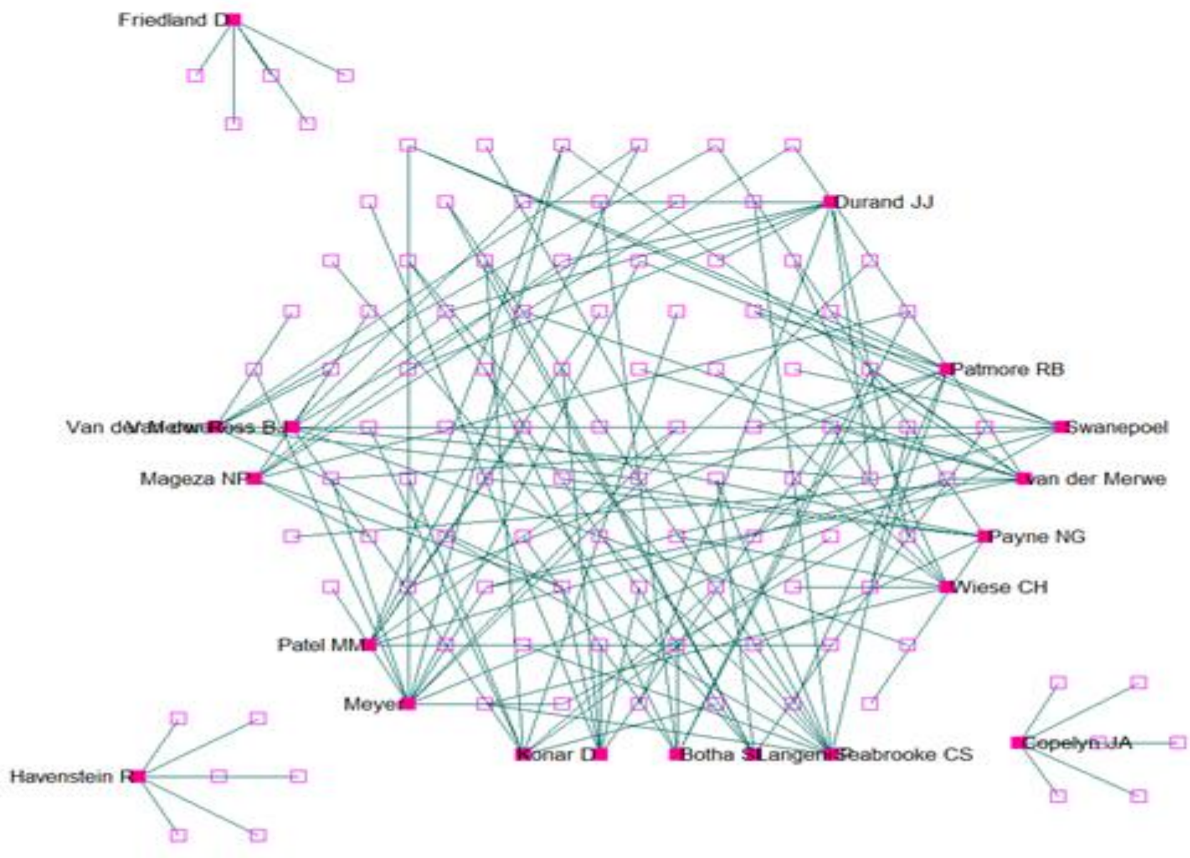
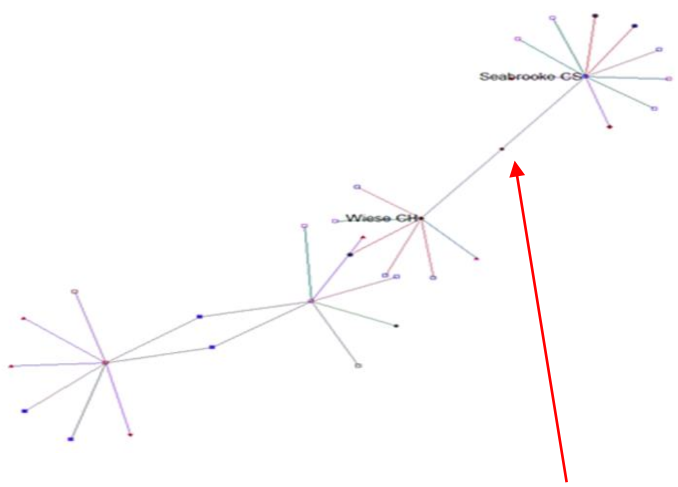


Figure 4.10: Visualisation of hexagonal interlock between directors sitting on five (5) boards or more

If Titi and Herman created interlocks in the 2010 network as earlier discussed, Seabrooke and Wiese similarly created an interlock through the board seats that they jointly held in Brait SE. (Figure 4.11 below)



The one Brait SE board seat shared by by Seabrooke and Wiese in the 2016 network, and

Figure 4.11: Board seats occupied by Seabrooke and Wiese on the Brait SE board in 2016

Similar to the way in which Titi and Hughes interlocked companies in the 2010 network, Seabrooke's and Wiese's seats on the Brait SE Board act as an interlock between the companies in Figure 4.12.

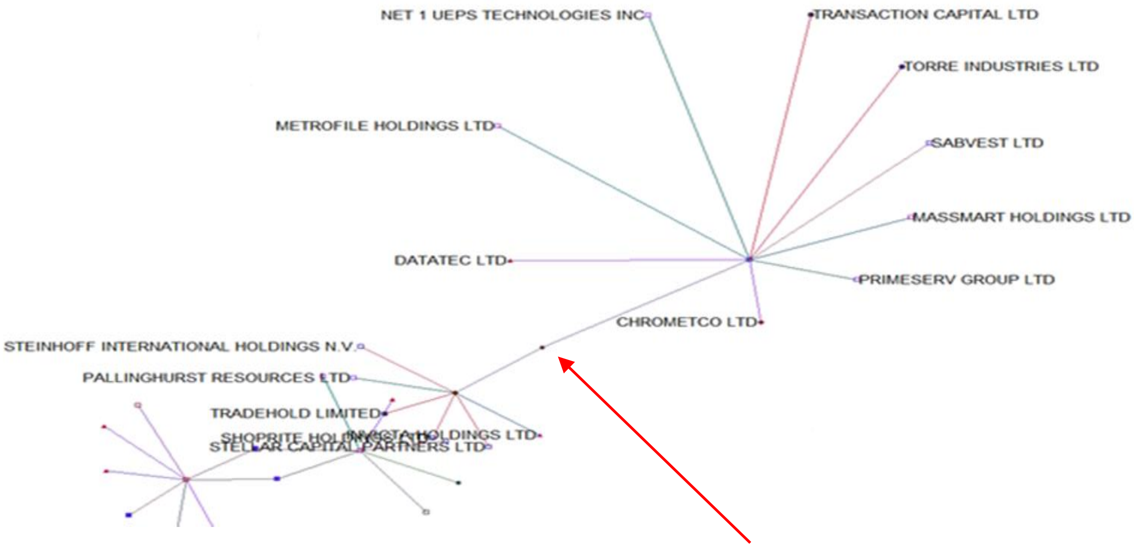
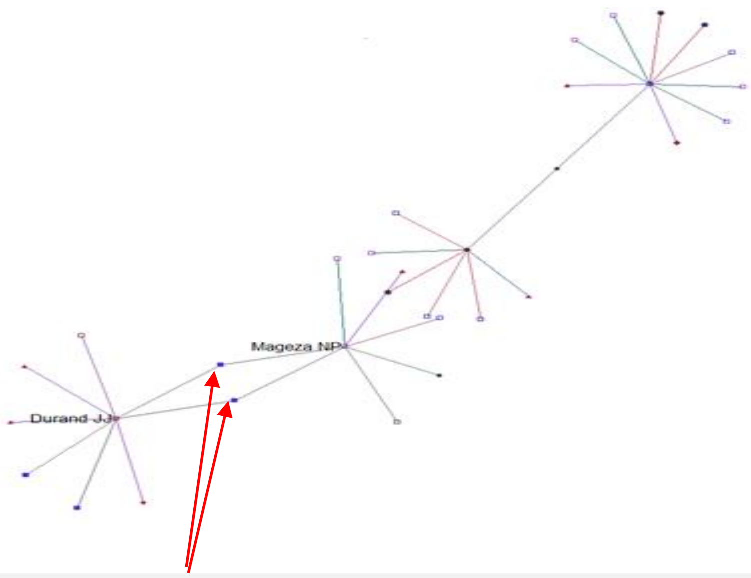


Figure 4.12: Board seats of Seabrooke and Wiese on the Brait SE board in the 2016 network, interlocking the companies displayed above

In the 2016 network, Seabrooke sat on the boards of Brait SE, Chrometco Limited, Datatec Limited, Massmart Holdings Limited, Metrofile Holdings Limited, NET1 UEPS Technologies Incorporated, Primserv Group Limited, Sabvest Limited, Torre Industries Limited and Transactional Capital Limited. Both Seabrooke and Wiese served on the board of Brait SE, thereby interlocking the companies above with the companies where Wiese occupied a board seat, i.e. Invicta Holdings Limited, Pallinghurst Resources Limited, Shoprite Holdings Limited, Steinhoff International Holdings N.V, Stellar Capital Partners Limited and Tradehold Limited. In Figure 4.13 (below), it is evident that Mageza and Durand jointly served on the boards of RCL Foods and Remgro Limited.



Board seats on the boards of RCL Foods Limited and Remgro Limited occupied by both Mageza and Durand.

Figure 4.13: Board seats occupied by both Mageza and Durand on the same boards in 2016

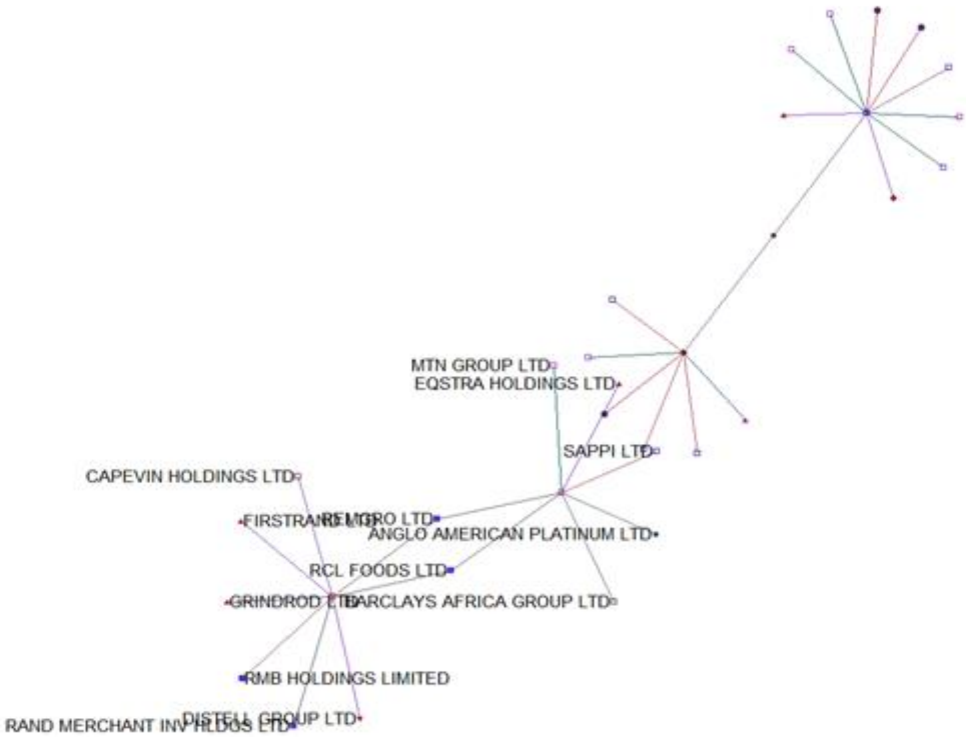


Figure 4.14: Board seats occupied by Mageza and Durand on the same boards in 2016, interlocking the companies

In the 2016 network, Mageza served on the boards of Anglo-American Platinum Limited, Barclays Africa Group Limited, Equestra Holdings Limited, MTN Group Limited, RCL Foods

Limited, Remgro Limited and Sappi Limited. Seabrooke and Wiese both sat on the Brait SE Board, whereas Mageza and Durand both sat on the Remgro Limited and RCL Foods boards. By sitting with Mageza on these boards, Durand interlocked the companies where he held board seats: Capevin Holdings Limited, Distell Group Limited, First Rand Limited, Grindrod Limited, Rand Merchant INV Holdings Limited, Sappi Limited and RMB Holdings Limited.

In Table 4.10 it is evident that Seabrooke is ranked in position number one as he serves on the most boards and has the highest degree score. He interlocks with Wiese who serves with him on the Brait SE board (ranked number five (5)). The same applies to Durand, ranked in position number two (2). Seabrooke interlocks with Mageza (ranked in position four (4)) as they jointly serve on the boards of RCL Foods limited and Remgro limited. Only RCL Foods features among the top 40 ranked companies (Table 4.9), occupying position 24. The 2016 network could similarly be dissected into smaller fragments, the results displayed below. Due to the size and complexity of the network (6063 directors), only the Top 40 ranked companies and directors are displayed.

Table 4.9: Degree centrality, closeness centrality and betweenness centrality calculations of the top 40 ranked - companies for 2016

Rank	Name	Degree	Closeness	Betweenness
1	Massmart Holdings Ltd	84	0.125	0.043
2	Sappi Ltd	75	0.127	0.028
3	Shoprite Holdings Ltd	64	0.120	0.032
4	Allied Electronics Corporation Ltd	59	0.122	0.035
5	Exxaro Resources Ltd	56	0.125	0.036
6	Omnia Holdings Ltd	52	0.121	0.022
7	Sasol Ltd	49	0.124	0.033
8	Intu Properties PLC	49	0.085	0.013
9	Nedbank Group Ltd	46	0.122	0.029
10	Barclays Africa Group Ltd	45	0.129	0.057
11	Distell Group Ltd	45	0.128	0.045
12	Naspers Ltd	45	0.115	0.017
13	Growthpoint Properties Ltd	44	0.104	0.012
14	Nampak Ltd	42	0.118	0.030

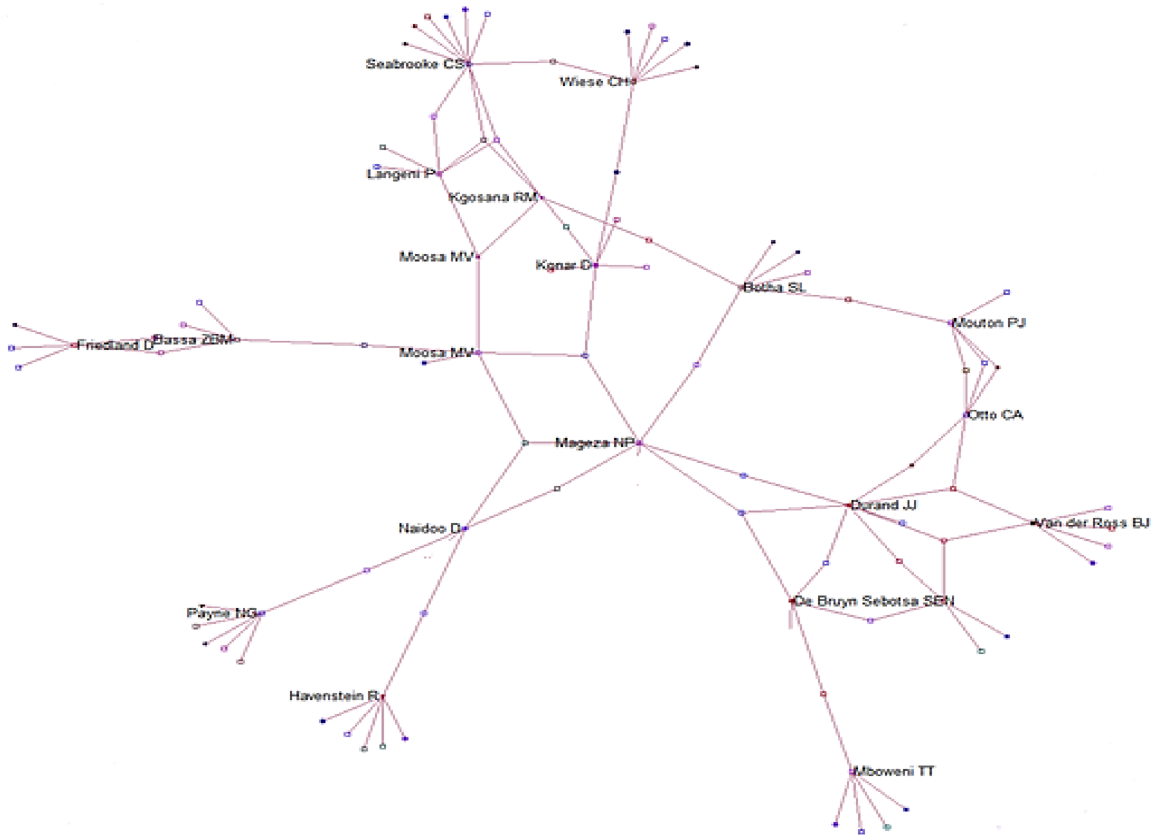
Rank	Name	Degree	Closeness	Betweenness
15	Basil Read Holdings Ltd	42	0.105	0.014
16	Pick N Pay Holdings Ltd	41	0.119	0.018
17	African Rainbow Minerals Ltd	41	0.116	0.018
18	Discovery Holdings Ltd	41	0.116	0.020
19	MTN Group Ltd	40	0.124	0.030
20	Foschini Group Ltd	40	0.115	0.021
21	Metair Investments Ltd	40	0.099	0.011
22	Anglo American Platinum Ltd	39	0.131	0.051
23	Murray And Roberts Holdings Ltd	39	0.127	0.049
24	RCL Foods Ltd	39	0.122	0.012
25	Anglo-American Platinum Ltd	39	0.116	0.013
26	Truworths International Ltd	39	0.115	0.015
27	Bell Equipment Ltd	39	0.088	0.014
28	Steinhoff International Holdings Ltd	38	0.128	0.067
29	MMI Holdings Ltd	38	0.126	0.039
30	PSG Financial Services Ltd	37	0.119	0.018
31	Woolworths Holdings Ltd	37	0.118	0.019
32	Sasfin Holdings Ltd	37	0.110	0.014
33	Gold Fields Ltd	37	0.102	0.012
34	British American Tobacco PLC	36	0.044	0.000
35	Netcare Ltd	35	0.113	0.016
36	Illovo Sugar Ltd	34	0.127	0.027
37	Sanlam Ltd	34	0.122	0.030
38	Investec PLC	34	0.117	0.020
39	Blue Label Telecoms Ltd	34	0.114	0.021
40	Stefanutti Stocks Holdings Ltd	34	0.112	0.012

Table 4.10: Degree centrality, closeness centrality and betweenness centrality calculations of the top 40 ranked - directors for 2016

Rank	Name	Degree	Closeness	Betweenness
1	Seabrooke CS	10	0.120	0.033
2	Durand JJ	8	0.124	0.022
3	Patmore RB	8	0.110	0.018
4	Mageza NP	7	0.131	0.048
5	Wiese CH	7	0.123	0.028
6	Patel MM	7	0.112	0.017
7	Konar D	6	0.128	0.040
8	Van der Ross BJ	6	0.124	0.030
9	Havenstein R	6	0.124	0.031
10	Botha SL	6	0.123	0.025
11	Langeni P	6	0.123	0.024
12	Payne NG	6	0.121	0.022
13	Copelyn JA	6	0.101	0.005
14	Moosa MV	5	0.130	0.031
15	Naidoo D	5	0.127	0.030
16	Kgosana RM	5	0.125	0.018
17	Bassa ZBM	5	0.122	0.020
18	Gelink GG	5	0.121	0.018
19	Otto CA	5	0.118	0.009
20	De Bruyn Sebotsa SEN	5	0.118	0.011
21	Ngonyama B	5	0.115	0.019
22	Friedland D	5	0.115	0.012
23	Mboweni TT	5	0.115	0.013

Rank	Name	Degree	Closeness	Betweenness
24	Mouton PJ	5	0.113	0.004
25	Tipper GR	5	0.108	0.014
26	Shaik Y	5	0.101	0.003
27	Kana S	4	0.128	0.019
28	Mojela LM	4	0.125	0.016
29	Dempster GW	4	0.123	0.020
30	Moleketi PJ	4	0.123	0.015
31	Njeke MJN	4	0.122	0.016
32	Nkonyeni V	4	0.122	0.018
33	Vice RT	4	0.121	0.009
34	Booysen SF	4	0.121	0.023
35	Van Rooyen J	4	0.120	0.011
36	Jooste MJ	4	0.120	0.008
37	Dingaan GP	4	0.120	0.011
38	Crouse L	4	0.119	0.002
39	Ross TDA	4	0.119	0.010
40	Mnxasana NP	4	0.119	0.010

Comparing the 2010 results to the most central and interlocked directors in the 2016 network, it is clear that more directors are involved - and that they are directly interlocked. The most prominent individuals involved (Figure 4.15) are: Seabrooke, Langeni, Wiese, Kgosana Van der Ross, Gelink, Mouton, Durand, De Bruyn Sebotsa, Botha, Mageza, Konar, Naidoo, Moosa, Friedland, Mouton, Otto, Mboweni, Payne, Bassa and Havenstein.



Core of the 2016 network of interlocked companies created by directors who, occupy five (5) or more board seats.

Figure 4.15: Extract of directors occupying 5 or more board seats in the 2016 network as evidence of centrality

The companies on whose boards these directors occupied seats are displayed in Figure 4.16. The prominence of financial institutions such as RMB Holdings, FirstRand Ltd, Liberty Holdings Ltd, Sanlam, Santam Ltd and Barclays Africa Group Ltd provides a clear linkage to the financial control model. The legacy of mining houses and their prominence in the interlocked networks are evidenced by the proximity of Anglo-American Platinum to Barclays Africa Group Ltd.

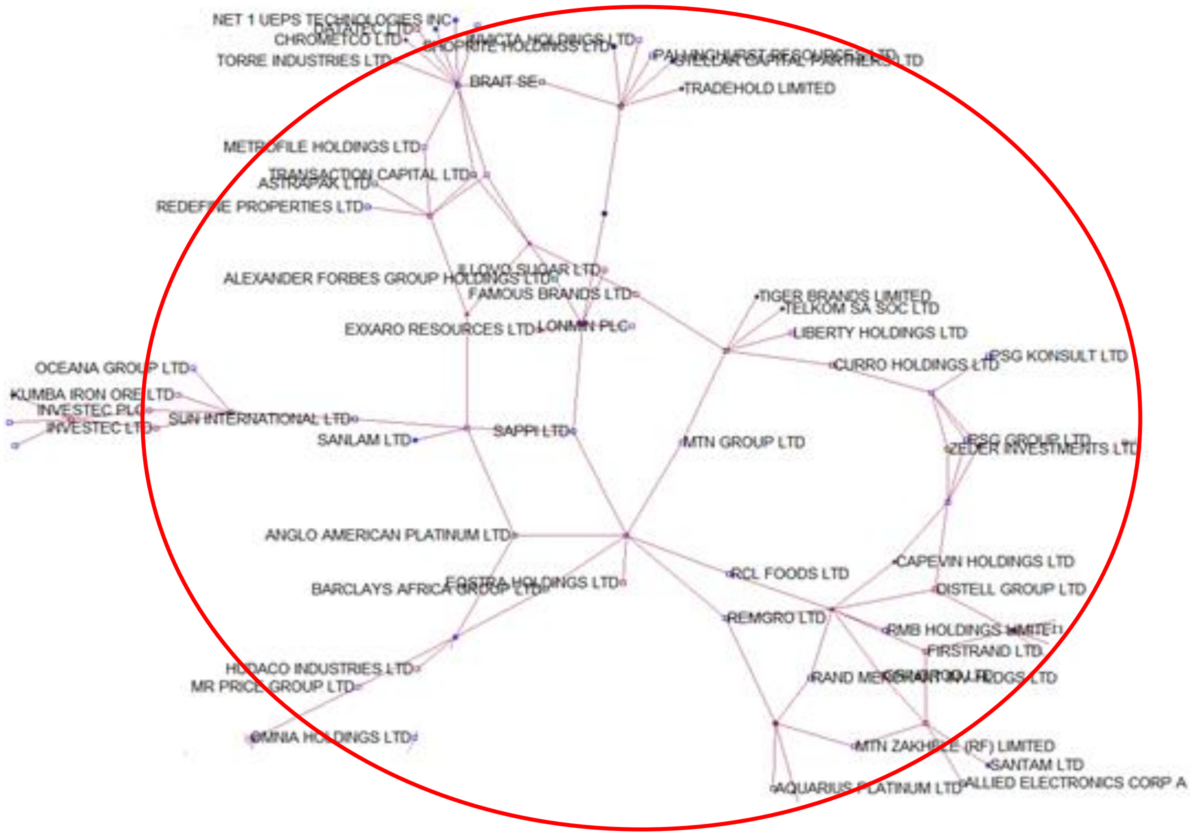


Figure 4.16: Companies central in the 2016 network with shared directors who occupy more than five (5) board seats

The companies on the outer perimeter of the 2016 network, which is fewer than that of the 2010 network, do not have directors that share board seats and are not interlocked. Examples of some of these companies on the outer perimeter of the network are, amongst others, British American Tobacco PLC, Purple Group Ltd, Hwange Colliery Company Ltd, Homechoice International PLC, Petmin Ltd, Nvest Financial Holdings Ltd, Clientele Ltd, Micromega Holdings Ltd, Frimat, Ltd, Bubele Holdings Ltd, DRDGold Ltd and Beige Holdings Ltd. With the exception of British American Tobacco[24], these companies do not appear on the list of the top 40 ranked companies and the directors on their boards do not appear on the list of the top 40 ranked directors. (Figure 4.17, below)

[24] The degree centrality score for British American Tobacco is high (35), but this company ranked low on both the closeness centrality and betweenness centrality scores (321 out of 394 companies). The high degree centrality score caused by the high number of directors on British American Tobacco's board indicated a high potential for interlock, but none of the directors on this company's board is interlocked.

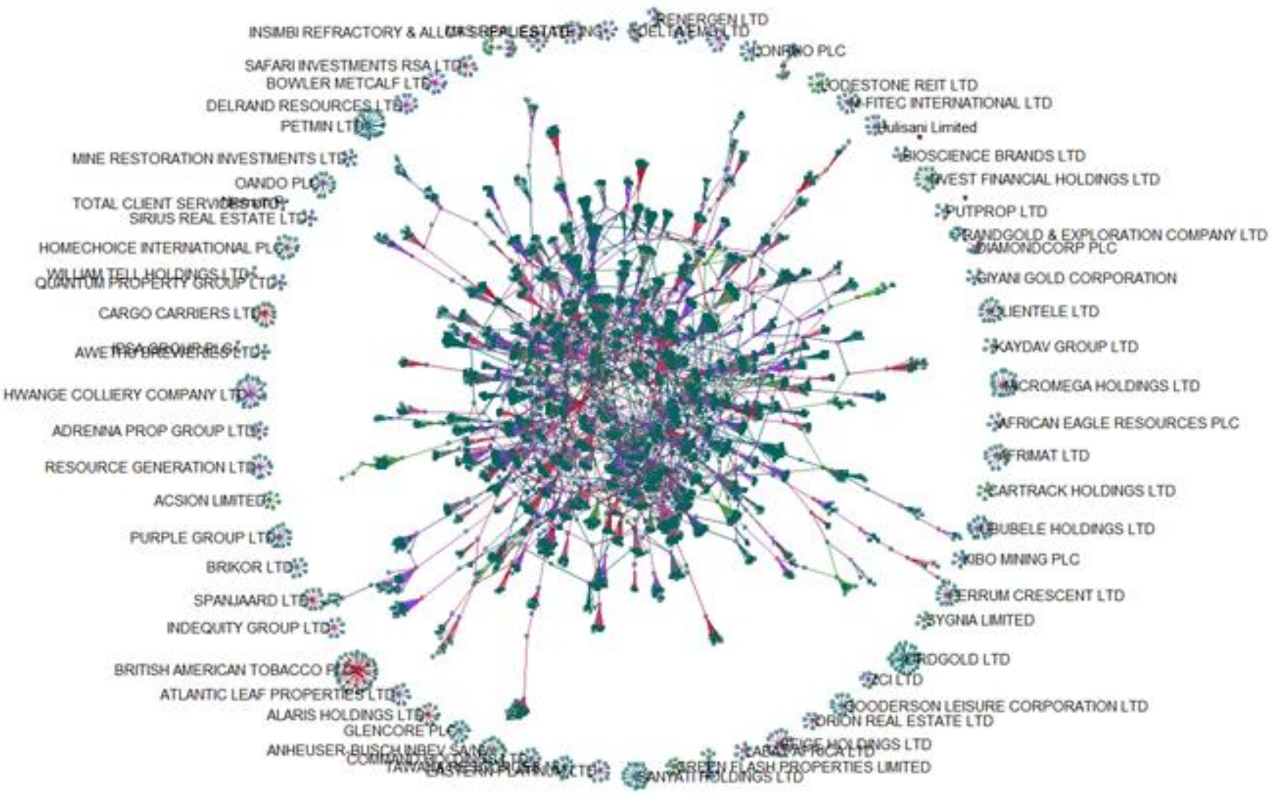


Figure 4.17: Examples of companies on the outer perimeter of the 2016 network

The composition of South African boards before 2010 as well as during 2010 and 2016 is illustrated. Data from an earlier study by Williams, Deodutt and Stainbank (2016), ranking companies and directors based on the landscape in 2008 is used in Tables 4.11 to 4.18 to identify potential changes in the pattern between 2008 to 2010. It is clear that there was a consolidation in the midst of the financial crisis. This picture only changed after 2010, and when the financial crisis eased. The change might well have served as mitigation in terms of finding a channel for sustained growth and economic expansion, especially further into the African retail market. Table 4.11 displays the top 40 highest ranked companies for 2008, 2010 and 2016. The ranking was done by considering the degree centrality scores, the closeness centrality scores and the betweenness centrality scores. Seven (7) companies marked in green remained among the top 40 ranked companies in 2008, 2010, and 2016.

The seven (7) companies were: MTN, Investec PLC, Anglo-American Platinum, Discovery, Naspers, Woolworths, and the Nedbank Group. 10 companies marked in blue were ranked among the top 40 for both 2008 and 2010 but did not feature in 2016. They were Bidvest, Investec, FirstRand, Standard Bank Group, the JSE, Mr Price, Remgro, Metropolitan Life, Grindrod Properties, and Absa Bank. All the financial services companies had dropped out of the ranking by 2016. The 10 companies marked in yellow appeared among the top 40 ranked companies in 2010 and 2016. They were Steinhoff, Sanlam, Illovo Sugar, African

Rainbow Minerals, Distell Group, Growthpoint Properties, Allied Electronics Corporation, Murray and Roberts, Massmart Holdings, and PSG Financial Services.

The 2008 data in the table (4.11) below was obtained from a 2016 Williams, Deodutt and Stainbank study which ranked companies and directors based on the economic landscape in 2008.

Table 4.11: Top 40 highest ranked companies according to their combines weighted centrality scores of degree, closeness and betweenness for 2008, 2010 and 2016

Top 40 ranked companies 2008		Top 40 ranked companies 2010		Top 40 ranked companies 2016	
Name	Rank	Name	Rank	Name	Rank
BIDVEST GROUP LTD	1	BIDVEST GROUP LTD	1	MASSMART HOLDINGS LTD	1
MTN GROUP LTD	2	STANDARD BANK GROUP LTD	2	SAPPI LTD	2
INVESTEC LTD	3	ABSA BANK LTD	3	SHOPRITE HOLDINGS LTD	3
INVESTEC PLC	4	REMGRO LTD	4	ALLIED ELECTRONICS CORPORATION LD	4
FIRSTRAND LTD	5	STEINHOFF INTERNATIONAL HOLDINGS LD	5	EXXARO RESOURCES LTD	5
STANDARD BANK GROUP LTD	6	SANLAM LTD	6	OMNIA HOLDINGS LTD	6
ANGLO AMERICAN PLATINUM LTD	7	NEDBANK GROUP LTD	7	SASOL LTD	7
THE STANDARD BANK OF SOUTH AFRICA LTD	8	FIRSTRAND LTD	8	INTU PROPERTIES PLC	8
JSE LTD	9	ANGLO AMERICAN PLATINUM LTD	9	NEDBANK GROUP LTD	9
INVESTEC BANK PLC	10	ABSA BANK LTD	10	BARCLAYS AFRICA GROUP LTD	10
BARCLAYS AFRICA GROUP LTD	11	COMAIR LTD	11	DISTELL GROUP LTD	11
DEENADAYALEN KONAR	12	IMPERIAL HOLDINGS LTD	12	NASPERS LTD	12
MR PRICE GROUP LTD	13	MR PRICE GROUP LTD	13	GROWTHPOINT PROPERTIES LTD	13
REMGRO LTD	14	ILLOVO SUGAR LTD	14	NAMPAK LTD	14
PICK N PAY STORES LTD.	15	SABMILLER PLC	15	BASIL READ HOLDINGS LTD	15
AVENG LTD	16	JSE LTD	16	PICK N PAY HOLDINGS LTD	16
FIRSTRAND BANK LTD	17	PIONEER FOOD GROUP LTD	17	AFRICAN RAINBOW MINERALS LTD	17
DISCOVERY HOLDINGS LTD	18	DISCOVERY HOLDINGS LTD	18	DISCOVERY HOLDINGS LTD	18
DEVELOPMENT BANK OF SOUTHERN AFRICA	19	AFRICAN RAINBOW MINERALS LTD	19	MTN GROUP LTD	19
NASPERS LTD.	20	INVESTEC PLC	20	FOSCHINI GROUP LTD	20
TELKOM SA SOC LTD	21	INVESTEC LTD	21	METAIR INVESTMENTS LTD	21
ANGUS W. B. BAND	22	DISTELL GROUP LTD	22	ANGLO AMERICAN PLATINUM LTD	22
INVESTEC BANK LTD	23	MEDI-CLINIC CORPORATION LTD	23	MURRAY AND ROBERTS HOLDINGS LTD	23
TIGER BRANDS LTD	24	TONGAAT HULETT LTD	24	RCL FOODS LTD	24
MMI HOLDINGS LTD	25	LIBERTY HOLDINGS LTD	25	ANGLO AMERICAN PLATINUM LTD	25
METROPOLITAN LIFE LTD	26	SA CORPORATE REAL ESTATE FUND	26	TRUWORTHS INTERNATIONAL LTD	26
GRINDROD LTD	27	GRINDROD LTD	27	BELL EQUIPMENT LTD	27
KUMBA IRON ORE LTD.	28	GROWTHPOINT PROPERTIES LTD	28	STEINHOFF INTERNATIONAL HOLDINGS LD	28
ABSA BANK LTD	29	ALLIED ELECTRONICS CORPORATION LD	29	MMI HOLDINGS LTD	29
ABSA GROUP LTD	30	MURRAY AND ROBERTS HOLDINGS LTD	30	PSG FINANCIAL SERVICES LTD	30
FEDSURE HOLDINGS LTD.	31	BARLOWORLD LTD	31	WOOLWORTHS HOLDINGS LTD	31
OLD MUTUAL LIFE ASSURANCE COMPANY (SA)	32	REUNERT LTD	32	SASFIN HOLDINGS LTD	32
WOOLWORTHS HOLDINGS LTD	33	COMPAGNIE FIN RICHEMONT	33	GOLD FIELDS LTD	33
PPC LTD	34	MTN GROUP LTD	34	BRITISH AMERICAN TOBACCO PLC	34
HUDACO INDUSTRIES LTD	35	MASSMART HOLDINGS LTD	35	NETCARE LTD	35
OCEANA GROUP LTD.	36	WOOLWORTHS HOLDINGS LTD	36	ILLOVO SUGAR LTD	36
NEDBANK, LTD.	37	NASPERS LTD	37	SANLAM LTD	37
PICK N PAY HOLDINGS LTD	38	METROPOLITAN LIFE LTD	38	INVESTEC PLC	38
BSI STEEL LTD	39	PSG FINANCIAL SERVICES LTD	39	BLUE LABEL TELECOMS LTD	39
NEDBANK GROUP LTD	40	SANTAM LTD	40	STEFANUTTI STOCKS HOLDINGS LTD	40

Companies in blue cells appear in the top 40 highest ranked companies in both 2008 and 2010.

Companies in yellow cells appear in the top 40 highest ranked companies in both 2010 and 2016.

Companies in orange cells appear in the top 40 highest ranked companies in 2008, do not appear in 2010, but reappear in 2016.

Companies in green cells appear in the top 40 highest ranked companies in 2008, 2010 and 2016.

To enable the tracking on one horizontal line and to simplify the individual movement of companies, Table 17, lists the ranking of the top 40 companies in 2008. As stated, all the companies marked in green cells were present among the top 40 ranked companies in all three (3) time periods and their respective movements were as follows: MTN was ranked number two (2) in 2008, dropped to number 34 in 2010, but moved up again to 19, in 2016. Investec PLC dropped from number four (4) in 2008, to number 20 in 2010, and dropped further to number 34 in 2016.

Anglo-American Platinum dropped from number seven (7) in the rankings in 2008 to number nine (9) in 2010 and to number 22 in 2016. Discovery remained static at number 18 for all three (3) time periods. Naspers was ranked at number 20 in 2008, dropped to 37 in 2010, and rose to number 12 in 2016. Woolworths was ranked at number 33 in 2010, descended to number 36 in 2010, and rose to number 31 in 2016. The Nedbank Group was ranked at number 40 in 2008 but moved up significantly to number seven (7) in 2010, dropping slightly to number nine (9) in 2016.

The companies marked in blue remained ranked among the top 40 in both 2008 and 2010, dropping out of the top 40 rankings in 2016. Bidvest remained as the top ranked company in both 2008 and 2010. Investec dropped significantly from position three (3) in 2008 to position 21 in 2010. FirstRand dropped slightly from number five (5) in 2008 to number eight (8) in 2010. The Standard bank Group was ranked as number six (6) in 2008 but moved up to number two (2) in 2010. The JSE dropped from number nine (9) in 2008 to number 16 in 2010.

The Mr Price Group remained at number 13 for both 2008 and 2010. Remgro was number 14 in 2010 and moved up to number four (4) in 2010. Metropolitan life dropped significantly from number 26 in 2008 to number 38 in 2010. Grindrod remained at number 27 in both 2008 and 2010. ABSA Bank moved up considerably from number 29 in 2008 to number three (3) in 2010. Only four (4) companies improved in their ranking between 2008 and 2010: Anglo-American Platinum, Remgro, ABSA Bank and Nedbank Group.

Three (3) companies marked in orange appeared among the top 40 ranked companies in 2008, did not appear among the top 40 companies in 2010, but re-emerged among the top 40 companies in 2016. The three (3) companies were: Barclays Africa Group, MMI Holdings and Pick n Pay Holdings. The Barclays Group moved up from number 11 in 2008 to number 10 in 2016. MMI Holdings dropped from number 25 in 2008 to 29 in 2016 and Pick n Pay Holdings rose significantly from number 38 in 2008 to number 16 in 2016.

The 2008 data in table 4.12 was obtained from a 2016 Williams, Deodutt and Stainbank study which ranked companies and directors based on the economic landscape in 2008.

Table 4.12: Top 40 highest ranked companies according to their combined centrality scores for 2008 with comparative movements for 2010 and 2016

*41 denotes a ranking greater than 40 but not specified

Names	Ranking 2008	Ranking 2010	Ranking 2016	Ranking Movement Between 2008-2010	Ranking Movement Between 2008-2016	Ranking Movement Between 2010-2016
BIDVEST GROUP LTD	1	1	41	→	↓	↓
MTN GROUP LTD	2	34	19	↓	↓	↑
INVESTEC LTD	3	21	41	↓	↓	↓
INVESTEC PLC	4	20	38	↓	↓	↓
FIRSTRAND LTD	5	8	41	↓	↓	↓
STANDARD BANK GROUP LTD	6	2	41	↑	↓	↓
ANGLO AMERICAN PLATINUM LTD	7	9	22	↓	↓	↓
THE STANDARD BANK OF SOUTH AFRICA LTD	8	41	41	↓	↓	→
JSE LTD	9	16	41	↓	↓	↓
INVESTEC BANK PLC	10	41	41	↓	↓	→
BARCLAYS AFRICA GROUP LTD	11	41	10	↓	↑	↑
DEENADAYALEN KONAR	12	41	41	↓	↓	→
MR PRICE GROUP LTD	13	13	41	→	↓	↓
REMGRO LTD	14	4	41	↑	↓	↓
PICK N PAY STORES LTD.	15	41	41	↓	↓	→
AVENG LTD	16	41	41	↓	↓	→
FIRSTRAND BANK LTD	17	41	41	↓	↓	→
DISCOVERY HOLDINGS LTD	18	18	18	→	→	→
DEVELOPMENT BANK OF SOUTHERN AFRICA	19	41	41	↓	↓	→
NASPERS LTD	20	37	12	↓	↑	↑
NASPERS LTD.	20	41	41	↓	↓	→
TELKOM SA SOC LTD	21	41	41	↓	↓	→
ANGUS W. B. BAND	22	41	41	↓	↓	→
INVESTEC BANK LTD	23	41	41	↓	↓	→
TIGER BRANDS LTD	24	41	41	↓	↓	→
MMI HOLDINGS LTD	25	41	29	↓	↓	↑
METROPOLITAN LIFE LTD	26	38	41	↓	↓	↓
GRINDROD LTD	27	27	41	→	↓	↓
KUMBA IRON ORE LTD.	28	41	41	↓	↓	→
ABSA BANK LTD	29	3	41	↑	↓	↓
ABSA GROUP LTD	30	41	41	↓	↓	→
FEDSURE HOLDINGS LTD.	31	41	41	↓	↓	→
OLD MUTUAL LIFE ASSURANCE COMPANY (SA)	32	41	41	↓	↓	→
WOOLWORTHS HOLDINGS LTD	33	36	31	↓	↑	↑
PPC LTD	34	41	41	↓	↓	→
HUDACO INDUSTRIES LTD	35	41	41	↓	↓	→
OCEANA GROUP LTD.	36	41	41	↓	↓	→
NEDBANK, LTD.	37	41	41	↓	↓	→
PICK N PAY HOLDINGS LTD	38	41	16	↓	↑	↑
BSI STEEL LTD	39	41	41	↓	↓	→
NEDBANK GROUP LTD	40	7	9	↑	↑	↓

* A green arrow means movement into the ranking, an orange arrow indicates no movement, and a red arrow means movement out of the ranking

Companies in blue cells appear in the top 40 highest ranked companies in both 2008 and 2010.

Companies in orange cells appear in the top 40 highest ranked companies in 2008, do not appear in 2010, but reappear in 2016.

Companies in green cells appear in the top 40 highest ranked companies in 2008, 2010 and 2016.

Table 4.13 displays 10 companies (marked in yellow) which did not feature among the top 40 ranked companies in 2008, appeared in 2010, and re-appeared in 2016. Steinhoff was ranked number five (5) in 2010 but dropped considerably to number 28 in 2016. Sanlam also shows a significant drop from number six (6) in 2010 to number 37 in 2016. Illovo Sugar dropped from number 14 in 2010 to number 36 in 2016, while African Rainbow Minerals moved up from number 19 in 2010 to number 17 in 2016. The Distell Group rose from number 22 in 2010 to number 11 in 2016. Growthpoint Properties moved up from number 28 in 2010 to number 13 in 2016. Allied Electronic Corporation moved up from number 29 in 2010 to number four (4) in 2016, while Murray and Roberts moved up from number 30 in 2010 to number 23 in 2016. Massmart moved from number 35 in 2010 to the top spot in 2016. PSG Financial Services moved from number 39 in 2010 to number 30 in 2016. Steinhoff, Sanlam and Illovo Sugar dropped in ranking between 2010 to 2016, while African Rainbow Minerals, the Distell Group, Growthpoint Properties, Allied Electronic Corporation, Murray and Roberts, Massmart and PSG Financial Services moved up in the ranking.

The 2008 data in table 4.13 was obtained from a 2016 Williams, Deodutt and Stainbank study which ranked companies and directors based on the economic landscape in 2008.

Table 4.13: Top 40 ranked companies for 2010 with comparative movements for 2008 and 2016

*41 denotes a ranking greater than 40 but not specified

Names	Ranking 2008	Ranking 2010	Ranking 2016	Ranking Movement Between 2008-2010	Ranking Movement Between 2008-2016	Ranking Movement Between 2010-2016
BIDVEST GROUP LTD	1	1	41	→	↓	↓
STANDARD BANK GROUP LTD	6	2	41	↑	↓	↓
ABSA BANK LTD	29	3	41	↑	↓	↓
REMGRO LTD	14	4	41	↑	↓	↓
STEINHOFF INTERNATIONAL HOLDINGS LD	41	5	28	↑	↑	↓
SANLAM LTD	41	6	37	↑	↑	↓
NEDBANK GROUP LTD	40	7	9	↑	↑	↓
FIRSTRAND LTD	5	8	41	↓	↓	↓
ANGLO AMERICAN PLATINUM LTD	7	9	22	↓	↓	↓
COMAIR LTD	41	11	41	↑	→	↓
IMPERIAL HOLDINGS LTD	41	12	41	↑	→	↓
MR PRICE GROUP LTD	13	13	41	→	↓	↓
ILLOVO SUGAR LTD	41	14	36	↑	↑	↓
SABMILLER PLC	41	15	41	↑	→	↓
JSE LTD	9	16	41	↓	↓	↓
PIONEER FOOD GROUP LTD	41	17	41	↑	→	↓
DISCOVERY HOLDINGS LTD	18	18	18	→	→	→
AFRICAN RAINBOW MINERALS LTD	41	19	17	↑	↑	↑
INVESTEC PLC	4	20	38	↓	↓	↓
INVESTEC LTD	3	21	41	↓	↓	↓
DISTELL GROUP LTD	41	22	11	↑	↑	↑
MEDI-CLINIC CORPORATION LTD	41	23	41	↑	→	↓
TONGAAT HULETT LTD	41	24	41	↑	→	↓
LIBERTY HOLDINGS LTD	41	25	41	↑	→	↓
SA CORPORATE REAL ESTATE FUND	41	26	41	↑	→	↓
GRINDROD LTD	27	27	41	→	↓	↓
GROWTHPOINT PROPERTIES LTD	41	28	13	↑	↑	↑
ALLIED ELECTRONICS CORPORATION LD	41	29	4	↑	↑	↑
MURRAY AND ROBERTS HOLDINGS LTD	41	30	23	↑	↑	↑
BARLOWORLD LTD	41	31	41	↑	→	↓
REUNERT LTD	41	32	41	↑	→	↓
COMPAGNIE FIN RICHEMONT	41	33	41	↑	→	↓
MTN GROUP LTD	2	34	19	↓	↓	↑
MASSMART HOLDINGS LTD	41	35	1	↑	↑	↑
WOOLWORTHS HOLDINGS LTD	33	36	31	↓	↑	↑
NASPERS LTD	20	37	12	↓	↑	↑
METROPOLITAN LIFE LTD	26	38	41	↓	↓	↓
PSG FINANCIAL SERVICES LTD	41	39	30	↑	↑	↑
SANTAM LTD	41	40	41	↑	→	↓

* A green arrow means movement into the ranking, an orange arrow indicates no movement, and a red arrow means movement out of the ranking

Companies in blue cells appear in the top 40 highest ranked companies in both 2008 and 2010.

Companies in yellow cells appear in the top 40 highest ranked companies in both 2010 and 2016.

Companies in green cells appear in the top 40 highest ranked companies for 2008, 2010 2016.

Table 19 lists the top 40 ranked companies in 2016. Massmart rose astronomically from number 35 in 2010 to number one in 2016, while Steinhoff, Sanlam and Illovo Sugar decreased in ranking. Steinhoff was ranked number 5 in 2010 but dropped to number 28 in 2016. Sanlam dropped even further from number 6 in 2010, to number 37 in 2016. Illovo Sugar was ranked at number 14 for 2010 but dropped to number 36 in 2016.It is of interest to see that in 2008 and 2010, financial capital in the form of banks were dominant in the top 10 positions. In 2016, there is an unmistakeable move away from financial capital towards merchant capital with only Nedbank Group and Barclays Group [25] remaining ranked among the top 10.The 2008 data in table 4.14 was obtained from a 2016 Williams, Deodutt and Stainbank study which ranked companies and directors based on the economic landscape in 2008.

Table 4.14: Top 40 ranked companies for 2016 with comparative movements for 2008 and 2010

*41 denotes a ranking greater than 40 but not specified						
Names	**Ranking 2008**	**Ranking 2010**	**Ranking 2016**	**Ranking Movement Between 2008-2010**	**Ranking Movement Between 2008-2016**	**Ranking Movement Between 2010-2016**
MASSMART HOLDINGS LTD	41	35	1	↑	↑	↑
SAPPI LTD	41	41	2	→	↑	↑
SHOPRITE HOLDINGS LTD	41	41	3	→	↑	↑
ALLIED ELECTRONICS CORPORATION LD	41	29	4	↑	↑	↑
EXXARO RESOURCES LTD	41	41	5	→	↑	↑
OMNIA HOLDINGS LTD	41	41	6	→	↑	↑
SASOL LTD	41	41	7	→	↑	↑
INTU PROPERTIES PLC	41	41	8	→	↑	↑
NEDBANK GROUP LTD	40	7	9	↑	↑	↓
BARCLAYS AFRICA GROUP LTD	11	41	10	↓	↑	↑
DISTELL GROUP LTD	41	22	11	↑	↑	↑
NASPERS LTD	20	37	12	↓	↑	↑
GROWTHPOINT PROPERTIES LTD	41	28	13	↑	↑	↑
NAMPAK LTD	41	41	14	→	↑	↑
BASIL READ HOLDINGS LTD	41	41	15	→	↑	↑
PICK N PAY HOLDINGS LTD	38	41	16	↓	↑	↑
AFRICAN RAINBOW MINERALS LTD	41	19	17	↑	↑	↑
DISCOVERY HOLDINGS LTD	18	18	18	→	→	→
MTN GROUP LTD	2	34	19	↓	↓	↑
FOSCHINI GROUP LTD	41	41	20	→	↑	↑
METAIR INVESTMENTS LTD	41	41	21	→	↑	↑
ANGLO AMERICAN PLATINUM LTD	7	9	22	↓	↓	↓
MURRAY AND ROBERTS HOLDINGS LTD	41	30	23	↑	↑	↑
RCL FOODS LTD	41	41	24	→	↑	↑
TRUWORTHS INTERNATIONAL LTD	41	41	26	→	↑	↑
BELL EQUIPMENT LTD	41	41	27	→	↑	↑
STEINHOFF INTERNATIONAL HOLDINGS LD	41	5	28	↑	↑	↓
MMI HOLDINGS LTD	25	41	29	↓	↓	↑
PSG FINANCIAL SERVICES LTD	41	39	30	↑	↑	↑
WOOLWORTHS HOLDINGS LTD	33	36	31	↓	↑	↑
SASFIN HOLDINGS LTD	41	41	32	→	↑	↑
GOLD FIELDS LTD	41	41	33	→	↑	↑
BRITISH AMERICAN TOBACCO PLC	41	41	34	→	↑	↑
NETCARE LTD	41	41	35	→	↑	↑
ILLOVO SUGAR LTD	41	14	36	↑	↑	↓
SANLAM LTD	41	6	37	↑	↑	↓
INVESTEC PLC	4	20	38	↓	↓	↓
BLUE LABEL TELECOMS LTD	41	41	39	→	↑	↑
STEFANUTTI STOCKS HOLDINGS LTD	41	41	40	→	↑	↑

* A green arrow means movement into the ranking, an orange arrow indicates no movement, and a red arrow means movement out of the ranking

Companies in yellow cells appear in the top 40 highest ranked companies in both 2010 and 2016.

Companies in orange cells appear in the top 40 highest ranked companies in 2008, do not appear in 2010, but reappear in 2016.

Companies in green cells appear in the top 40 highest ranked companies in 2008, 2010 and 2016

25 Technically, the Barclays Group is Absa.

The third important finding is illustrated in Table 4.14 where the prominence of financial institutions among the 40 top ranked companies remain evident. However, this prominence declined in 2010 and declined even more in 2016. In the upper echelons of the top 40 ranked companies in 2008 to 2016, there is a visible move away from the prominence of financial institutions to that of merchants.

It was of further interest to find who was among the top 40 directors in 2008, 2010 and 2016 (Table 4.15), whether there was consistency in who sat as long-serving board members during this time, and which positions they occupied. Seven (7) directors (highlighted in blue in Table 4.15) who ranked among the top 40 in 2008 reappeared among the top 40 in 2010 They are Koseff, Ruck, Herman, Titi, Cuba, Lucas-Bull and Serobe.

Six (6) directors who ranked among the top 40 in 2008, do not appear on the top 40 ranking for 2010. However, they reappear among the top 40 in 2016(highlighted in orange in Table 20). They were Durand, Mnxasana, Van der Ross, Gelink, Crouse and Naidoo. Five (5) directors who ranked among the top 40 in 2010 reappeared among the top 40 in 2016 (highlighted in yellow in Table 4.15). They were Mageza, Langeni, Otto, Mouton PJ and Njeke. Payne, highlighted in green in Table 4.15, ranked among the top 40 in 2008, 2010, and 2016.

The 2008 data in table 4.15 was obtained from a 2016 Williams, Deodutt and Stainbank study which ranked companies and directors based on the economic landscape in 2008.

Table 4.15: Comparative list of directors who was ranked in the top 40 for both 2008, 2010 and 2016

Top 40 ranked directors 2008		Top 40 ranked directors 2010		Top 40 ranked directors 2016	
Name	**Rank**	**Name**	**Rank**	**Name**	**Rank**
Durand JJ	1	Dube EG	1	Seabrooke CS	1
Carolus CA	2	Ramaphosa C	2	Durand JJ	2
Epstein SB	3	Vallet P	3	Patmore RB	3
Koseff S	4	Titi F	4	Mageza NP	4
Mnxasana NP	5	Nurek D	5	Wiese CH	5
van der Ross BJ	6	Herman HS	6	Patel MM	6
Ruck MJD	7	Otto CA	7	Konar D	7
Payne NG	8	Swana S	8	Van der Ross BJ	8
Herman HS	9	Phaswana F	9	Havenstein R	9
Titi F	10	Sebotsa S	10	Botha SL	10
Gelink GG	11	Cuba YZ	11	Langeni P	11
Jardine WR	12	Leeming M	12	Payne NG	12
Malungani PM	13	Motsepe PT	13	Copelyn JA	13
Kantor B	14	Payne NG	14	Moosa MV	14
Zungu SDM	15	Koseff S	15	Naidoo D	15
Moroka KD	16	Njeke MJN	16	Kgosana RM	16
Fukuda H	17	Magwaza JB	17	Bassa ZBM	17
Crouse L	18	Mouton JF	18	Gelink GG	18
Baloyi PC	19	Mouton PJ	19	Otto CA	19
Bomela MS	20	Molefe PS	20	De Bruyn Sebotsa SEN	20
Smith RH	21	Shaw M	21	Ngonyama B	21
Cuba YZ	22	Ruck MJD	22	Friedland D	22
Band DDB	23	Wixley TA	23	Mboweni TT	23
Lucas-Bull WE	24	Langeni P	24	Mouton PJ	24
Serobe GT	25	McAlpine R	25	Tipper GR	25
Munday TS	26	Lucas-Bull WE	26	Shaik Y	26
Gwagwa NN	27	Willcox M	27	Kana S	27
Crosthwaite PKO	28	Mageza NP	28	Mojela LM	28
du Toit HJ	29	Matthews N	29	Dempster GW	29
Thomas PRS	30	Xayiya M	30	Moleketi PJ	30
Fried B	31	Madi PM	31	Njeke MJN	31
Kalyan KP	32	Khoza RJ	32	Nkonyeni V	32
Mokgosi-Mwantembe TM	33	Combi ZL	33	Vice RT	33
Naidoo D	34	Botha A	34	Booysen SF	34
Von Zeuner LL	35	Serobe GT	35	Van Rooyen J	35
Matlare PB	36	Nkosi S	36	Jooste MJ	36
Nzimande AT	37	Jakoet F	37	Dingaan GP	37
Harris PK	38	Sonn F	38	Crouse L	38
Burger GR	39	Boardman TA (Chris)	39	Ross TDA	39
Dippenaar LL	40	Vusi Khanyile	40	Mnxasana NP	40

Directors' names in blue cells appear on the list of the top 40 highest ranked directors in both 2008 and 2010.

Directors' names in yellow cells appear on the list of the top 40 highest ranked directors in both 2010 and 2016.

Directors' names in orange cells appear on the list of top 40 highest ranked directors in 2008, do not appear in 2010, but reappear in 2016.

Directors' names in green cells appear on the list of the top 40 highest ranked directors in 2008, 2010 and 2016.

Table 4.15 is quite colourful due to the reappearance of directors ranked among the top 40, adding complexity to the comparison and tracking of the top 40 ranked names in 2008, 2010 and 2016. Table 4.16 creates visibility of ranking, maintenance of ranking and reappearance of ranking on director level.

The 2008 data in the table below was obtained from a 2016 Williams, Deodutt and Stainbank study which ranked companies and directors based on the economic landscape in 2008.

Table 4.16: List of the top 40 ranked directors in 2008 and their respective movement

*41 denotes a ranking greater than 40 but not specified

Names	Ranking 2008	Ranking 2010	Ranking 2016	Ranking Movement Between 2008-2010	Ranking Movement Between 2008-2016	Ranking Movement Between 2010-2016
Durand JJ	1	41	2	↓	↓	↑
Carolus CA	2	41	41	↓	↓	→
Epstein SB	3	41	41	↓	↓	→
Koseff S	4	15	41	↓	↓	↓
Mnxasana NP	5	41	40	↓	↓	↑
van der Ross BJ	6	41	8	↓	↓	↑
Ruck MJD	7	22	41	↓	↓	↓
Payne NG	8	14	12	↓	↓	↑
Herman H	9	6	41	↑	↓	↓
Titi F	10	4	41	↑	↓	↓
Gelink GG	11	41	18	↓	↓	↑
Jardine WR	12	41	41	↓	↓	→
Malungani PM	13	41	41	↓	↓	→
Kantor B	14	41	41	↓	↓	→
Zungu SDM	15	41	41	↓	↓	→
Moroka KD	16	41	41	↓	↓	→
Fukuda H	17	41	41	↓	↓	→
Crouse L	18	41	38	↓	↓	↑
Baloyi PC	19	41	41	↓	↓	→
Bomela MS	20	41	41	↓	↓	→
Smith RH	21	41	41	↓	↓	→
Cuba YZ	22	11	41	↑	↓	↓
Band DDB	23	41	41	↓	↓	→
Lucas-Bull WE	24	26	41	↓	↓	↓
Serobe GT	25	35	41	↓	↓	↓
Munday TS	26	41	41	↓	↓	→
Gwagwa NN	27	41	41	↓	↓	→
Crosthwaite PKO	28	41	41	↓	↓	→
du Toit HJ	29	41	41	↓	↓	→
Thomas PRS	30	41	41	↓	↓	→
Fried B	31	41	41	↓	↓	→
Kalyan KP	32	41	41	↓	↓	→
Mokgosi-Mwantembe TM	33	41	41	↓	↓	→
Naidoo D	34	41	15	↓	↑	↑
Von Zeuner LL	35	41	41	↓	↓	→
Matlare PB	36	41	41	↓	↓	→
Nzimande AT	37	41	41	↓	↓	→
Harris PK	38	41	41	↓	↓	→
Burger GR	39	41	41	↓	↓	→
Dippenaar LL	40	41	41	↓	↓	→

* A green arrow indicates movement into the ranking, an orange arrow indicates no movement, and a red arrow indicates movement out of the ranking

Directors' names in blue cells appear on the list of the top 40 highest ranked directors in both 2008 and 2010.

Directors' names in orange cells appear on the list of top 40 highest ranked directors in 2008, do not appear in 2010, but reappear in 2016.

Directors' names in green cells appear on the list of the top 40 highest ranked directors in 2008, 2010 and 2016.

Table 4.17 shows the positions for the top 40 ranked directors in 2010. Seven (7) of the directors who appeared among the top 40 in 2008 reappeared on the list in 2010 and are marked in blue. Titi moved up from number 10 in 2008 to number four (4) in 2010. Herman moved from number nine (9) in 2008 to number six (6) in 2010, while Cuba moved upwards significantly from number 22 in 2008to number 11 in 2010. Koseff dropped from ranking number four (4) in 2008 to number 15 in 2010, while Lucas-Bull dropped slightly from number 24 in 2010 to number 26 in 2010. Serobe, who was ranked number 25 in 2008, dropped significantly to number 35 in 2010. Among the top 40 ranked directors, Payne was the only director who ranked among the top 40 in 2008, 2010 and 2016. His ranking showed unremarkable changes over time: number eight (8) in 2008, number 14 in 2010, and number 12 in 2016.

The 2008 data in table 4.17 was obtained from a 2016 Williams, Deodutt and Stainbank study which ranked companies and directors based on the economic landscape in 2008.

Table 4.17: List of the top 40 ranked directors for 2010 and their respective movements

*41 denotes a ranking greater than 40 but not specified

Names	Ranking 2008	Ranking 2010	Ranking 2016	Ranking Movement Between 2008-2010	Ranking Movement Between 2008-2016	Ranking Movement Between 2010-2016
Dube EG	41	1	41	↑	→	↓
Ramaphosa C	41	2	41	↑	→	↓
Vallet P	41	3	41	↑	→	↓
Titi F	10	4	41	↑	↓	↓
Nurek D	41	5	41	↑	→	↓
Herman H	9	6	41	↑	↓	↓
Otto CA	41	7	19	↑	↑	↓
Swana S	41	8	41	↑	→	↓
Phaswana F	41	9	41	↑	→	↓
Sebotsa S	41	10	41	↑	→	↓
Cuba YZ	22	11	41	↑	↓	↓
Leeming M	41	12	41	↑	→	↓
Motsepe PT	41	13	41	↑	→	↓
Payne NG	8	14	12	↓	↓	↑
Koseff S	4	15	41	↓	↓	↓
Njeke MJN	41	16	31	↑	↑	↓
Magwaza JB	41	17	41	↑	→	↓
Mouton JF	41	18	41	↑	→	↓
Mouton PJ	41	19	24	↑	↑	↓
Molefe PS	41	20	41	↑	→	↓
Shaw M	41	21	41	↑	→	↓
Ruck MJD	7	22	41	↓	↓	↓
Wixley TA	41	23	41	↑	→	↓
Langeni P	41	24	11	↑	↑	↑
McAlpine R	41	25	41	↑	→	↓
Lucas-Bull WE	24	26	41	↓	↓	↓
Willcox M	41	27	41	↑	→	↓
Mageza NP	41	28	4	↑	↑	↑
Matthews N	41	29	41	↑	→	↓
Xayiya M	41	30	41	↑	→	↓
Madi PM	41	31	41	↑	→	↓
Khoza RJ	41	32	41	↑	→	↓
Combi ZL	41	33	41	↑	→	↓
Botha A	41	34	41	↑	→	↓
Serobe GT	25	35	41	↓	↓	↓
Nkosi S	41	36	41	↑	→	↓
Jakoet F	41	37	41	↑	→	↓
Sonn F	41	38	41	↑	→	↓
Boardman TA (Chris)	41	39	41	↑	→	↓
Vusi Khanyile	41	40	41	↑	→	↓

* A green arrow indicates movement into the ranking, an orange arrow indicates no movement, and a red arrow indicates movement out of the ranking

Directors' names in blue cells appear on the list of the top 40 highest ranked directors in both 2008 and 2010.

Directors' names in yellow cells appear on the list of the top 40 highest ranked directors in both 2010 and 2016.

Directors' names in green cells appear on the list of the top 40 highest ranked directors in 2008, 2010 and 2016.

The 2008 data in table 4.18 was obtained from a 2016 Williams, Deodutt and Stainbank study which ranked companies and directors based on the economic landscape in 2008.

Table 4.18: List of the top 40 ranked directors for 2016 and their respective movements

*41 denotes a ranking greater than 40 but not specified

Names	Ranking 2008	Ranking 2010	Ranking 2016	Ranking Movement Between 2008-2010	Ranking Movement Between 2008-2016	Ranking Movement Between 2010-2016
Seabrooke CS	41	41	1	⇨	⇧	⇧
Durand JJ	1	41	2	⇩	⇩	⇧
Patmore RB	41	41	3	⇨	⇧	⇧
Mageza NP	41	28	4	⇧	⇧	⇧
Wiese CH	41	41	5	⇨	⇧	⇧
Patel MM	41	41	6	⇨	⇧	⇧
Konar D	41	41	7	⇨	⇧	⇧
van der Ross BJ	6	41	8	⇩	⇩	⇧
Havenstein R	41	41	9	⇨	⇧	⇧
Botha SL	41	41	10	⇨	⇧	⇧
Langeni P	41	24	11	⇧	⇧	⇧
Payne NG	8	14	12	⇩	⇩	⇧
Copelyn JA	41	41	13	⇨	⇧	⇧
Moosa MV	41	41	14	⇨	⇧	⇧
Naidoo D	34	41	15	⇩	⇧	⇧
Kgosana RM	41	41	16	⇨	⇧	⇧
Bassa ZBM	41	41	17	⇨	⇧	⇧
Gelink GG	11	41	18	⇩	⇩	⇧
Otto CA	41	7	19	⇧	⇧	⇩
De Bruyn Sebotsa SEN	41	41	20	⇨	⇧	⇧
Ngonyama B	41	41	21	⇨	⇧	⇧
Friedland D	41	41	22	⇨	⇧	⇧
Mboweni TT	41	41	23	⇨	⇧	⇧
Mouton PJ	41	19	24	⇧	⇧	⇩
Tipper GR	41	41	25	⇨	⇧	⇧
Shaik Y	41	41	26	⇨	⇧	⇧
Kana S	41	41	27	⇨	⇧	⇧
Mojela LM	41	41	28	⇨	⇧	⇧
Dempster GW	41	41	29	⇨	⇧	⇧
Moleketi PJ	41	41	30	⇨	⇧	⇧
Njeke MJN	41	16	31	⇧	⇧	⇩
Nkonyeni V	41	41	32	⇨	⇧	⇧
Vice RT	41	41	33	⇨	⇧	⇧
Booysen SF	41	41	34	⇨	⇧	⇧
Van Rooyen J	41	41	35	⇨	⇧	⇧
Jooste MJ	41	41	36	⇨	⇧	⇧
Dingaan GP	41	41	37	⇨	⇧	⇧
Crouse L	18	41	38	⇩	⇩	⇧
Ross TDA	41	41	39	⇨	⇧	⇧
Mnxasana NP	5	41	40	⇩	⇩	⇧

* A green arrow indicates movement into the ranking, an orange arrow indicates no movement, and a red arrow indicates movement out of the ranking

Directors' names in yellow cells appear on the list of the top 40 highest ranked directors in both 2010 and 2016.

Directors' names in orange cells appear on the list of top 40 highest ranked directors in 2008, do not appear in 2010, but reappear in 2016.

Directors' names in green cells appear on the list of the top 40 highest ranked directors in 2008, 2010 and 2016.

Mageza NP, Langeni P, Otto CA, Mouton PJ and Njeke MJN appeared in the list of the top 40 ranked directors for 2010 and 2016 (highlighted in yellow). Mageza moved up significantly from number 28 in 2010 to number four (4) in 2016 and Langeni moved up from number 24 in 2010 to number 11 in 2016. On the other hand, Otto moved from number seven (7) in 2010 to number 19 in 2016, Mouton moved from number 19 in 2010 to number 24 in 2016 and Njeke moved down from number 16 in 2010 to number 31 in 2016. The following six (6) directors (highlighted in orange in Table 23), were ranked among the top 40 in 2008, reappearing in this ranking in 2016. Durand dropped from number one in 2008 to number two (2) in 2016, while Van der Ross dropped from number six (6) in 2008 to number eight (8), in 2016. Naidoo rose significantly through the rankings; number 34 in 2008 to number 15 in 2016, while Gelink dropped from number 11 in 2008 to number 18 in 2016. Crouse dropped from being ranked 18th in 2008 to 38th in 2016, but the most significant drop was that of Mnxasana, who was ranked 5th in 2008 to 40th in 2016. Five (5) directors (highlighted in yellow), in Table 23 above were ranked among the top 40 in 2010 and reappeared in this ranking in 2016. Mageza and Langeni moved up from respectively ranked number 28 and number 24 to number four (4) and number 11 in 2016. Otto dropped from number seven (7) in 2010 to number 19 in 2016. Likewise, Mouton dropped from number 19 in 2010 to number 24 in 2016 and Njeke dropped from number 16 to number 31.

4.6 BOARD COMPOSITION AND DIVERSIFICATION

It was of interest to see if the transformation agenda of the South African economy had a discernible effect on patterns in the movements through the ranking. Variables for race and gender were therefore added to the ranking of the top 40 directors in 2010 and 2016. The results for the two (2) time periods are presented in Table 4.19.

Table 4.19: Top 40 ranked directors by name race and by gender for 2010

Rank	Name	Race	Gender
1	Dube EG	B	M
2	Ramaphosa C	B	M
3	Vallet P	W	M
4	Titi F	B	M
5	Nurek D	W	M
6	Herman H	W	M
7	Otto CA	W	M
8	Swana S	B	M
9	Phaswana F	B	M

Rank	Name	Race	Gender
10	Sebotsa S	B	F
11	Cuba YZ	B	F
12	Leeming M	W	M
13	Motsepe PT	B	M
14	Payne NG	W	M
15	Koseff S	W	M
16	Njeke MJN	B	M
17	Magwaza JB	B	M
18	Mouton JF	W	M
19	Mouton PJ	W	M
20	Molefe PS	B	M
21	Shaw M	W	M
22	Ruck MJD	W	M
23	Wixley TA	W	M
24	Langeni P	B	F
25	McAlpine R	W	M
26	Lucas-Bull WE	W	M
27	Willcox M	W	M
28	Mageza NP	B	M
29	Matthews N	W	M
30	Xayiya M	B	M
31	Madi PM	B	M
32	Khoza RJ	B	M
33	Combi ZL	B	M
34	Botha A	W	M
35	Serobe GT	B	F

Rank	Name	Race	Gender
36	Nkosi S	B	M
37	Jakoet F	C	F
38	Sonn F	I	M
39	Boardman TA (Chris)	W	M
40	Vusi Khanyile	B	M

In 2010, twenty of the top 40 positions were occupied by black directors, of which 16 directors were male and four (4) females. In 2010, one female coloured director and one Indian male director occupied positions in the top 40 rankings. In this year, 18 white directors occupied positions in the top 40 rankings, of which one was a female director. In total, 34 male directors of various racial groups occupied positions in the top 40 rankings in 2010, while six (6) female directors of various racial groups occupied positions.

Table 4.20: Top 40 ranked directors by name race and by gender for 2016

Rank	Name	Race	Gender
1	Seabrooke CS	W	M
2	Durand JJ	W	M
3	Patmore RB	W	M
4	Mageza NP	B	M
5	Wiese CH	W	M
6	Patel MM	I	M
7	Konar D	I	M
8	Van der Ross BJ	W	M
9	Havenstein R	W	M
10	Botha SL	W	M
11	Langeni P	B	F
12	Payne NG	W	M
13	Copelyn JA	W	M
14	Moosa MV	I	M

Rank	Name	Race	Gender
15	Naidoo D	I	M
16	Kgosana RM	B	M
17	Bassa ZBM	B	F
18	Gelink GG	C	M
19	Otto CA	W	M
20	De Bruyn Sebotsa SEN	B	F
21	Ngonyama B	B	F
22	Friedland D	W	M
23	Mboweni TT	B	M
24	Mouton PJ	W	M
25	Tipper GR	W	M
26	Shaik Y	I	M
27	Kana S	I	M
28	Mojela LM	B	F
29	Dempster GW	W	M
30	Moleketi PJ	B	M
31	Njeke MJN	B	M
32	Nkonyeni V	B	M
33	Vice RT	W	M
34	Booysen SF	W	M
35	Van Rooyen J	W	M
36	Jooste MJ	W	M
37	Dingaan GP	B	F
38	Crouse L	W	M
39	Ross TDA	W	M
40	Mnxasana NP	B	F

As presented in Table 4.21, white directors occupied 20 of the Top 40 ranked positions in 2016. While there were no male or female coloured directors and no Indian female directors in 2010, six (6) male Indian directors were ranked in the top 40 in 2016 and 14 black directors, six (6) of whom were male and eight (8), female, were included in the rankings. In total, 32 male directors of various race groups were included in the rankings and eight (8) female directors of various race groups.

Table 4.21: Comparative summary of top 40 ranked directors by race and gender for 2010 and 2016

Year	2010			2016					
Ethnic Group	Male	Female	Total	Male	Diff vs 2010	Female	Diff vs 2010	Total	Diff vs 2010
White	17	1	18	20	3	0	-1	20	2
Coloured	0	1	1	0	0	0	-1	0	-1
Indian	1	0	1	6	5	0	0	6	5
Black	16	4	20	6	-10	8	4	14	-6
Total	34	6	40	32	-2	8	2	40	

Table 4.21 indicates the initial progress with the transformational agenda with increased racial diversification and the inclusion of predominantly black male directors in the top 40 companies in 2010. However, in the upper echelons of the ultra-elite the initial progress was reversed, and white male dominance increased again from 2010 to 2016. Previously disadvantaged individuals acting as directors in listed companies decreased slightly from 25 % in 2010 to 24% in 2016.

Striking results were found in that the number of white male directors who were ranked in the top 40 increased from 17 directors in 2010 to 20 directors in 2016. The only white female director in the 2010 ranking disappeared from the rankings. There were no male coloured directors in either 2010 or 2016, and the one coloured female director who occupied a position in the 2010 ranking did not reappear in the 2016 top 40 ranking. No Indian female directors appeared in either the 2010 or 2016 top 40 rankings, whereas there was a significant increase in Indian male directors (one director in 2010; five (5) directors in 2016). The most significant drop was amongst black male directors (16 directors in 2010 to six (6) in 2016). If gender is not taken into consideration, white directors increased slightly from 18 directors in 2010 to 20 directors in 2016. Coloured directors declined from one director in 2010 to none in 2016, whereas Indian directors increased by five (5) between 2010 and 2016. Black directors in the top 40 rankings declined slightly from 20 directors in 2010 to 14 directors in 2016.

4.7 POSSIBLE REASONS FOR THE CAUSES AND CONSEQUENCES FOR THE FORMATION OF DIRECTOR INTERLOCK IN SOUTH AFRICA

Chapter one and chapter two (2) dealt with the five (5) main reasons which Mizruchi (1996) identified for companies and directors to engage in interlocks. The five (5) main reasons were: collusion, co-optation and monitoring, legitimacy, career advancement, and social cohesion. Chapters one and three (3) elaborated on the inductive approach that was used. The inductive reasoning started with detailed observations, and moved towards more abstract generalisations and the formulation of ideas. The inductive approach involved the search for patterns from the observations that were made. By comparing patterns, and relating that to similar changing global patterns which were found, it resulted in the provision of both credibility and trustworthiness of the findings of the current study. As part of the inductive approach and conclusion of the study, identifying the patterns and understanding the relationships between the interlocked parties, a possible contribution to the application of relevant theory on the possible causes and consequences of these structural dynamics, in the local context, emerged. To expand on these developments regarding the possible causes and consequences of interlocks in the local South African context, the literature was scrutinised again.

The 2018 local study by Mans-Kemp, Viviers and Collins in exploring the causes and consequences of director overboardedness in an emerging market, identified two (2) mainstreams. The first which relates to the resource dependency theory in that companies engage with other companies. to gain access to resources such as capital, material or labour. The experience hypothesis of Mans Kemp *et al*. (2018) postulate that directors serving on more than one board are more influential as they are better connected and more experienced. Clements *et al*. (2015) are supported by Mans Kemp *et al*. (2018:212) in their experience hypothesis that further claim that multiple directorships are a sign of a “director’s quality”, as the number of board positions is related to the extent of an individual’s reputational capital. On the counter side, chapter two (2) elaborated on agency theory where there is conflict of interest between shareholders and managers and there is a separation between ownership and control. Mans- Kemp *et al*. (2018) call it their busyness hypothesis. To mitigate the conflict caused by the agency theory and to create the separation between ownership and control, the monitoring role of the board is paramount and emphasised.

Since the 1990’s important changes started to occur and formed the rationale for board appointments. When individuals were asked to join multiple boards it was based on the individual qualities rather than on the desire for any formal organisational relations between companies. As before, there are still some owners, financial advisors, and legal advisors on many boards. The deployment of governance codes, and in the local context, the focus on the transformation agenda, brought diversity to the boardrooms, with the appointment of people of colour, and the appointment of female directors.

Although most directors probably are not selected for strategic reasons, the network of interlocking directors still has some inter-organisational benefit as directors carry ideas from one company to other companies. DiMaggio and Powell (1991) call this phenomenon, “isomorphism” which drives organisations to resemble one another and in the process imitate behaviours resulting from organisational uncertainty, or normative pressures. This creates a pool of almost interchangeable individuals, with similar outlooks, orientation and disposition that overrides the normal traditions and control that influences company behaviour. Interlocking directors develop social cohesion and shared perspectives to go with their economic power bases and Donaldson (1995) in support, elaborates and re-names the phenomenon “institutional isomorphism”. The earlier work of DiMaggio and Powell (1991) is used by Donaldson (1995) and he differentiates between three (3) mechanisms that facilitate organisational change - coercive isomorphism, mimetic isomorphism and normative isomorphism.

Coercive isomorphism deals with the political influences companies and directors have to deal with, whilst trying to resolve legitimacy issues that might exist. Results of the current study indicate that coercive isomorphism did play a role in the implementation of prescriptive corporate governance codes. Elouaer (2006) found that companies do increase their board sizes to comply with regulatory frameworks. and he identified a similar international trend in French companies. The board sizes of French companies were compared for two (2) time periods, 1996 and 2000 and he found that in 1996, the average board size in France was seven (7) members, increasing to an average of 12 board members in 2005. Elouaer (2006:10) believed that this increase resulted from the implementation of the dualistic system of governance (Directoire et Conseil de Surveillance).

The current study does not imply that the increase in board size is solely a product of the King IV report. The literature review rather indicated that it was the result of a progressive increase in the size and composition of boards to allow for the board and directors serving on the board, to provide direction and establish the process to effectively assume responsibility of the boards’ governing role. Board sizes are likely to have increased gradually after the King I, II and III codes were published and as greater demands were progressively set from the King III to IV codes, to improve governance. When there is a shortage of skills resulting in boards which are not adequately resourced, it may lack the appropriate diversity to include a mix of knowledge, experience, skills, and independence.

In following the inductive approach and by comparing the changing pattern in France to the changing pattern in South Africa, companies and their boards in their efforts to comply with King IV, increased their board sizes. The two (2) challenges that King IV created were to provide boards with experienced directors that could staff all the board committees adequately, and to have quorums at all the committee meetings. The other was to appoint qualified board members which could serve on each committee. With the increase in the expectations, and the added responsibilities and requirements placed on directors, it resulted in a demand for more board resources which explains the increase of directors serving on one board from 2010 to 2016, as illustrated in Table 4.4, p 103.

Earlier in the study it was explained that companies can draw from a pool of directors to ensure board committees and sub committees are structured appropriately. Companies with smaller boards, experienced difficulties and found it hard or even impossible. to ensure quorums for all the required committees. Not only the transformation agenda applied pressure towards diversification, but the King IV report also emphasises diversification and adequate representation of race and gender on the board. The code promotes greater levels of diversity and attributes that are required are: skills, experience, knowledge, as well as age, race, culture, and gender; which the board appointees would bring to the boardroom. The guidelines set by the King IV Report, and from the observations made from the inductive approach, very similarly as in France with the introduction of the dualistic system of governance, the "Directoire et Conseil de Surveillance" (Elouaer, 2006:10) contributed to the noticeable increase in board size in France.

The global results reported that the average number of boards on which directors serve declined as companies attempted to be compliant, and appointed board members who do not serve on many boards. Earlier in chapter four (4) (Table 9, p 100), it was reported that in 2010, 2567 directors sat on one board. In 2016, the directors who sat on only one board more than doubled and increased by 109% to 5383. Out of the total population of all directors for 2016, 89% sat on only one board. Table 9, reflects that in 2010, 58 directors out of a total of 2970, sat on more than three (3) boards (1.95%). By 2016, the number of directors sitting on more than three (3) boards, increased to 68 out of 6044 (1.12%). There was a huge increase in the total number of directors, but in absolute terms there was a 17% increase in highly connected directors.

Mimetic isomorphism is when one company simply models, or copies, the structures of another perceived more successful company to create legitimacy because of their own lack of knowledge or uncertainty. Di Maggio and Powell (1994) is of the opinion that certain strategic or structural changes are the result of the universality of the mimetic processes and that there is a lack of any evidence that the adopted models enhance efficiency. Normative influences are created by networks of like-minded professional outside directors with shared experiences of the implementation and success in other companies. In an earlier study Di Maggio and Powell (1991:71) explained that normative isomorphism "create a pool of interchangeable individuals" which have a "similarity of orientation and disposition" which would ignore methodology, tradition or control that would have influenced the companies' behaviour and decision-making before. Burton (2000:193) is in support and believe that the implementation and execution of corporate governance practices in the corporate environment is dominated by professional outside directors which act as specialists " who are rapidly spreading the faith into most corners of the corporate world, creating strong and perhaps mindless pressures for compliance."

The researcher conducted an interview with retired judge Mervin King (July 2017) who played a leading role in drafting of what evolved as the various King reports. The interview as requested and conducted, formed part of the inductive process and to possibly understand the possible rational for the forming of interlocks in South Africa, and what the possible consequences of those interlocks in the local economic environment could be? King agreed with all the previous scholarly research which contributed to the better understanding of the global formation of interlocks but was adamant and firmly believed that one of the primary local consequences leading to the formation of interlocks, were the limited talent pool from where directors could be sourced. Mans-Kemp *et al*. (2018) conducted semi-structured interviews with 10 experienced diverse South African directors to investigate the causes and consequences of overboardedness, or interlocks in an emerging market like, South Africa. Results from the study by Mans-Kemp *et al*. (2018) confirmed the strong view as expressed by Mervin King, as the interviewees identified the limited talent pool and attempting to meet board diversity targets as the main cause leading to "overboardedness", or interlocking. The interviewees identified poor meeting attendance by interlocked directors as one of the main reasons why they believe some directors simply sit on to many boards. Insufficient meeting attendance is not the main concern but the fact that directors are over extended limit their monitoring ability, which is one of the important role and functions, for which they were actually appointed. The effectiveness of directors' monitoring role was questioned after the 2008 global financial crisis (Hill & McDonnell

2013). Much of the criticism stemmed from shareholders who argued that board members should have adopted a more active oversight role on their behalf. An increasing number of shareholders and other financiers started to interrogate boards and objected to directors who held multiple board positions, claiming that they might not be able to effectively fulfil their various roles (Ferris *et al*. 2003). That is exactly also what happened and relates to questions which were asked after the Steinhoff collapse.

The interviewees from the 2018 Mans Kemp *et al*. study confirmed that director interlocking could offer invaluable access to social networks, information and resources. Katz and McIntosh (2016) argue that for interlocks, benefits, such as prestige and additional financial reward, should be weighed against the potential for reputational damage, time commitments and the duties accompanying, each board position.

South Africa as an emerging country, experienced significant pressure which was applied on companies, post-1994 and the democratisation, to pursue the transform agenda through the racial and gender diversification and composition of their boards. Mans-Kemp and Viviers (2015) in an earlier study, claimed that because companies in their attempts to diversify, source directors from a limited pool of female and black candidates, the appointments that were made and the directors that were sourced, resulted in the formation of interlocks. The appointed directors are too busy to perform their duties effectively. Results from the current study are confirmed by Mans-Kemp and Viviers (2015) who believe that there is a direct correlation between the formation of interlocks and attempts to pursue the transformation agenda.

The number of eligible board candidates are limited which leads to over utilisation of the talent pool and female and black directors become over extended. In applying the inductive approach and comparing patterns and by creating meaning from the observations, Roudaki and Bhuiyan (2015) found a similar problem and contributed the large formation in the number of interlocks between directors in New Zealand, to a shortage of qualified and independent directors.

Kemp-Mans *et al*. (2018) concluded their results obtained from the responses received from the 10 interviewees, and identified three (3) main reasons for the formation of interlocks. The three (3) reasons were identified as, the limited pool of eligible board candidates, board transformation requirements and financial rewards. Kemp-Mans *et al*. (2018:21) quote one of their participants as saying “everyone is drawing from the same small pool and when you ask a company if they would mind overboardedness versus having the right skills and experience on the board, they would generally rather deal with overboardedness”. An interviewee noted that black females were especially in high demand as they could contribute to both board ethnicity and gender targets, but it unfortunately leads to excessive time commitments. They quote a second participant who made the following statement "if you follow the careers of most of the sought-after diverse candidates, it is amazing to see how their number of boards grows" (Kemp-Mans *et al*., 2018: 215). As part of their earlier 2015 research, Mans-Kemp and Viviers (2015) found that the number of black and female directors serving on the boards of JSE-listed companies has increased significantly since 2002. The results from the current research reflected a similar pattern.

The interviewees in the Mans-Kemp *et al*.'s (2018) study confirmed the link between their experience hypothesis and resource dependence theory. Interlocks and directors who serve on many boards have a broad range of experience and they apply their experience and what they have learned from other boards, to the companies and the boards they have been appointed too. Clements *et al*. (2015) believe that interlocked directors become over committed, which links to the business hypothesis of Mans-Kemp *et al*. (2018) and that interlocked directors could find it difficult to give sufficient attention to all their board responsibilities. The findings of Fich and Shivdasani (2006) is in line with this busyness hypothesis or theory, as the majority of the interviewees, as interviewed by Mans-Kemp *et al*. (2018) indicated that interlocks might indeed contribute to poor corporate governance.

Organisations and companies are somewhat dependent upon one another and the manifestation is seen in the way they exchange scarce resources, experienced directors is a good example of such a scares resource (Allen,1974). Companies develop cooperative strategies which enable them to reduce or control, important sources of uncertainty in their environments and by limiting or anticipating, the potentially disruptive actions of other companies (Thompson, 1967). The three (3) principal cooperative strategies, which forms part of the resource dependency theory, which was discussed before (literature review, Section 2,15.3:60), are proposed by Thompson (1967:36) and are contracting, co-opting, and coalescing (Literature review, Section 2,16). Co-optation, as discussed in the literature review, and observed in South Africa to a certain extent, occurs whenever the supply of independent, experienced and professional directors are concentrated among a few companies but the demand for directors is dispersed among many companies. Due to the limited pool and the availability of experienced independent and professional directors in South Africa, companies are forced to consider contracting. Contracting tends to occur whenever both the supply of and the demand for these experienced directors are concentrated among a few companies. In South Africa, due to the limited size and availability of especially black female directors, the supply of, and the demand for these black individuals are concentrated among a few companies, but because the control allowed by contracting is inadequate, companies are forced to coalesce.

This business practise to coalesce, means that companies are weaving any opportunities together, to engage and appoint these black individuals to their boards in their strive to create diversity and pursue the transformation agenda, wherever the opportunities might arise and wherever these black individuals could be found. Interviewees in the Mans-Kemp *et al*. study (2018) confirmed the existence of the practise within South African companies.

4.8 SUMMARY

Comparing the results of the study to previous South African and global studies, the following findings stood out: average board size almost doubled from 9.16 in 2010 to 17.81 in 2016. The number of directors more than doubled during this time, although the number of companies remained virtually static. The total number of directors for all listed companies increased from 2 970 directors in 2010 to 6 044 in 2016. The number of companies for the same period increased from 393 companies to 394.

The composition and features of the networks in 2010 and 2016 differ. The number of available board seats increased from 3 598 to 7 017 between 2010 and 2016, the number of directors on multiple boards changed from 403 in 2010 to 661 in 2016 and the average number of directors per company increased from 7.56 in 2010 to 15.34 in 2016. The average number of boards on which directors sit declined from 1.21 in 2010 to 1.16 in 2016.

The percentage of interlocked directors changed from 13.57% in 2010 to 10.94% in 2016. In 2010, 309 of the 393 companies listed on the Johannesburg Stock Exchange belonged to the inner circle of interlocked companies and 84 to the outer circle. In 2016, 335 of the 394 companies belonged to the inner circle and 59 to the outer circle. In 2010, 79% of the listed companies were interlocked and in 2016 the number increased to 85%.

The entire dataset for all listed companies in both 2010 and 2016 indicates that previously disadvantaged individuals represented respectively 25% and 24% of the directors of listed companies. In 2010, the top 40 ranked directors are illustrative of the transformation agenda as evidenced by the increased inclusion of previously disadvantaged individuals, especially women. However, a definite reversal to the dominance of white male directors among the elite - and even more so among the ultra-elite - is evident in 2016. There is also clear evidence of an upcoming black elite incorporated into the social class of directors of listed companies.

In Chapter 5, evidence is provided of the existence of a corporate elite, in addition to substantiation of the notion that the transformation agenda is actively pursued. In the discussion, the granular findings emerging from the data is expanded upon to illustrate the active pursuit of the transformation agenda. The discussion concludes with a discourse on the possible causes and consequences of the pattern that was identified and an exploration of the changes in pattern that had occurred between 2010 and 2016.

CHAPTER 5 – DISCUSSION

5.1 INTRODUCTION

The study investigated recent and possible developments in studies of interlock among companies and their directors. A quantitative approach was followed by applying a social network analysis which was used to scrutinise companies listed on the Johannesburg Stock exchange and the directors who served on their boards. The analysis was done by using two (2) time slices during 2010 and 2016. The results of the social network analysis created visibility into a change in interlock structure and pattern from 2010 to 2016, and which were the prominent companies and directors serving on their boards. In line with global trends, financial consolidation and a possible decline in economic activity, a reduction in board sizes of companies would have been expected, as both time slices occurred shortly after times of financial turmoil or contracting of economic growth. This was however not the case, as the opposite occurred, with an increase in board sizes as a point of departure for the discussion in this chapter. Possible reasons for the increase in board sizes and concomitant implications regarding director as well as company interlock occurrence are discussed.

The relevance of the social class domination and elite theories were made evident by the network analysis and the discussion which will follow, will indicate a trend towards domination by a minority of individuals, and that power resides in the hands of a few. There are indications that the composition of such an elite group, changed during the two (2) time slices that were analysed, and possible reasons are presented to indicate if this was in line with the changes in South Africa's demographics and regulatory frameworks. No evidence that interlocks are good or bad was found, but that any outcome depends on how interlock is applied (and the study concludes, by using) based on a local example that concludes this study., (that it all depends on how it is applied).

There are the following four (4) key considerations concerning this study that are discussed, but not necessarily in order of their importance:

1. Is there a possible explanation for the unprecedented increase in the size of boards of South African listed companies?
2. In the local South African context, and in the formation of the local elite, is there some form of power retention, or a shift in power, in the face of transformation?
3. Was there any transformational change in the make-up of a South African elite discernible between 2010 and 2016, and, if so, (could a change be observed in who) are the central actors in such (the) an evolving local economic power network discernible?

4. Is there any evidence to indicate that interlocks could be beneficial or detrimental depending on how (it is) interlocks are applied, (and could it be proven by) illustratively based on an example from the South African economy?

In the section that follows possible reasons for the increase in the size of South African boards and implications of this trend for corporate governance are discussed.

5.2 POSSIBLE REASONS FOR THE UNPRECEDENTED INCREASE IN THE SIZE OF SOUTH AFRICAN BOARDS

The first important finding of the study was the massive increase in board size. In 2010, 393 companies were listed on the Johannesburg Stock Exchange. In 2016, this number had only increased by one company to 394. As reported in Chapter four (4), the average board size increased for South Africa from 9.16 in 2010 to 17.81 in 2016, a massive 94.43% increase, and from 2,970 directors in 2010 to 6,044 in 2016. As illustrated by the meta conceptualisation of Hung (1998), discussed in Chapter two (2), contributing elements such as ideal board size, best practise and legal restrictions and requirements, need to be consider in the interpretation of the findings. These factors go hand in hand with the level of accountability and responsibility that directors can accept, given their workload, still meeting their fiduciary duties while adding value as board members. In the discussion that follows, international findings are compared to the findings of the current study, in an attempt to find answers to what the key drivers for increased board size could possibly have been, or what caused this unprecedented increase in local board sizes of listed companies.

Three (3) points must be raised. Firstly, with reference to Appendix seven (7) and 26 international studies, the historical empirical work was largely descriptive, analytical, or comparative in nature, and in most cases focused on the small world phenomenon, which makes comparisons difficult and largely inadequate. In most cases, the studies only analysed a sample, or an isolated group of companies, or only focused on a specific sector, or component in the analysis. Secondly a very limited number of studies used data for all listed companies. Thirdly, to find studies that used competitive time slices to that of the current study was also challenging. For example, in 2008, as summarised in Appendix six (6), Santella reported in terms of average board size, that for the top 40 companies, average German boards were the largest (23.25), followed by the Top 40 average French and Italian board sizes at 14.88 and 14.38 respectively. As part of Appendix six (6), it is indicated that Heemskerk (2011) found that, in 2005 for FSTE 300 companies of 16 countries, average board sizes for Belgium companies were 19.5, Austrian companies 18.5, French companies 17.1, Germany companies 16.5, Spanish companies 16.3 and Italian companies 14.6. The work of Conyon and Muldoon (2006:1335) was the first to also include all listed companies in 2003 for the United States, indicated that the average board size was 9.97, for that of the United Kingdom 6.51 and for Germany 6.33. Although the time slice was for 2003 and historic, it at least confirms that the dramatic increase in South African board sizes appears to be unprecedented. The literature was further scrutinised to see if more evidence could be found. In Table 5.1 below, Sankowska and Siudak (2016) compared board sizes with the number of directorships held for 10 countries, including South Africa, and they comparatively looked at board sizes, over a period from 2002 to 2014. The comparison starts with earlier mentioned work of Conyon and Muldoon in 2003, followed by Milakovic, Alfaran and Lux (2008) and what is interesting to note is that the average German board size in 2003 was 6.33 which increased by 100% to 13.3 in 2008. This emphasises some of the difficulties that were experienced as Milakovic, Alfaran and Lux (2008) did not explain this 100% increase in German board sizes and why it doubled from the earlier findings of Conyon and Muldoon found for 2003.

Although the time slices are not identical, it would appear (in Table 5.1) that there are indications that the average South African board size of 9.16 in 2010 compares to similar board sizes in Italy, Switzerland, and the United States. Average board sizes in Australia and France were slightly smaller. When comparing South African board sizes to international board sizes for 2010, it appeared to be in line with global trends. The results from the current study and comparing that to global historic studies confirm that by 2016 South African board sizes increased abnormally with the average South African board size higher than that of any other country (17.81).

Table 5.1: Sankowska and Siudak (2016) – Comparison of 14 international studies on average board size and average number of directorships

Country	Date of study	Author/s	Ave. board size	Ave. # of directorships
Poland	2014	Sankowska and Siudak	7.8	1.2
UK	2003	Conyon and Muldoon	6.51	1.84
Germany	2008	Milakovic, Alfaran and Lux	13.3	1.12

Country	Date of study	Author/s	Ave. board size	Ave. # of directorships
Germany	2003	Conyon and Muldoon	6.33	1.45
Italy	1998-2011	Bellenzier and Grassi	9.57 – 10.41	1.20 – 1.27
Italy	2008	Croci and Grassi	10.16	1.54
Switzerland	2000	Heemskerk and Schnyder	9.5	-
Netherlands	2001	Heemskerk and Schnyder	8.2	-
United States	2003	Conyon and Muldoon	9.97	1.63
United States	1995	Ferris, Jagannathan and Pritchard	-	1.6
New Zealand	1993	Roy, Fox and Hamilton	6.14	1.22
Australia	1991	Roy, Fox and Hamilton	8.37	1.19
France	1999	Denis and Sarin	8.56	1.28
South Africa	2008	Durbach and Parker	9.48	1.28

Secondly, and to possibly understand why South African boards not only increased so much in size, but also why so much more directors were added the literature was scrutinised to see if the same pattern possibly existed across more jurisdictions. Results from the current study indicated that in 2010, there were 2970 directors, for 393 companies, which massively increased to 6044 directors in 2016 (203%), although the number of companies only increased by one, to 394. An interesting observation was despite this increase there was a decline in the average number of boards a director sits on. In 2010 the average number of boards directors sat on was 1.21, and despite the increase in number of directors, the number declined to 1.16 in 2016. Can something be read into the fact that average seats held by directors decreased whilst board sizes increased?

Conyon and Muldoon (2006:1335) found in the US, that each director, on average, had 1.63 directorships. Approximately 20% of all directors serve on two (2) or more boards. Durbach and Parker, who studied South African data for 2008, reported the average directorships by directors as 1.28 (**Error! Reference source not found.**). Bellenzier and Grassi (2014) in Table 5.2, compared the average board size of Italian companies over a period of 14 years, from 1998 to 2011, where average board sizes of Italian companies gradually increased from 9.65 to 10.35. An interesting observation was made that although board size of Italian companies gradually increased the average seats held by directors steadily declined. The average decline is indicated in table 5.2 from 1.27 to 1.20.

Table 5.2: Summary of study over 14 years on board composition and structural properties of all listed Italian companies by Bellenzier and Grassi (2014)

Periods	Directors	Seats	Average seats held by director	Average board size
1998	1,782	2,267	1.27	9.65
1999	1,913	2,434	1.27	9.58
2000	2,212	2,781	1.26	9.57
2001	2,309	2,899	1.26	9.64
2002	2,306	2,875	1.25	9.75
2003	2,106	2,636	1.25	10.06
2004	2,171	2,719	1.25	10.14
2005	2,236	2,836	1.27	10.24
2006	2,290	2,845	1.24	10.05
2007	2,403	2,949	1.23	10.06
2008	2,356	2,871	1.22	10.14
2009	2,381	2,866	1.20	10.3
2010	2,263	2,728	1.21	10.41
2011	2,227	2,671	1.20	10.35

As mentioned, the 2014 study of Bellenzier and Grassi found the same pattern, where their study which spanned over 14 years revealed a small structure that was characterised, and which reflected ties that remained static over time. The results, as summarised by the study of Sankowska and Siudak (2016) in Table 5.1, and results reported for Germany indicate a decline from 1.45 in 2003 (Conyon and Muldoon) to 1.12 in 2008 (Milakovic, Alfaran and Lux). Results of the current study confirmed a similar declining trend in the average number of boards on which directors sit. The only conclusion that can be made is that the pattern appeared to be consistent across the world.

In the literature review, and with reference to existing theories which were developed for empirical work before the current study, existing theories do not assist, nor can they provide any meaningful explanation, for the unprecedented increase in average board size and the increase in the number of directors, and the author opines that these theories might be inadequate to try and find the answer. One international study could be found, done In France by Elouaer (2006) which indicated that regulatory requirements played a role and the discussion continues to see if that might, or could have had an influence or played a role in the local context. While the above does not provide a satisfactory answer regarding increasing board size at this time, clarity will be provided in the section that follows and in the next section, the implications of regulatory requirements with regard to ideal board size is explored.

5.3 THE INFLUENCE OF REGULATORY REQUIREMENTS IN CREATING THE IDEAL BOARD

To address this issue of regulatory requirements, the question then would be, in complying with regulatory codes: is there perhaps an ideal board size, and did attempts to comply with regulatory requirements play a possible role in the increase in board size, and on how many boards a director can serve? The fact that companies do increase their board sizes to comply with regulatory frameworks was proven by a similar international trend identified by Elouaer (2006), who found a similar trend in French companies. The analysis of French companies was performed by comparing two (2) time periods (1996 and 2005). In 1996, the average board size was seven (7) members, increasing to an average of 12 board members in 2005. Elouaer (2006:10) believed this increase resulted from implementation of the dualistic system of governance (Directoire et Conseil de Surveillance).

The increase in board size is not solely a product of the King IV report. In the presentation of the results (Chapter 4.7) it became clear that the progressive increase in the size and composition allows for the board to provide direction and establish the process to effectively assume responsibility of its governance role. Board sizes are likely to have increased gradually after the King I, II and III codes were published. The King I (1994) and II (2002) reports were written with an inclusive approach to governance, but King III (2009) explained this notion in more detail. Greater demands were progressively set from the King III to IV codes to improve governance When boards are not adequately resourced, it may lack the appropriate diversity to include a mix of knowledge, experience, skills, and independence and therefore, in their efforts to comply with King IV, companies increased their board sizes.

With specific reference to the local South African context the literature was further scrutinised to see if compliance with changed governance codes possibly played any role in the increase in board sizes. Similarly, the Institute of Directors in Southern Africa (IODSA), issued a draft of the King IV Report on Corporate Governance for South Africa, for public comment on the 15th of March 2016. In anticipation of the formal release in the latter part of 2016, the arrival of King IV, might have been a contributing factor in the increase of South African board sizes - illustrating the intent of companies to comply with the evolving guidelines as prescribed in the report. King IV created two (2) challenges for companies, both of which had an influence on board size. The first was to provide boards that could staff all the board committees adequately, ensuring that they have quorums at all committee meetings, and another was to ensure that they had suitably qualified board members serving on each committee. Increased expectations contributed to added responsibilities and requirements and resulted in a demand for board resources and the significant increase of directors serving on one board only between 2010 and 2016 is illustrated in Table 4.4, p103.

The King IV report (2016) introduced further enhancements to corporate governance practices by suggesting the balancing of the composition of governing bodies and their independence through delegation to management and sub-committees. The report stipulates that the board must have enough members that qualify to serve on the various subcommittees, and which needs to be considered when considering how to adequately staff the main board. King IV recommends that each committee, such as the audit committee, shall have three (3) members, and boards therefore have the need to have a pool of enough directors, from which they can source from a possible wider selection, to ensure board committees are structured appropriately. In all likelihood, companies would have found it hard or even impossible to ensure quorums for all the required committees if their board size was small. It then made it even more difficult to draw members from other committees to comply to one of the enhanced governance mechanisms introduced in the King IV report, which called for the establishment of an ethics and social committee, which further impacted board size.

The King IV code adds further complexity to the ideal composition of a board and its size by emphasising diversification and adequate representation of race and gender on the governing body. The code promotes greater levels of diversity in its membership which is to be achieved through the deployment of several attributes relevant for promoting improved decision-making and effective governance. The attributes which need to be included are skills and experience, the relevant field of knowledge, as well as age, race, culture, and gender. The King IV code guides boards to set targets for race and gender representation in its membership, and to question whether its size, diversity and demographics make it effective.

The guidelines set by the King IV Report, might have made the noticeable increase in board size necessary. King IV provides more guidance on the independence of non-executive directors, a topic that was limited under the King III code. Non-executive directors may be labelled as independent and the PWC report states that they are regarded as independent when "it is proven that there are no interests, positions, associations or relationships which could be deemed as unreasonable, or likely to unduly influence, or cause bias in decision-making in the best interests of the company" (PWC report, 2017:13). The PWC report states that "Independence is the absence of undue influence and bias which can be affected by the intensity of the relationship between the director and the company rather than any particular fact such as length of service, or age (p14)." This relationship can be potentially further compromised, and independence sacrificed, if directors are heavily interlocked. If boards appoint directors that serve on only one, or maybe one other board, a higher level of independence could be guaranteed. It could be speculated that in attempting to be compliant, companies appointed board members who do not serve on many boards, and which could possibly explain why the average number of boards on which directors serve declined. In presenting the results in Chapter four (4) (Table 4.4, p103) in 2010, 2,567 directors sat on one board, which more than doubled and increased by 109% to 5,383 directors who sat on only one board in 2016. Out of the total population of all directors for 2016, 89% sat on only one board.

As presented in Table 4.4, a total of 58 out of 2970 South African directors sat on more than three (3) boards in 2010 (1.95%). By 2016, the number of directors sitting on more than three (3) boards had increased to 68 out of 6,044 (1.12%). Although there was a decrease of 42% for directors sitting on more than three (3) boards during this period, the massive increase in the number of directors must be taken into consideration. With that in mind, there was a 17% increase in highly connected directors in absolute terms. Despite international guidelines which are discussed below, and which recommend on how many boards a director can serve, there is no local guideline in any of the governance codes making a recommendation on how many boards local directors can potentially serve.

In 2003, in the UK, The Combined Code of the Financial Reporting Council recommended that directors serving in executive capacity of one UK company should not serve on more than one board in a non-executive capacity of an FTSE 100 company. The literature review shed light on the debate around the number of directorships occupied by a director allowing him or her, to adequately perform his or her legal fiduciary duty, acting with both good care and in the best interest of the shareholders and the company/companies involved (Kiel and Nicholson, 2006). The Australian Shareholders' Association (ASA) recommended that any director who occupies more than five (5) boards cannot act in the best interest of the company and its shareholders. This association is in support of the United States Council of Institutional Investors who suggested in 2004 that directors who are professionally employed in a full-time capacity should not serve on more than two (2) other boards. The Council further recommended that, in the case CEOs, they should be allowed to serve on one other board only. A combined survey of 1279 directors conducted in 2004 by the Corporate Board Member magazine and PricewaterhouseCoopers in the United States is proof that most directors themselves believed that there should be a limitation to the number of other board seats directors may occupy (Kiel and Nicholson, 2006). The survey results recommended that a CEO could sit on his own board and one other and that outside directors could sit on three (3) boards. In the local context, there is currently no restriction on the number of boards on which a director may serve – although there is certainly scope for such a restriction. This will be discussed as recommendations in Chapter 6.

If the research by the Combined Code of the Financial Reporting Council in the UK, the Australian Shareholders' Association (ASA) and the Council of Institutional Investors in the United States are to be combined with PricewaterhouseCoopers' 2004 survey to act as guidance, a director in his capacity of CEO may sit on potentially only three (3) other boards. These findings were given weight by the fact that more than 1200 directors participated in the 2004 PricewaterhouseCoopers survey.

The April 2017 PWC report clarified the changes to the King IV governance code in terms of the acknowledgement of the interaction and diversity on board level. Since the inception of democracy in South Africa there was a lot of emphasis on addressing the transformation agenda which was compounded by the King IV code by emphasising diversification and adequate representation of race and gender on the governing body. The code aligns with the call for greater board diversity in its membership compilation to include a variety of attributes relevant and contributing towards better decision-making and effective governance. As mentioned before, these attributes need to resemble a diversified mix of members with the skills and experience, the relevant knowledge in the different fields which is required, as well as a mix of different age groups, races, cultures and gender. The King IV code guides boards to set targets for race and gender representation in its membership, urging them to consider whether its size, diversity and demographics make it effective. It brings another possible explanation of why board sizes increased by so much and did attempt to address the role of transformation (play any role) in the increased sizes of boards and the increase in number of appointed directors? The next section addresses the transformation agenda in the context of this study.

5.4 Failed attempt to address the transformation agenda

When talking about transformation an essential dimension is the consideration of the demographics of the elite – those board members who sit on multiple boards. The elite is defined by Mizruchi (1982), Useem (1984), Scott (1991) and Murray (2000) as directors which forms part of what they call an "inner circle" of individuals that hold multiple directorships. Vergara (2013) in Table 2.1 (p46), already indicated that both the elite theory and class domination theory play a role in this context as boards of directors, by default, already form part of the corporate elite. The directors on these boards are important actors or role players in the power structure, and in any network, by virtue of their influence and power. During the literature review in Chapter two (2), Higley (2008:3) and Vergara (2013:3) were quoted identifying members of the elite by looking at their strategic locations within big or prominent companies. and who manage businesses and all the manifestations of political power. In some cases, these individuals have the upper hand by virtue of their significant wealth but advancing is a profound theory related to power.

Domhoff's (2005a) interest in power extended to business-specific power. He was interested in who benefits most from the patterns of connections and who governs those patterns of connections. Domhoff (2005a:4) called this elite a "lurking force" made up of those who benefit, those who govern and those who win. Those who benefit the most are seen as powerful, while those who occupy influential positions and who make important decisions, are regarded as being in positions of power. Those who win are at the centre of control, driving decision-making processes due to their considerable influence.

According to Andrews (2007), the only way to accelerate growth and to address the stalled transformation agenda would be a shift from finite, close-knit groups of companies, to the loose collections of many companies (Figure 27). Such a shift would move South Africa from the traditional concentrated, closed relational structures to de-concentrated and open relational structures. According to Andrews (2007), the government's policy framework is focussed on addressing the transformation agenda and by opening such economic structures.

	Finite, close-knit groups of companies	Loose collections of many companies.
Capital	Concentrated, vertical and/or horizontal integration	De-concentrated, though often capital access through loose relationships
Control	Significantly interlocking directorships	Limited interlocks, but Some quality-based coordination through supply chains and other social structures
Personnel	Fairly common and closed capture groups across industries	Often family connections: networks differ across industries
Supplier	Tight connections between sellers and suppliers; often ownership ties; restrictive and detailed contracting arrangements; control suppliers	Loose relationships; many suppliers, coordination through supply chains
Characteristis	Power concentration Many outsiders Conducive to high capital, heavy industries, control orientation	Many empowered. Fewer outsiders Conducive to high knowledge, responsive, learning industries

Figure 5.1: Degree of structural change to intra and inter-company relationships (Andrews, 2007)

There has inevitably been a call for transformation since the inception of democracy in South Africa and the attempts to address the transformation agenda is yet another manifestation of a power struggle. In Chapter two (2), Dooley's (1969) study on power formation was mentioned. This author opined that tightly knit companies are those that are interlocked four (4) or more times, while loosely knit companies are those that are interlocked two (2) or three (3) times (Fennema & Schijf, 1978:311). In support of Andrews' call for accelerated transformation (2007), there has to be a move away from what Sonquist and Koenig (1975:205) called a power formation of “networks of nested groups” as well as a move away from cliques where actors “associate together in a clannish way; and to act with others secretly to gain a desired end; or to plot” (WikkiDiff (2020) desired end, or to plot - Explanation? [online]. Available from : < https://wikidiff.com/desired end/plot >) hese power formations, in the form of business groupings, are a major hindrance to transformation. As described by Scott (1991), they are, simply put, the manifestation of power struggles (Appendix 4). Clearly, the notion of a transformation agenda or any agenda other than that of the various actors in these power struggles must take a back seat.

As discussed in the Literature Review (point 2.18.5), Useem’s hegemony model (1984) and that of Scott (1991) identified the existence of a corporate or business elite which has power and influence over and across the entire business system. Murray (2000) pointed out that in the South African demographics of the elite, race also played a role. The South African network of directors was historically exclusively dominated by white directors, with black individuals unrepresented on boards until 1995 and less than a half a percent of the market directly under the control of blacks (Murray, 2000). Based on racial concentration, a small number of white individuals held most of the shares in the largest, most dominant companies in the country. The initial response to this call for transformation was to increase the number of black directors, which is duly reflected in the results of the current study up to 2010, where the number of black directors who ranked among the top 40 did in fact increase according to centrality scores. This, however, diluted white power and to retain power, a counter reaction occurred. According to the 2016 centrality scores, there was a noticeable increase in the number of white directors ranked among the top 40. These shifts in highly connected directors reinforce the power reactionary theory.

Evidence of the notion of transformation is the increase in the number of previously disadvantaged directors appointed between 2010 (735 directors) and 2016 (1453 directors). In the complete dataset for 2010 and 2016, this represented respectively 25% and 24% of directors. The proportion of previously disadvantaged directors remained virtually static during the study period and, as such, the increase in number cannot be attributed to attempts at addressing the transformation agenda. As mentioned above, the only indication of successful transformation was an initial move in the upper echelons towards more black male representation in 2010, but the reverse happened with a swing back to white male dominance in 2016.

However, arguments that the increase in board size during the research period was the direct result of the transformation agenda need further scrutiny. The rationale for this phenomenon may be much more complex. It could be argued that South African companies' drive to conform to the King governance codes may have improved diversity within boards, while the nobler aim of equal distribution of economic power may have been merely a side effect. Murray's (2000) findings on the educational and socio-economic demographics of director's hint at the role of the social networks that are created when actors attend the same elite schools and universities and when they study for the same elite qualifications, e.g. Law, Chartered Accountants and MBAs. Andrews (2007) found that these qualifications bring a certain sense of legitimacy and prestige and, apart from the fact that the qualifications open up opportunities to business networks and board appointments, they may even be a prerequisite to holding a board position. The next section looks at trends in the shift of power and a decline and shift in power away from the historic dominance and prominence of financial institutions in networks.

5.4 DECLINE AND SHIFT IN POWER AWAY FROM THE HISTORIC DOMINANCE AND PROMINENCE OF FINANCIAL INSTITUTIONS IN NETWORKS

The shareholder model which was discussed during the literature review is dominant in the United States and is also predominantly found in English-speaking countries within which the dominance of financial institutions is not peculiar. Early twentieth century studies (Jeidels in 1905 and the Pujo Committee in 1913) found that financial institutions form the cornerstone of almost all corporate networks, particularly in the United States. Domhoff's 1967 and 1974 research centred around those who hold power, and towards the end of the 70s, Fennema and Schijf (1978); and Mintz and Schwartz (1985:327), showed that in all advanced capitalist societies, "financial institutions, banks and insurance companies have central positions in the network of interlocking directorates". In the 1980's, a shift started to occur in which rent-based banking was transformed to fee-based banking. Fennema and Schijf (1978) indicated how the long period that was earmarked by bank hegemony came to an end as these companies were replaced by the rise of global cohesion as represented by transnational companies. They substantiated the rise of a cohesive and politically organised global corporate elite within which national-level networks still account for most links within several countries (Mintz & Schwartz, 1985). Caroll's research (1986) on the Canadian network during the post-war boom years (1946 to 1976) indicated that structural transformations occurred around a stable core of large banks. Davis (1993) indicated that this transformation affected the banks' relationships with their clients. Long-term durable relationships were transformed into more arm's-length market-based transactions and banks started to become less involved in interlocking directorates. This was supported by a similar transition away from the prominence of financial institutions in the United States as indicated by Davis and Mizruchi (1999). Following on this trend from the United States, European financial institutions also became less involved in board interlocks during the closing decade of the twentieth century (Heemskerk & Schnyder 2008, Carroll & Spanski 2010).

In the literature review, different models for governance were discussed and specifically Savage’s (1973), Cox and Rogerson’s (1985) and West’s (2006a) contextualisation of two (2) of the models within the South African context. These authors firstly elaborated on the management control or shareholder model in which the company is an extension of its owners, who are also the shareholders, stating that the company operates to the benefit of its owners and is accountable and responsible to the owners. In this model, managerial or financial control exists through a financial services company or group of companies and since the earliest South African research in 1905, done by Hobson (1905) (as presented in Figure 5.2), the control and centrality of mines were evident. This creates an advantage and progressively increases this advantage by combining resources to create financial muscle.

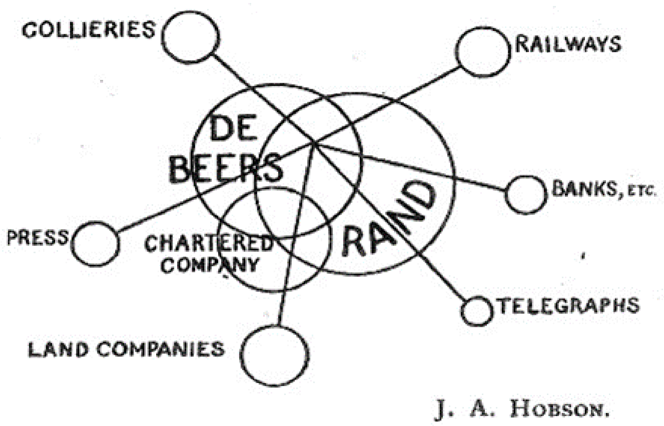


Figure 5.2: Savage (1987) - Hobson’s 1905 display of power formation in early South Africa

Savage (1973), Cox and Rogerson (1985) and West (2006a) stated that the second model to influence the South African economic landscape was the environmental control and reciprocity model, discussed in Chapter 2. The phenomenon of a group of companies gaining advantage by combining their resources is more likely the manifestation of the reciprocity model (Cox and Rogerson, 1985; West, 2006a; Muchemwa and Padia; 2016). The beneficial horizontal integration of shared directorships is used for the exchange of predominantly knowledge, resources, and information.

In South Africa we have, according to West (2006a), a struggle between the heritage of both colonialism and apartheid, while the country attempts to maintain a first-world financial structure. In South Africa there has always been a high concentration and centralisation of economic power (Cox and Rogerson, 1985). In a similar way as described above by Caroll's Canadian research (1986) and those of Davis and Mizruchi (1999) in the United States, results from the current study indicated that the same trend occurred in South Africa where s structural transformations occurred, away from a 'stable core' of large banks which was supported by a similar transition away from the prominence of financial institutions. Since 1980, McGregor published the ownership of shares of publicly listed companies in the publication "Who Owns Whom". Savage (1987) quoted McGregor's 1985 report that control of the economy by a central group of six (6) companies increased in 1985 to 84.3%.

Cox and Rogerson's study (1985) focussed on what they called the 11 largest companies, predominantly banks, and they analysed the possible shared links between these companies. Figure 2.7, on page 79 and the study by Cox and Rogerson (1985) indicated that South African financial institutions historically occupied central positions in the structure of corporate networks and acted as "vehicles for the class control of the economy" (1985: 254). This was followed by Savage's 1987 research that analysed ownership and the centralisation of economic power and control of South African listed companies. Savage's findings indicated that five (5) companies had had control over a big portion of the Johannesburg Stock Exchange (JSE) since the 1980s. The control was at its pinnacle in 1987 at 87%, decreasing to 71% in 1996, and decreasing further in the first five (5) years of the new millennium, then stabilising between 40% and 50% (Andrews, 2007). This decline may be due to some degree of horizontal unbundling, the increased role of institutional investors, the re-entry of international firms and some South African companies investing in Africa and abroad. The results of the current study confirmed the centrality of banks or financial institutions up and until at least 2010. The analysis presented in Chapter 4 was made possible by comparing the different centrality scores for each company enabling their ranking which revealed evidence that banks or financial services companies remained among the top 40 ranked companies in 2010 (Chapter 4 – Table 4.7). However, that slowly started changing in 2016, when merchants became more prominent (Table 4.9).

The results indicate that financial institutions, although not as prominent as before, continue to play an important role. The same applies in Europe as most of the largest listed companies in Europe are still connected to the boards of financial institutions through at least one of their board members. Results from the current study support Murray's findings in 2000 that the concentration of power is due to companies' links to one another by means of shared board seats and the fact that South African companies are still connected to banks and other financial institutions. As mentioned, the prominence of financial institutions has declined in favour of merchants. The current study created visibility in the South African network's shift away from the dominance of financial institutions to a network where market regulation plays a dominant role and a move away from credit to equity finance. The move is not limited to banks only but involves the entire South African financial sector with a further shift in focus from long term to short term investments. The results indicate that the existing class-wide rationality is being replaced by mega-companies pursuing their self-interest. Concurring with a 2013 study done by Mizruchi, the shift in the local context extended indicating that interlocking directorates in South Africa can no longer function as a foundation for political unity among the corporate elite.

The current study makes another major contribution following on research by Caroll in 2010, which indicated a shift in finance from "patient money" to "agile money" from the 1990s (Carroll, 2010:228). Caroll indicated that there was a move from bank-centred relationship-based financing to transaction-based financing. The current study supports Caroll's research and shows that there was a move to merchants and merchants' finance which may have involved asset managers, hedge funds and private equity. These relations are fleeting and do not necessarily entail interlocking directorates. The current study's results support this idea, illustrating the disappearance of financial institutions in the upper echelons of the network as importance sites for elite cohesion. This shift aligns with Sapinski and Carroll's 2017 findings that neoliberal market regulation resulted in banks losing their dominant and organising positions, resulting in the disorganisation of national interlock networks.

The results of the current study show that financial institutions, for example Sanlam and in particular banks like Standard bank, Barclays Africa Limited (Absa), Nedbank and RMB Holdings Limited initially remained central in the South African network in 2010, occupying 5 of the top 10 positions. This was done by comparing the degree centrality scores, the closeness centrality scores and betweenness centrality scores of the top 40 ranked South African companies and by comparing any change in pattern and hierarchy between 2010 and 2016. Only one merchant, Steinhoff, occupied a position in the top 10 in 2010. Table 29 shows that South African Banks were dominant in 2008 (Williams, Deodutt & Steinbank) and remained so until 2010, after which a shift occurred to merchant capital. There is a definite move away from the dominance of financial and financial services companies, which historically occupied positions in the ultra-elite up to 2010. In 2008, 13 prominent financial institutions ranked among the top 40 companies, but this decreased to seven (7) in 2010 and decreased even further to only three (3) in 2016. Heemskerk, Fennema and Carroll's results (2015) were similar, showing that most of the largest listed companies in Europe are still connected through at least one of their board members to that of the board of a financial company.

Table 5.3: Consolidated alphabetical list of the five (5) major financial institutions among the top 40 ranked companies in 2008 (Williams, Deodutt and Steinbank), 2010 and 2016

	Top 40 ranked companies 2008		Top 40 ranked companies 2010		Top 40 ranked companies 2016	
Consolidated	Name	Rank	Name	Rank	Name	Rank
	BARCLAYS AFRICA GROUP LTD	11	ABSA BANK LTD	3	BARCLAYS AFRICA GROUP LTD	10
	ABSA BANK LTD	29	ABSA BANK LTD	10		
BARCLAYS/ABSA	ABSA GROUP LTD	30				
	FIRSTRAND LTD	5	FIRSTRAND LTD	8		
FIRSTRAND	FIRSTRAND BANK LTD	17				
	INVESTEC LTD	3	INVESTEC PLC	20	INVESTEC PLC	38
	INVESTEC PLC	4	INVESTEC LTD	21		
	INVESTEC BANK PLC	10				
INVESTEC	INVESTEC BANK LTD	23				
	NEDBANK, LTD.	37	NEDBANK GROUP LTD	7	NEDBANK GROUP LTD	9
NEDBANK	NEDBANK GROUP LTD	40				
	STANDARD BANK GROUP LTD	6	STANDARD BANK GROUP LTD	2		
STANDARD BANK	THE STANDARD BANK OF SOUTH AFRICA LTD	8				
	Total of 13 financial instutitions for 2008		Total of 7 financial instutitions for 2010		Total of 3 financial instutitions for 2016	

Barclays Absa Nedbank
FirstRand Standard Bank

The study suggests that an important shift occurred in the power structure as defined by Domhoff (2014) in that the cohesiveness and centrality moved away from the historically central mining industry (Cox and Rogerson, 1985) and from the centrality of finance capital up until 2010, to merchant and industrial capital in 2016. In 2016, only two (2) banks, Nedbank, and Barclays Africa, remained in the top 10 positions, whereas Massmart and Shoprite suddenly occupied top ranked positions. From the results of the current study, these institutions remain central, even though there has been a significant reduction in financial services companies among the ultra-elite.[26]

Services companies such as Allied Electronics, Exxaro (a coal provider), Omnia (conversion of coal to oil and chemicals) and Sasol (a chemicals and fuel manufacturer) also appeared among the top 10 positions. Throughout the literature review and presentation of global and local findings it was evident that financial institutions historically remained central actors in the interlocked networks globally. Results of the current study indicated a shift towards merchant power. If the financial control theory stems from the resource dependence theory, one would suspect that interlocks would primarily occur between industrial companies and financial institutions, especially banks. This would provide industrial companies easier access to funds when required. In Table 5.4, the dramatic swing in 2016 to retail companies can be seen as they took over some of the top 10 positions. The ranking of retail companies

[26] The ultra-elite is defined as the top 10 ranked positions for companies according to their degree centrality, closeness centrality and betweenness centrality scores.

is indicated for 2008 (Williams, Deodutt and Steinbank), 2010 and 2016. Four (4) retail companies appeared in the top 40 ranking in both 2008 and 2010 but this figure doubled to eight (8) in 2016.

Table 5.4: Consolidated alphabetical list of the five (5) retail companies among the top 40 ranked companies for 2008, 2010 and 2016

Top 40 ranked companies 2008		Top 40 ranked companies 2010		Top 40 ranked companies 2016	
Name	**Rank**	**Name**	**Rank**	**Name**	**Rank**
Mr Price Group Ltd	13	Steinhoff International Holdings Ltd	5	Massmart Holdings Ltd	1
Pick n Pay Stores Ltd.	15	Mr Price Group Ltd	13	Shoprite Holdings Ltd	3
Woolworths Holdings Ltd	33	Massmart Holdings Ltd	35	Pick n Pay Holdings Ltd	16
Pick n Pay Holdings Ltd	38	Woolworths Holdings Ltd	36	Foschini Group Ltd	20
Total of 4 retail companies in 2008	4	Total of 5 retail companies in 2010	4	RCL Foods Ltd	24
				Truworths International Ltd	26
				Steinhoff International Holdings Ltd	28
				Woolworths Holdings Ltd	31
				Total of 10 retail companies in 2016	8

Muchemwa and Padia (2016) is of the opinion that there was movement in the local power network and that the reciprocity model became more dominant of both Massmart, and Shoprite with their various differentiated group of stores but by combining resources is a good example of the manifestation of the reciprocity model. **Error! Reference source not found.** above indicates that in the centrality rankings of 2016, Massmart is ranked in position number one, and Shoprite in position number three (3).

There are three (3) contributing reasons for the increased prominence of retailers from 2010 to 2016. Firstly, according to a 17 August 2017 Euromonitor article published by Barbara Farfan (Available from:< https://www.thebalancesmb.com/largest-african-retailers-2892272>.) the rise in popularity of retail supermarket chains is due to the demand for convenience shopping among the largest portion of low to middle-income consumers. Secondly, there is strategic intent from grocery retailers to improve their representation and exposure leveraging a new growth trend in the development of shopping centre development in historic “township areas”. Further evidence in support of this reason is provided by Dr Dirk Prinsloo from Urban Studies who wrote an article on retail trends in the South African Market (Avalible from http://urbanstudies.co.za/retail-trends-in-a-very-dynamic-south-african-market). Thirdly, an important factor in the increased prominence of retailers is the fact that homeware products are the fastest growing sector in the retail space, as per Dr Dirk Prinsloo.

Domhoff’s power theory (2005) held that the crux of power is where the concentration of power is situated. The rise of the power of retailers in terms of interlocking directorates is not merely because they are suddenly seen as good investments. They have replaced banks as vital connectors in the corporate network in South Africa because of their network centrality. As Senekal and Stemmet’s (2014) research explained, network centrality is a direct indicator of social embeddedness, which connect with power formation and the formation of a corporate elite. Concentration of economic power and growth are two (2) of the manifestations of power.

Economic growth is forecasted to come from the lower to middle-income markets where consumers increasingly purchase from convenience food outlets. Investment and development over the last 10 years has ensured that most of the informal housing areas, the traditional townships, now have more convenience centres than before. Expansion towards the larger community type centres have focused on taxi ranks and shopping malls with a higher number of pedestrians visiting such locations. A move by a substantial portion of the black market into the formal retail sector is evident. The general demographic changes also contributed to growth and expansion in the retail market. Andrew Darby of Nedbank Corporate expected that the LSM 8 – 10 segments, which represents 20% of the total market, would have grown to 2.2 million households by 2016. This is a major indicator for a substantial growth in retail spending. The drivers behind this are the growing prosperity of a large portion of the South African population, especially at the upper end of the black market and the upcoming black middle class who increasingly become homeowners though sub-economical property developments. Supply chains are becoming shorter, with faster and more frequent replenishment cycles which is in line with the international trend towards a shorter life span of homeware products.

In a December 2016 internet article by Lynsey Chutel of Quartz Africa, (Available from https://qz.com/833966/the-grocery-chain-that-became-africas-biggest-retailer-by-betting-on-its-middle-class/), the transition of some townships to lower middle class neighbourhoods where new retail stores are opening up, was part of the general retail growth strategy. Shoprite's growth and market capitalisation has excelled during the last 10 years and assets in the form of 8 poorly performing stores (worth one million rand in 1979, approximately $1.2 million at the time), rocketed as the chain focused on Africa's growing middle class consumers. Shoprite has become Africa's largest retail chain. Ineffective strategies and slow response time from competitors to invest in the continent allowed Shoprite to expand its footprint across Africa. Shoprite's expansion was predominantly driven by fast and determined local acquisitions. Shoprite opened the first store outside South Africa in 1990, just as Namibia gained independence and they followed by opening stores in Zambia and Mozambique, in the mid-1990s. The group cemented their footprint in southern Africa during this time, bought out the OK Bazaar group and converted all the OK Bazaar stores in Botswana and Swaziland to Shoprite stores. Shoprite Holdings increased their Africa expansion by listing on the Namibian stock exchange in 2002 and Zambian stock exchange in 2003.

The African retail industry lacks infrastructure, so Shoprite embarked on a strategy to invest in markets like South Africa. The chain ranked third among the top 40 ranked companies in 2016 and by investing in local distribution centres they could cut costs, allowing them to supply products to a larger portion of the population. Shoprite re-engineered its supply chain and invested in a centralised distribution chain to the rest of the continent, which allows the group greater control of its logistics. It created the ability for Shoprite to work with both multinational suppliers and local farmers. As the African economy continues to grow, so will furniture and homeware stores also grow. An increase in profitability for these stores will follow as more consumers will be able to afford the items sold at these types of retailers. Shoprite has positioned itself to supply basics to this emerging middle class. Their customer base was further diversified by launching another less expensive channel, in the form of the USave stores. The group's expansion into Africa" was launched through these stores which allow for market penetration and improved service to previously neglected or under-served communities in Southern Africa. The food retailer's Checkers stores were strategically positioned to focus on the other end of the market. The aim of Checkers was shifted upwardly to target customers with an interest in ready-to-eat pre-cooked meals, combined with a good wine selection. Shoprite are not necessarily low-cost stores, but they do offer variety and make it difficult for their competitors to compete against them, especially in terms of the product shelf life.

According to BusinessDayOnline, one of the greatest injections which stimulated growth in the South African retail environment was the 2013 buy-out of Massmart by Walmart. The $2.4 billion acquisition increased Walmart's customer base by over 50 million new customers. Expansion into the African retail industry provided employment opportunities and stimulated the African economy overall, and retailers like Shoprite, Massmart, SPAR and Pick n Pay have expanded into African markets. This continues to fuel the growth and positive retailing trends in the African retail industry. Ray Mahlaka, financial journalist, said in a 20 July 2017 Moneyweb internet article (Available from https://www.moneyweb.co.za/news/industry/sas-retail-nightmare/), that Massmart's business model is based on high volumes and low inflation. The results reflected that Massmart, with the largest board in 2016, had the largest degree centrality and the highest closeness centrality. As discussed, the findings from the 2016 dataset reflected that, notwithstanding the continued importance of the financial sector, the top 10 ranked positions were no longer occupied by banks, but by retailers like Massmart and Shoprite as highlighted above. Throughout the study the was focus on the importance and existence of a corporate elite and the role of the corporate elite in the context of this study is highlighted below.

5.5 IDENTIFICATION OF THE EXISTENCE OF A CORPORATE ELITE

Koenig and Gogel's research in 1981, that of Useem in 1984 and Scott's 1988 research revealed visibility of an inner circle of "a cohesive group of multiple directors" (Scott 1988:254). Their findings are in line with that of Scott (1991); Domhoff (2005); Granovetter (2005); Milakovic, Alfaran and Lux (2008); Vedres and Stark (2010); and Chu and Davis (2013), who identified an inner circle where the power was in the hands of only a few. Domhoff's power theory (2005) found that all large United States' companies are linked through a network in which each company can reach the other within three (3) steps. Milakovic, Alfaran and Lux (2008) found that the German network was still dominated in the upper echelons by an elite of highly connected individuals. These authors identified a small core of directors who are densely inter-connected to one another and highly central in the entire network.

As reported in Chapter 4, a similar concentration of power was found in the South African context, and an important observation was that the results presented in Chapter 4, indicate similarly that large South African companies remain closely connected. The study investigated the potential existence of a local elite and revealed visibility into the existence of such an elite by ranking the companies and directors sitting on their boards according to their different centrality scores. The individual rankings of the companies and directors made it possible to see if there was any change in pattern and which companies and which directors belonged to such an elite in 2010 and 2016. The prominence of the top 40 ranked interlocked directors in 2010 (Table 4.8) and 2016 (Table 4.10) within the South African network of listed companies is evident and further proof that the network of corporate elite remains a formidable entity and an important source and indicator of influence.

Heemskerk (2011) maintained that networks were not created and sustained by a few prominent actors, but that a growing group of actors acting as bridges were responsible for this. Similar to the work of Heemskerk (2011), an example of the existence and structure of a South African corporate elite was indeed uncovered. The prominent actors in South Africa, those facilitating those ever-important bridges, maintaining the networks were shown in Chapter 4 (Tables 4.8 and 4.10). The network has changed from prior 2010, to 2010 and 2016 to be less oligarchic in a structural sense. It would appear that the social cohesion of networks, are still structured through interlocks but that social cohesion is further assisted by the formation and existence of a corporate elite, an important finding in the context of the current research in a dynamic business environment as outlined further below.

The 2015 findings of Heemskerk *et al*. further supported the notion of elite cohesion. The authors argued the notion that a growing group of dominant or central actors, acting as bridges, create ties and sustain networks. The strategic considerations of elite cohesion were highlighted in the literature review and the structure of a potential corporate elite was of interest for the purposes of the current study. Several researchers were interested in the consequences of elite formation and through-out this study, references were made to Burris (1991), Burris (2005), and Useem (1984) in support of this. Useem (1984) and Burris (2005) agree that the mere fact that directors sit on mutual boards already contributes to social and political cohesion among them and directors holding multiple board seats by default therefore already form part of a corporate elite. However, the existence of a corporate elite and the fact that they interlock, still tells us very little about the consequences of interlocks (Carroll & Fennema, 2002; Carroll, 2009). Nonetheless, several authors have speculated about these.

Mizruchi (1996) saw interlocks as a powerful indicator of network ties and influence between companies. The researcher is in support of both Pfeffer and Salancik (1978) and Useem (1984), who stated that gaining and retaining membership of this elite group is highly beneficial for directors' careers. However, Rehbein (2006) referred to the scandals and corporate collapses that happened through the years, mentioning that corporate mismanagement plus lack of board oversight led to poor financial performance. In 2013, Durbach, Katshunga, and Parker found several or interlocked director in the South African economy. This finding was supported by Pretorius (2014) who investigated the notion of power formation of both interlocked companies and directors in the South African mining industry, and Senekal and Stemmet (2014) who investigated network interlocks within the healthcare, mining, and education sectors in South Africa. From their conclusions it was evident that interlocks were still evident throughout the economy and that power remains in the hands of a few. The recent Steinhoff debacle may be a good example of possible lack of oversight with a complement of well-known and respected directors on their boards, of whom Johan van Zyl (previous Chief Executive of Sanlam), and Steve Booysen (previous Chief Executive of ABSA) are two (2) examples. Christo Wiese, who was a key player in the intended Steinhoff and Shoprite merge, was in position five (5) according to the 2016 centrality rankings, while Steinhoff was ranked in position five (5) in 2010, and in position 28 according to the 2016 centrality rankings.

One of the reasons for the fluidity might be that companies are likely to look for fixers during challenging times and the reason may conceivably be a preference for directors with a track record of being able to solve problems, rather than what the market likes. The 2010 results in Table 13 and the 2016 results in Table 15 would support the notion that board appointments of South African elite directors may also be linked to strategic considerations such as growth and expansion opportunities. The appointment of Christo Wiese and his links with both Shoprite and Steinhoff is a good example. Within the South African context, major groups were looking for fixers and it can be speculated upon that the appointment of Maria Ramos at ABSA Barclays, although as CEO, which is a special kind of director, could well have been not only for strategic considerations but for both her social embeddedness and her political connectedness.

Useem (1984), Granovetter (2005), and Vedres and Stark (2010), indicated that, like social circles, business connections form part of social networks. Davids (1994), Vergara (2013) and Rost (2014) agreed that both elite theory and class domination theory play a role here. Boards provide a platform for the interaction of the corporate elite and here they can exercise their influence and power. Davis (1994), however, pointed out that directors' friendships and connections extend to their joined membership of business associations, organisations as well as of social clubs and their friendships with peers, extending further to include investors and other businesspeople. Rost (2014) believed directors do not only meet in boardrooms, but that the discussions are extended through layered personal networks. Companies which were among the top 40 ranked companies in all three (3) time periods (2008, 2010 and 2016) can be regarded as consistent members of the South African corporate elite. These are companies which ranked among the top 40 in all three (3) of the time periods: Investec, along with MTN, Anglo-American Platinum, Discovery, Naspers, Woolworths, and the Nedbank Group. These companies remained prominent and by looking at their 2016, degree centrality scores (Table 14), they had noticeably similar degree centrality scores. (MTN 40, Anglo-American 39, Discovery 41, Naspers 45, Woolworths 39, and Nedbank 46). The high degree centrality scores indicate that these companies are well connected. Their well connectedness puts them at the core, as prominent members who make up the South African elite. Their closeness centrality scores (Table 16), which are also fairly similar, indicate that their connections in all probability have a high impact.

The following companies became less prominent and probably moved out of the corporate elite: Bidvest, FirstRand, the Standard bank Group, Mr Price, Remgro, Metropolitan life, Grindrod and ABSA Bank, all of which lost their central positioning among the top 40 ranked companies from 2008 and 2010 to 2016. Despite ABSA Bank losing field among the top 40 ranked companies for 2016, Barclays Africa Group had a high degree centrality score and 45 connections. The results confirm that although less visible, banks in 2016 as illustrated by the Barclays Africa Group, are still among the elite as the Group had the highest closeness centrality score and the highest betweenness centrality score. The connections as indicated by the highest centrality and highest betweenness scores of this group indicate that their connections had the most value and impact and the group acted as the most prominent bridge connecting other companies (Tables 14 and 16).[27]

Barclays, MMI Holdings, and Pick n Pay Holdings were among the most central top 40 ranked companies in 2008 but lost their central position in 2010, only to regain it in 2016. It could be argued that re-positioning of their strategies and the appointment of new executive management resulted in an improvement in ranking. The same could be said for Steinhoff, Sanlam, Illovo Sugar, African Rainbow Minerals, Distell, Growthpoint Properties, Allied Electronic Corporation, Murray and Roberts, Massmart and PSG Financial Services, all of whom made acquisitions and remained ranked central among the top 40 in both 2010 and 2016.

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[27] This also corresponds with Barclays' prominent and central position as disclosed in the extract of the 2016 sociogram in Figure 17.

To solidify to what extent class domination, elite and power theory play a role in director interlocks, it would be equally interesting to understand which directors ranked among the elite in the 2010 and 2016 networks and how these rankings changed over time. The re-appearance of names could indicate that a strong case could be made for power theory and that power over three (3) times slices remained in the hands of a few. It would create visibility into class domination, who is among the elite, and who holds the power. The directors identified by Williams, Deodutt and Steinbank in 2008 and ranked among the top 40, based on their individual centrality scores (reported in Chapter 4) were compared with the data for 2010 and 2016. Only one director, NG Payne, was ranked according to his centrality scores among the top 40 ranked directors for all three (3) time slices. Although not consistently positioned among the top 40 ranked directors, the names of a few of the top 40 ranked directors that appeared in 2008, 2010 and 2016 reappeared. It could be argued that these directors are highly sought after for several possible reasons as they consistently appeared among the ranked elite over the three (3) time slices. The potential reasons for the prominent individuals' can be further explored. The seven (7) directors who ranked among the top 40 in 2008, re-appearing on the top 40 list of directors in 2010 were: Koseff, Ruck, Herman, Titi, Cuba, Lucas-Bull and Serobe. It might be that these directors were not only favoured based on perceptions that they are highly skilled individuals. They might be front people for others or might just have been in the right place at the right time. In the case of the Steinhoff board they have been accused of being consummate "yes men". In certain cases, it could be speculated that political connectedness could have played a role.

The examples which follow below could be indications of how political connectedness might have played a role. Yolanda Cuba is a black female CA and according to the website of Who's Who SA, Ms Cuba is a Non-Executive Director at Absa Group Limited and serves as a director at various other companies. She became one of the youngest Chief Executive Officers of a JSE-listed company, as she was appointed as the Chief Executive Officer of Mvelaphanda Group Limited. Cuba has won the Fid entia Top Empowerment Award for the Top Empowered Businesswoman of the Year. She ranks at position number 11 in the top 40 directors list in 2010 (Table 13) with a degree centrality score of 4, while her closeness centrality score is one of the highest. This is indicative of the impact and value of her connections. Cuba might not be one of the directors with the most connections, but her high closeness centrality score (0.063) which is an indicator of the value and impact of a person's connections suggests that her connections are being regarded as having high value and impact. After recently moving on from SA Breweries and Vodafone" (to direct opposition), Yolanda Cuba CA(SA), according to LinkedIn, is the current Group Chief Digital and Fintech Officer for MTN Africa. Her “Masters in Commerce Field of Study Finance and Financial Management Services”, according to LinkedIn, plus 500 prominent and well known connections with other LinkedIn members, is a good example of her connectedness.

Gloria Serobe is another good example of a sought-after director. Serobe has served on the boards of several companies, among others the Nedbank Group and has been named the Sowetan Woman of the Year. As an illustration of interlock between these directors, Wendy Lucas-Bull was interlocked with Cuba through simultaneous board seats at ABSA, whilst interlocked with Serobe at Nedbank. Both Serobe and Lucas-Bull have degree centrality scores of three (3) and have three (3) connections (Table 13). Their closeness centrality scores are similar to that of Cuba, which indicates that their connections were of a fairly similar value and impact. The betweenness centrality scores of Serobe and Lucas-Bull were, however, lower than that of Cuba, indicating that Cuba ostensibly acted as a bridge between more directors than either Serobe or Lucas-Bull.

The same could apply for six (6) directors who ranked among the top 40 in 2008, did not appear in the top 40 ranking for 2010 but re-appeared in the top 40 ranking, in 2016. These directors are Durand, Mnxasana, Van der Ross, Gelink, Crouse and Naidoo. Five (5) directors; Mageza, Langeni, Mouton PJ and Njeke, who ranked among the top 40 in 2010, again ranked among the top 40 in 2016. One director, who appears to be the most sought after, and in a prominent position among the elite, was Payne who ranked among the top 40 directors in 2008, 2010 and 2016. Payne’s popularity may be based on the fact that he is an Independent Non-Executive Chairman of Mr. Price Group Limited, a Non-Executive Director for JSE Limited, a former KPMG partner, a CA, holding a Bachelors’ degree in Communication and a Master’s degree in Business Leadership. He is also a Non-executive Director of Vukile Property Fund, Bidvest Group and Glenrand M.I.B. Limited. In addition, he is Chairman of the Risk Management Committee of the JSE LTD and a Non-executive Director where he also serves on the King Committee on Corporate Governance and Nominations Committee for the JSE LTD. He is the lead Non-executive Director for BSI Steel and a Non-executive Director for Strate Limited. Payne ranked in position number 14 among the top 40 ranked directors in 2010 (Table 13), with a degree centrality score of four (4). In 2016, he ranked in position 12 (Table 15), with an increased degree centrality score (6). His betweenness centrality score, the ability to connect other directors by being a bridge, increased marginally from 0.021 in 2010, to 0.022 in 2016. The value and impact of his connections, as reflected by his closeness centrality scores, increased from 0.062 in 2010, to 0.121 in 2016.

Deena Konar, who ranked number seven (7) among the top 40 ranked directors in 2016 (Table 15), is an example of an outside director who served on multiple boards, of which Steinhoff was but one. He also served on the boards of more than one Steinhoff subsidiary. Although Konar does not have the highest degree centrality score and the highest number of connections, he was still well connected. What stands out for Konar is that he had the second highest closeness centrality score (0.128) and the second highest betweenness centrality score (0.040) among the top 40 ranked directors for 2016 (Table 15). The second highest closeness centrality score reflects the value and impact of his connections. His betweenness centrality score, which is the highest among the top 40 ranked directors for 2016, indicates that he acted as the most prominent bridge in the 2016 network. [28]

According to the website of Who's Who SA, Konar was an independent Non-executive Chairman of Steinhoff International holdings, Non-executive Director |of Lonmin PLC since 2010, Non-executive Director of the CIC Energy Corporation since 2006, Non-executive Director of Makalani Holdings since 2005, Non-executive Director of Mutual & Federal Insurance Holdings since 2003, Non-executive Director of Sappi since 2002, Non-executive Director of Unitrans Limited since 2001, Non-executive Director of Illovo Sugar since 1995, Non-executive Director of the JD Group since 1995, Non-executive Director of Kap Industrial Holdings, Non-executive Chairman of Mustek, and Non-executive Director of Alexander Forbes Equity Holdings.

Directors who form part of the elite, inter alia based on their central network positions, understandably have the benefit of being exposed to information regarding any changes in the economic environment, trading conditions or the companies that they exchange and trade with, as well as competitors. A good example is Chris Seabrooke, the Chief Executive Officer of Sabvest Limited[29], who was ranked number one among the top 40 ranked directors in 2016 and who has served, over the years, as director of more than twenty JSE listed companies. Seabrooke had the highest degree centrality score and most connections, a high closeness centrality score indicating that his connections had high value and impact, and the third highest betweenness centrality score, indicating that he acted as an important bridge between other directors (Table 15). Durand, who was ranked in the number two (2) position among the top 40 ranked directors for 2016, had two (2) less connections and a degree centrality score of eight (8) (Table 15). Durand's closeness centrality score of 0.124

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[28] Compared to Konar, Wiese has a higher degree centrality score (7), whereas Jooste has a lower degree centrality score (4). Both Wiese's and Jooste's closeness centrality scores and betweenness centrality scores are lower than that of Konar.

[29] The connections of Seabrooke as CEO of Sabvest suggests the financial control theory in practise.

is higher than that of Seabrooke (0.120), indicating that Durand's connections arguably have higher value and impact.

Two (2) more good examples are Ralph Patmore who was ranked number three (3) amongst the top 40 directors in 2016 and is the Chairman of PSV Holdings Limited. According to the website of Who's Who SA, he is also a lead Independent Non-executive Director of several other companies. Peter Mageza was ranked number four (4) in 2016 and he had the highest closeness centrality score and the highest betweenness centrality scores. He is not only one of the best-connected directors, but his connections had the highest value and greatest impact. He is the Non-executive Chairman of Ethos Private Equity. He had been, according to Who's Who SA, Executive Director and Group Chief Operations Officer of Absa Group Limited. Mageza is also an Independent Non-executive Director of Bidvest, Rainbow Chicken Limited, Sappi Limited and the MTN Group.

In line with Brownlee (2005) and Scott's (2008) findings, the current research makes a further contribution to identify what Scott (2008: 33) called a cohesive elite which forms an "organised minority" that may function as the "leading edge" of a ruling class. This not only contributes to class theory but also to small world theory, as well as power theory, providing evidence of an elite, who occupy the "most powerful positions in structures of domination" (Scott, 2008: 33). The current study identified the South African small world which comprises the most prominent interlocked companies and interlocked directors in South Africa. As Kogut (2012) described it, this elite integration or "small world" further consists of an elite within the elite: of networkers, and particularly the "big linkers". His big linkers were directors who were interlocked four (4) times or more. The centrality scores for the top 40 ranked directors made it possible to identify the ultra-elite (positions 1 to 10), the very elite (positions 11 to 20), the elite (positions 21 to 30), and the fairly-elite (positions 31 to 40). In the section to follow, the study contributes to the transformation of the elite and specifically power theory in that evidence was provided that it is all about who holds the power - and that power resides in but a few hands.

5.6 TRANSFORMATION OF THE ELITE

PWC releases an annual report tracking, inter alia, the progress of racial transformation on South African boards - with specific regard to gender diversification. Mans-Kemp and Viviers (2015) believe that there is a limited pool of female and black candidates and keeping the agency problem in consideration, it poses a considerable challenge on resource dependency as the country has a limited number of eligible board candidates (Inoxico 2013 The InoxicoDirectorSingularity

Index:ResearchReport.http://www.ey.com/Publication/vwLUAssets/The_Inoxico_Director_Singularity_Index _-_2013 _Research_Report / $FILE /Innoxico.pdf. Accessed 4 April 2018.). Muchemwa and Padia (2016), as part of recommendations for future South African studies, highlighted this as an area to be investigated. Keeping in mind the postulation by Mans-Kemp and Viviers (2015) that there is an over-utilisation of the talent pool, it was of interest to see how racial diversification played out in the networks and especially in the upper elite. Table 31 provides insight into the racial diversification for the top 40 most centrally ranked directors according to their degree centrality, their closeness centrality and their betweenness centrality scores. The classification of the Employment Equity Act was used to divide the top 40 ranked directors between black and white. Sub-categories were created within the top 40 directors to differentiate between the directors in positions 31 to 40. These directors were called the fairly elite, those in positions 21 to 30 were called the elite, the directors in positions 11 to 20 were called the very elite and the ultra-elite occupy the top 10 positions. The differentiation was created to identify the manifestation of the power network and identifies not only a possible power struggle in the upper echelons of the network, but also who belongs to this network, and who holds the power.

The results and totals as reflected in Table 5.5 indicate that, among the top 40 ranked directors for 2010, only 22 came from a previously disadvantaged background. If the 40 prominent directors from the 2010 data could be used as a sample, 18 directors can be identified as belonging to a previously advantaged minority group. The current transformation agenda and the drive of companies to address inequalities of the past could well be the explanation for the progress made regarding the inclusion of more black directors than white directors.

Table 5.5: Racial diversification of the top 40 ranked directors according to the classifications contained in the Employment Equity Act

Subcategories of the top 40 ranked directors	Positions of the top 40 ranked directors	Race and gender	2010	2016	Change
Ultra-elite	1 to 10	Black	6	3	-3
		White	4	7	3
Very elite	11 to 20	Black	5	7	2
		White	5	3	-2
Elite	21 to 30	Black	3	6	3
		White	7	4	-3
Fairly elite	31 to 40	Black	8	4	-4
		White	2	6	4
Total elite	All 40	Black	22	20	-2
		White	18	20	2
			40	40	

Interestingly enough, the white male elite was favoured from 2010 to 2016, ranking among the top 40 prominent directors. Their representation increased slightly from 18 directors in 2010 to 20 directors in 2016. According to the complete datasets for both 2010 and 2016, there was a massive increase in directors - from 2970 directors in 2010 to 6044 directors in 2016. In 2010, 735 directors were from previously disadvantaged groups, but this increased to 1453 directors in 2016.

Although there was a reduction in the number of black directors in the elite central group, there were more black directors in total. Between 2010 and 2016, the proportion of black directors in the total dataset declined marginally from 25% to 24%. It is clear that no transformational progress was made. Table 5.6 provides a further dissection and analysis by racial group, by gender type and by sub-category.

Table 5.6: Racial diversification and changes in the elite (top 40) from 2010 to 2016

Subcategories of the top 40 ranked directors	Positions of the top 40 ranked directors	Race and gender	2010	2016	Change
Ultra-elite	1 to 10	Black male	5	1	-4
		Black female	1	0	-1
		Indian male	0	2	2
		Coloured male	0	0	0
		White male	4	7	3
Very-elite	11 to 20	Black male	4	1	-3
		Black female	1	3	2
		Indian male	0	2	2
		Coloured male	0	1	1
		White male	5	3	-2
Elite	21 to 30	Black male	2	2	0
		Black female	1	2	1
		Indian male	0	2	2
		Coloured male	0	0	0
		White male	7	4	-3
Fairly-elite	31 to 40	Black male	5	2	-3
		Black female	1	2	1
		Indian male	1	0	-1
		Coloured male	0	0	0
		Coloured female	1	0	-1

Subcategories of the top 40 ranked directors	Positions of the top 40 ranked directors	Race and gender	2010	2016	Change
		White male	2	6	4
Total elite	1 to 40	Black male	16	6	-10
		Black female	4	7	3
		Indian male	1	6	5
		Coloured male	0	1	1
		Coloured female	1	0	-1
		White male	18	20	2
			40	40	

Within the elite, or top 40 positions, the biggest changes were among black male directors whose numbers decreased from 16 in 2010 to six (6) in 2016. The most significant change between 2010 and 2016 was the inclusion of more Indian males (from one to six (6)), and black females (from four (4) to seven (7)). Regarding the transformation model, it would appear that progress was made in terms of the inclusion of Indian males and black females. There is a definite swing back to white males (18 directors in 2010; 20 directors in 2016). This change is most evident in the ultra-elite where black male directors decreased from five (5) in 2010 to only one in 2016 and white male directors increased from four (4) in 2010 to seven (7) in 2016. This would correspond with the fact that, among the top 40 ranked companies, retailers like Shoprite and Steinhoff became more dominant.[30]

Insufficient progress seems to have been made in terms of transformation. Considering this fact, the following question arises: is there any other indication of progressive movement towards the existence of an upcoming black elite? As discussed in the literature review, the existence of a corporate or business elite was defined by Useem (1984) and Scott (1991) in what they called an “inner circle” of prominent corporate decision-makers with influence and power that stretch across the entire business environment. This concentration, described

[30] Christo Wiese and Markus Jooste are examples of senior executives ranked among the top 40 directors from the retail environment linked to the companies mentioned above. During early December 2017, Markus Jooste resigned as CEO amidst an accounting scandal. Both Wiese and Jooste openly advocated a possible merge between Steinhoff and Shoprite.

above, was historically constructed largely on a racial basis alone, with a few white families holding most of the shares in the biggest and most dominant companies. Although the companies were publicly listed, these prominent families, largely through large shareholding influenced the appointment of white directors on the boards of these companies which they then could effectively control (West, 2006b). The existence of groups like the Broederbond and Stellenbosch Mafia which formed power formations through elite social cohesion are known facts.

Murray (2000) saw this inner circle as formed through individuals that attended elite secondary schools and typically graduated from the same or similar traditional and historically white universities. This elite is made up of individual directors who have extensive business experience and who hold what is perceived to be elite qualifications. These individuals often reciprocally sit on one another's boards. They are regarded as having extensive business experience and hold elite qualifications and, according to Andrews (2007), these qualifications are especially important in a society like South Africa's for the legitimacy and prestige they bring. The qualifications open opportunities to business networks such as being appointed on a board (Andrews, 2007) but are neither a guarantee nor a prerequisite for holding a board position. CAs are the most prevalent in terms of appointments on boards, while MBAs, law degrees or engineering degrees also abound within boards. CAs have professional accreditation and membership of the South African Institute of Chartered Accountants (SAICA), which creates a platform for the formation of a social network. Similar formal and informal associations of MBAs, lawyers and engineers also exist. Because of the history of apartheid in South Africa, most directors were part of this qualified elite and were historically white males. It is important to note that the nature of qualifications per se are no guarantee for inclusion in a corporate elite. However, while acquiring these qualifications at historically elite institutions, social networks are created that forge bonds which stretch across different spheres of the actors' lives. According to Andrews (2007), this created a barrier to entry and Mans-Kemp and Viviers (2015), and Mans-Kemp, Viviers and Collins (2018) believed it led to a skills crisis. For the current study, it was of interest to see whether board composition reflected a similar pattern and whether more board seats are now occupied by black professionals holding these elite qualifications. As displayed in Table 5.7, 786 of the 6044 directors of listed companies were chartered accountants, 384 had MBA qualifications, while 157 and 56 respectively were in possession of either an LLB or LLM qualification.

Table 5.7: Classification and summary of director qualifications for the 2016 data

Qualification	Number	Percentage
CASA	786	13%
MBA	384	6%
LLB	157	3%
LLM	56	1%
Total	**6,044**	

With the transformation agenda in mind, it was therefore of interest to see if any progress was made in terms of the number of Coloured or Indian, but predominantly black Chartered Accountants that registered with the South African Institute of Chartered Accountants (SAICA). Being a registered CA, from a previously disadvantaged background, certainly adds the potential to be approached to possibly serve on the board of a company. Table 5.8 illustrates the progress in terms of racial diversification since 2002 by listing the number of Chartered Accountants who have qualified between 2002 and January 2016 and who are members of SAICA.

Table 5.8: Number of Chartered Accountants in South Africa 2002 -2016

Number of Chartered Accountants in South Africa 2002 -2016									
	Black	**%**	**Coloured**	**%**	**Indian**	**%**	**White**	**%**	**Total**
Jan-02	259	1%	188	1%	905	5%	18,524	93%	19,876
Jan-03	325	2%	222	1%	1,038	5%	19,322	92%	20,907
Jan-04	403	2%	257	1%	1,179	5%	19,971	92%	21,810
Jan-05	486	2%	317	1%	1,395	6%	20,850	90%	23,048
Jan-06	615	3%	383	2%	1,583	7%	21,694	89%	24,275
Jan-07	773	3%	447	2%	1,803	7%	22,653	88%	25,676
Jan-08	934	3%	514	2%	2,024	8%	23,418	87%	26,928
Jan-09	1,167	4%	595	2%	2,242	8%	24,171	86%	28,220

Number of Chartered Accountants in South Africa 2002 -2016										
	Black	**%**	**Coloured**	**%**	**Indian**	**%**	**White**	**%**	**Total**
Jan-10	1,469	5%	677	2%	2,507	8%	27,072	91%	29,777
Jan-11	1,869	6%	795	3%	2,805	9%	26,172	82%	31,730
Jan-12	2,194	7%	883	3%	3,095	9%	27,011	81%	33,284
Jan-13	2,521	7%	973	3%	3,365	10%	27,779	80%	34,778
Jan-14	2,845	8%	1,060	3%	3,701	10%	28,509	79%	36,286
Jan-15	3,349	9%	1,187	3%	3,988	11%	29,188	77%	37,923
Jan-16	3,909	10%	1,343	3%	4,349	11%	30,063	75%	39,906

Source: *Website of South African Institute of Chartered Accountants (SAICA)*

10 years ago, only 3% of CAs in South Africa was black, while 89% was white. Based on 2016 data, 10% of CAs was black and 75% white. Regarding the transformation agenda and potential board appointments, noticeable progress was made with the number of black individuals that qualified as CAs, increasing the likelihood that they could be approached to become board members. The same applies to the number of coloured individuals who qualified as CAs. The percentages changed from 1% in 2002 to 3% in 2016, while the percentage of qualified Indian CAs increased from 5% in 2002 to 11% in 2016. Overall, transformation has slowed down significantly.

The researcher is in agreement with Yvette Geyer (https://democracyworks.org.za/slow-economic-transformation-and-trauma/) who wrote an internet article on the website "Why democracy works" stating the reasons why South Africa's transformation process has slowed down. She listed six (6) points, the first of which relating to skills and tenure. Geyer stated that, due to a challenge around skills, the tenure of skilled and experienced black individuals on boards is low.

Secondly, had the process been referred to as inclusive economic transformation while maintaining the same principles, the negative connotation and resistance towards the term Broad-Based Black Economic Empowerment would have been reduced. Understandably, the overt meaning of this term is that it includes one race exclusively, leading to resistance.

The tempo of progress may increase because of something as simple as a change in reference.

Thirdly, South Africa needs to encourage more economic activity, as only a fraction of its people is currently economically active. As mentioned before, too much power remains within too few hands. Transformation and dilution of power to broader black shareholding is an absolute necessity. The economy is in duress and highly reliant on taxes from companies in the private sector. If the number of taxpayers in the private sector increases, the picture would be very different. Entrepreneurship must be encouraged. Matriculants and graduates cannot find employment and remain economically inactive. Not only does the lack of jobs dampen growth, it also impacts negatively on transformation. The newly established Ministry of Small Businesses is an example of state organisations that have been set up to support small businesses. The ministry awards grants to set up businesses which are available through the Department of Trade and Industry (Dti). Social transformation could be facilitated a lot faster through a variety of forums, groups, and platforms. The inclusion thereby of more previously disadvantaged individuals and a sort of co-optation or mentoring into the elite would address the skills shortage and increase the talent pool.

Fourthly, in South Africa we are potentially our own worst enemy by failing to place enough emphasis on the broader transformation objective. Companies are meant to play a leading role but are under constant pressure to contain cost and often opt for cheaper imported products, or they pressure local suppliers so ruthlessly on margins that it is no longer viable for entrepreneurs to compete.

Fifthly, the environment to induce growth has deteriorated. Foreign Direct Investment (FDI) was meant to flow into the South Africa after democratisation and the planned implementation of the country's own structural adjustment programme, but this failed. The programme was not executed properly through the implementation of the Growth, Employment and Redistribution (GEAR) policy. The global community had broken its promise and despite state intervention with the introduction of the National Development Plan (NDP) and the three (3) Ministries that had been set up to manage economic matters, South Africa seems to be stuck in a downwards or stagnating trajectory, without the possibility of increasing the rate at which the economic currently grows. High levels of corruption and irregular expenditure results in financial resources lost to our country.

Lastly, South Africa has a trickle-down approach to stimulate development. This has failed dramatically. Sustainable development may be achieved through the introduction of a proven bottom-up approach, as proven in Brazil, China, and India. Brazil has successfully implemented local social governmental programmes and China has investments from the centralised economic committee in individual villages. India has mastered the management of their informal and formal economy simultaneously. The Integrated Development Planning (IDP) was intended to be the core of the bottom-up approach, leading to economic stimulation. The IDP should have led and guided the development and execution of respective provincial plans, all building up to the formation of a national plan. This is, regrettably, not happening as very little momentum is maintained on lower municipal level.

Although transformation has slowed down, the increase in the number of Black Chartered. Accountants that qualify every year, as displayed by Table 34, increases a possible pool of talent with skilled individuals. From this pool of talent, potential new board directors could be sourced. Despite little progress, an upcoming elite of skilled and sought after previously disadvantaged directors could be identified in this study. The number of black male directors holding board positions among the top 40 ranked directors had declined between 2010 and 2016 in favour of white male directors. In the process of addressing gender diversification and employment equity in terms of the representation of females on South African boards, progress has, however, been made towards the inclusion of more, black female and Indian male directors, among the top 40 ranked directors in 2016. Despite some progress towards transformation that might have been made, and in light of still evolving scandals, the next section serves to explore the merits of interlocks in the South African economy.

5.7 MITIGATION OF THE CAUSES AND CONSEQUENCES LEADING TO THE FORMATION OF INTERLOCK IN THE LOCAL SOUTH AFRICAN CONTEXT

In the Chapter four (4) (Section 4.7:136 -142) possible causes and consequences for the formation of interlocks in the local context were reported. The main cause seems to be is that there is a resource constraint and a high demand for talented, skilled, professional directors who have a lot of experience. The problem is augmented by the fact that all companies source from the same talent pool (Mans-Kemp *et al*., 2018). The intensity and complexity increased with companies who try and adhere to the recommendations of the King IV report, and especially in their efforts, to create more diversity in the compilation of their boards. Black female directors are highly sought after, as their appointments bring diversity to the board whist their appointments, also simultaneously addresses the transformation agenda. Because of the high demand, and the small talent pool of such skilled, experienced and professional black females, the problem just becomes bigger, and challenge posed to companies more complex. In their attempts to bring greater diversity to their boards, and address the transformation agenda, the limited talent pool provides companies with an easy alternative, which almost give them no option, but to engage in an interlock and appoint, talented, skilled and experience black female directors, who already serves on other boards.

The King IV report does not offer any guidelines on how many boards a director may sit, but the report recommends that when non-executives are considered, those possible appointees should disclose details of their professional commitments, and confirm that they have enough time to fulfil their responsibilities (IoDSA 2016). Interviewees from the Mans-Kemp *et al*. (2018) study basically all shared a common view that there is no magical number of on how many boards a director can serve. According to feedback from the interviewees, it all depends on the individual's ability and the complexity of the role, and the industry in which the company operates.

Previous authors, like Ferris *et al*. (2003) and Fich and Shivdasani (2006) were of the opinion that directors must only be allowed to serve on three (3) boards, and not more. More than 1 200 directors participated in the 2004 PricewaterhouseCoopers survey, and if the research by the Combined Code of the Financial Reporting Council in the United Kingdom, and the Australian Shareholders' Association (ASA) and the Council of Institutional Investors in the United States, are to be considered, and incorporate to create a consolidated view, and then postulated by pursuing the inductive approach, it could potentially assist in the development of a possible theory to act as guidance, the recommendation would be that a director may potentially sit on only three (3) boards.

The constrain of the limited talent pool and the need to diversify directorates remain reality. Five (5) interviewees in the study of Mans-Kemp *et al*. (2018) was of the opinion that the future King V Report should include a section on directors occupying several board positions and to provide more guidance, on what a recommendation could be on how many boards a director should serve. The interviewees further felt that the future King V Report should not prescribe a specific limit on the number of boards a director could serve, and were in favour of a principles-based approach that allows flexibility, and which would consider each company's, and each director's personal circumstances.

Kiel and Nicholson (2006) argued that mechanisms to manage the formation of interlocks do exist. For example, as Mans-Kemp *et al*. (2018) noted, nomination committees and board evaluations are a structure and a practice respectively that could potentially be instrumental in identifying interlocks and addressing concerns. The interviewees supported recommendations from Kiel *et al*. (2005) in that all board positions that are being held by a potential appointee should be discussed during board and individual director evaluations. Such regular and rigorous evaluations provide directorates with a mechanism to identify possible or potential over-commitment and to address insufficient performance by individual board members.

The participants in the study of mans-Kemp *et al*. (2018) made several recommendations to expand the talent pool in South Africa in an attempt to restrain the formation of interlocks. It is the responsibility of companies to take ownership and to introduce formal training programmes, and to provide potential board candidates with formal educational and training programmes. Upcoming potential, especially in the form of "younger talent" (Mans-Kemp *et al*., 2018), could be elected and exposed to subsidiary boards. Another possible developmental forum is the introduction and establishment of junior directorates, onto which upcoming and potential board candidates could be elected. Such junior boards, in non-profit organisations, create both a platform and channel where junior directors can gain experience, and allow them access to a forum, where they can express their views and opinions.

One of the participants in the Mans-Kemp *et al*. (2018:215) study was of the opinion that it is very difficult to appoint a director as a "first-time board appointment". A first time appointee requires extensive development. Some companies do appoint and attempt to develop inexperienced directors and the limited talent pool is slowly growing. Not all directors are driven by monetary reward and some accept non-executive positions "to stay connected" (Mans-Kemp *et al*., 2018:215), with the intention to coach and mentor younger directors. Mans-Kemp *et al*. (2018) support Clutterbuck and Megginson (1999) and appreciates that a veteran and weathered mentor could coach upcoming potential and groom diverse candidates to develop the perspectives and vision which they will need to reach their full potential.

To diversify boards are not always easy, and although companies might have the best intentions, instead of making progress towards diversity, companies only manage to engage in tokenism. This is the process in which people from some target group are hired simply to avoid criticisms of unfair treatment by the company of that target group. This could be regarded as form of window dressing. What come to mind is the appointments of the 'token females' on many boards. Kanter (1977) made a valuable contribution with her work, analysing tokenism and studied women employed by a male-dominated Fortune 500 company. She was interested to see how the ratio of men versus women, in a group, affects the group processes. The ratio she found was 85:15, of men versus women, and where the members of the majority (85% or higher) were labelled as "dominants". The remaining minority members were labelled "tokens". Kanter (1977) noted how being labelled as a "token" has three (3) behavioural consequences, namely: visibility, polarisation, and assimilation. These behavioural consequences in turn are likely to influence how dominants might behave towards tokens.

According to Kanter (1977), visibility**,** as behavioural consequence, results in the creation of perceptions about performance pressures, as those labelled as “tokens” perceive that they being watched all of the time. In a situation where those labelled as “tokens” are involved in small mistakes it could be regarded as fatal, and they feel that they have to work a lot harder, and put in a lot more effort to receive recognition for any of their achievements. Those labelled as tokens believe they consistently have to prove themselves. Polarisation results with the dominant group that feels threatened or uncomfortable when they are around those labelled as tokens. In an attempt to protect themselves or mitigate the uncomfortableness, they would increase the height of their boundaries by exaggerating their commonality, and by exaggerating the differences which they have with those labelled as tokens. Kanter (1977) found that tokens are being excluded from the informal networks where a lot of important socialisation takes place, resulting in tokens who may experience social isolation. Gustafson (2008) added to this noting that while those labelled as tokens experience intense pressure to perform better through visibility, they are at the same time loath to perform better than the dominants because of this polarisation. The resulting effect is likely that those labelled as tokens might prefer to become socially invisible, and maintain a low profile. Finally, assimilation occurs when those labelled as “tokens” are forced into stereotypical categories which are defined by the “dominants” and are not seen for who they really are. Kanter (1977) argued that encapsulation results which forces those labelled as tokens into limited and caricatured roles.

Kanter (1977) found that when the ratio of women to men on boards increase, the perception of their influence also increases, perceived social interaction outside the boardroom increases, and the perceived sharing of information increases. When the ratio of women to men on boards increases, the social barriers that may exist for women and who is in the minority, seem to disappear. The study and findings of Kanter (1977) should be interpreted with a degree of caution as the study is based on the respondents’ perceptions only. It is unclear if these perceptions are being shared by their male counterparts. The perception by women that they have a large influence on decision-making may not be shared or perceived by either their male counterparts, or by the chairperson as that influential.

5.8 POSSIBLE REASONS FOR GLOBAL AND LOCAL CORPORATE FAILURES

Both Enron and Steinhoff, were described by the investor-community, managers of investor funds and leading financial analysts, as the "darlings" of the respective stock exchanges where they were listed. Both companies appointed respected high profile and previously very successful executives, which was held in high regard with regards to competency, to their respective boards. But both companies engaged and deployed what could only be described as questionable and murky accounting practises. Both companies declared revenue streams that were inflated, and profits which were neither accurate, nor true. The process, implementation and execution of good governance practises in both companies were flawed.

Airmic, the risk management association, commissioned the Cass Business School to analyse the causes of corporate failures (Hopkin, 2012). The resulting report presented 18 case studies, involving 23 companies that had been exposed to corporate crises (Hopkin, 2012). These cases illustrated how events that bring down or seriously damage otherwise successful companies, do not just happen. They illustrated a common thread, or trend, of boards' being blind to the underlying risks that threaten their companies. They also identified a link between the circumstances that cause companies that operate in completely different sectors, to fail. Out of the 18 case studies, the Hopkin (2012) found seven (7) risk factors that lead to corporate failures:

Directors on these failed boards were perceived to lack skills and for this reason could not properly execute their monitoring and controlling duties. In particular, they could not control senior executives effectively. Hopkin (2012) cited a case at BP in which the borad director delegated with oversight over refining at the time of the Texas City explosion, had no refining experience. Board members blindness is created by the board's failure to engage and address critical issues and identified risks. Boards and their members might also jump at the sign of any opportunity, and get involved with establishing and determining levels of compensation and reward. In this way, they might fail to engage with risks associated with these enticing opportunities that could have an impact, or cause reputational damage and influence the compay's licence to operate. Hopkin (2012) used another example in the United Kingdom to illustrate this reason for failure: the case of Railtrack which comfortably outsourced a core responsibility of track maintenance to an external provider in spite of it's licence to operate depending on it fulfilling this.

Another issue identified in Hopkin (2012) was the issue of poor leadership and in particular shortcomings in the development of a morally sound culture or ethos. Among other used to illustrate this was Société Générale's ignoring Jérôme Kerviel breaching of trading limits. This resulted in losses, calculated to be €4.9 billion. Defective communication was another issue idetntified and again, Railtrack and its relationship with its subcontractors was used to illustrate this. Infighting and excessive complexities can also result in catastrophic failure as illustrated in the EADS Airbus A380 case. Such technical problems were only exacerbated by the challenge of achieving a Franco-German political balance between two (2) chief executives. The merger between BP, the British multinational oil and gas company, and Amoco, made BP's management structure overly complex. Inappropriate incentive rewards could reward and endorse midcore performance, as well as failures. On the counter side, and as a good example of the good corporate practises that could, or are supposed to be rewarded, BP's bonus scheme gave little credit for achieving good health and safety standards (Hopkin, 2012). When high achievers are being overlooked, and not rewarded, they become disgruntled and demotivated, resulting in performance in what could be described as far below to what they could potentially contribute. The inadequate flow of information between different levels within a company is another major risk, particularly when vital information is withheld from key governance structures like internal audit or teams tasked with risk management. Again, according to Hopkin the EADS Airbus A380 project highlights offered an illustration of this where problems with mismatching aircraft sections were hidden from management for a period of six (6) months.

In an article entitled "If Colin Powell had commanded Enron: the hidden foundation of leadership" Harari and Brewer (2004) reflected on the Enron collapse with reference to seven (7) leadership attributes suggested by Colin Powell. Through these lenses, in some ways the senior managers at Enron were in fact very effective leaders. Their boldness has been widely documented, as has their ability to formulate an enticing (and for a time) market-leading vision. Perhap most importantly, they were able to inspire the Enron workforce to buy into and carry out this vision. The environment that they created was reportedly highly innovated and geared towards change. And of course the entrepreneurial culture that they established is well known. They were able to attract the brightest and in some ways the best talent (in other ways not so much!), and established a culture where these bright employees were empowered to perform, and where they were highly rewarded for their accomplishments. However senior executives of Enron for example, the Chairman Kenneth Lay, CEO Jeffrey Skilling, CFO Andrew Fastow, Chief Accounting Officer Richard Causey, involved themselves and engaged in muddy accounting and financial reporting and scorned and mocked outsiders who would dare to question Enron's strategies or financials (Harari & Brewer, 2004).

When Richard Grubman, a Boston hedge fund manager, tried to point out irregularities on the balance sheet of Enron, CEO Skilling, went directly against the official Enron value of respect, and attempted to publicly shame Grubman. Skilling even went as far as to say that "ruthlessness, callousness and arrogance" don't belong in Enron (Harari & Brewer, 2004: 39). In 1999-2000 several reports were presented by Arthur Andersen to the board's audit committee, headed by Robert Jaedicke, a senior professor of accountancy at Stanford Business School, raising alarms that Enron was a "maximum risk" and a company whose accounting practices were "at the edge". Although the board of directors were questioned, the board played along and did nothing.

In 2001, the board received a presentation that revealed that between 2000 and 2001 there had been a 300 per cent increase in "whistleblowing" reports to the Office of the Chairman. These reports were from executives inside the company and of the reports received, 75 per cent were reports of fraud. The Enron directors keep on complaining and claim that they didn't know and because they were "misled by management" really begs the question: why were board members willing to look the other way? The question have been posted already in chapter one of the study about the Steinhoff directors, and their claims that they did not know, or did they also conveniently just looked the other way? The Enron ex CFO, Fastow, as well as ex finance executive, Michael Kopper, in a contradicting way, pleaded guilty to the charges of both fraud and money laundering, which suggests that what was going on below the surface was even more serious than what was imagined.

Steinhoff was not any different from Enron, and by applying the inductive approach of Thomas (2003), from observations, similar patterns were identified. In Enron's 2000 Annual Report to shareholders, Skilling announced that the company's net income climbed and rose to a record $1.3bn in 2000. In the audited financial statements which were attached, the company's net income was only $979. Markus Jooste CEO of Steinhoff, very similarly over declared the Steinhoff income and profits.

The leadership principles of Powell are quoted and summarised by Harari and Brewer (2004). The majority of these principles were neither applied by the Enron directors, nor applied by the Steinhoff directors. Harari and Brewer (2004:39) quote the first principle from Powell as "*Keep looking below surface appearances. Don't shrink from doing so just because you might not like what you find.*" Harari and Brewer (2004) is in support of Powell who argued that good leaders are not easily misled by any form of a superficial analysis. They will probe and search below the surface. Why did the Enron and Steinhoff directors not ask tough, disruptive and uncomfortable questions? "*The day soldiers stop bringing you their problems is the day you have stopped leading them. They have either lost confidence* *that you can help them or concluded that you do not care. Either case is a failure of leadership*" (Harari and Powell, 2004:40). Powell encourages what he calls "a noisy system" within which ideas are challenged and that it begins in this "noisy system" with what information is accessibility and who listens to the information that is shared (Harari and Brewer, 2004:40). "*Never neglect details*" (Harari & Powell, 2004:41). Powell is passionate about getting entrenched in the detail which enables strategic preparation and execution. Powell dislikes leaders who believe they are on a pedestal and who simply delegates to others the details of their supposed superior vision. Good leaders are committed to stay involved, to know all the detail, and to retain vital connections with the people and activities that they lead. "*Never let your ego get so close to your position that when your position goes, your ego goes with it*" (Harari & Powell, 2004:42). Powell believes that good leaders have very healthy egos. Both, Skilling (ex CEO -Enron and Jooste (ex CEO - Steinhoff) had unhealthy egos, a sign of strategic myopia and personal insecurity (Harari & Brewer, 2004:42). "*It is more important to do what is right than to do what is personally beneficial. Whatever the cost, do what is right*" (Harari & Brewer, 2004:43). Powell that courage and character are essential ingredients of leadership and located "doing what is right" is at the core these. Doing what is right means standing for what is honourable, setting the right example, and being open and honest. "*Leadership is not rank, privilege, titles, or money. It is responsibility*" (Harari & Brewer, 2004:45). Real leaders accept responsibility for the companies's mission and the execution of the companies' strategy, to establish the culture and live the values that the company stand for, or the values and ethics they would like to portray. The CEO is responsible for the key decisions and behaviour of board and its members and to set the right course of action, inspire hope and confidence, endorse and unconditionally support the right initiatives, encourage the right people, and preach the right standards. Unfortunately, like with Enron, Jooste and the Steinhoff executives were more than willing to enjoy the perks and privileges of their positions, without accepting the required and rest of their director responsibilities.

What role did interlocks potential play, and by applying the inductive approach, could the same pattern which was observed at Enron, and the influences and factors that potentially contributed to corporate failures, be identified elsewhere? Could excessive interlocking, or the application of incorrect interlocking practises in some way, contribute to bad behaviour, incorrect decision-making, and ultimately corporate failure? The last of the four (4) research questions and final objective of the study needs to be answered to establish if interlocking could be good, or bad or potentially both?

5.9 INTERLOCKS: BENEFICIAL OR DETRIMENTAL TO THE SOUTH AFRICAN ECONOMY?

The concluding part of this study was to consider possible causes and consequences of the structural dynamics of interlocks and to investigate whether interlocks are beneficial or detrimental to the South African economy. In the discussion, the still unfolding Steinhoff scandal will be referred to in addition to literature to gain clarity of the benefit or detrimental character of director interlock. The Steinhoff debacle is a good example of the fact that Marx's criticisms of capitalism remain largely valid more than 100 years after they had been written. As mentioned in Chapter 1, Styan (2018:166) pointed out that the bulk of the criticism in die Steinhoff saga is directed at Steinhoff's board members, and how they could have over-looked a looming crisis. Did the interlocks of the directors on Steinhoff board have anything to do with the oversights, or lack thereof, which have presumably led to the collapse?

Mizruchi (1996) was the first researcher to argue the possible causes and consequences of interlock and received support from Ward and Feldman (2008) with their research on how sustainable retention of membership in this corporate elite network is gained, with the resulting control of corporate power. Pfeffer and Salancik (1978) importantly advocated resource dependency as the biggest rationale behind the motivation for boards to interlock. Their resource dependency theory argued that boards establish interlocks to reduce uncertainty and that, by promoting skilled and well-connected directors to boards, uncertainty is diminished. In applying the resource dependence theory to South Arica and the Steinhoff debacle, the question then immediately comes to mind whether the intent of the Steinhoff board and Jooste, in particular, was to reduce Steinhoff's risk and dependence on resources. The next logical question would be around the selection of directors to serve on boards.

Researchers like, Burt (1983), Boyd (1990) and Lang and Lockhart (1990) indicated that interlocks allow boards access to external resources, information, and skills – all of which would reduce risk and uncertainty. In addition, these boards and companies would have more power and higher profits. This notion could not be validated as Pennings (1980) and Burt (1983) found a positive relation between interlocking directorates and company profitability, whilst Fligstein and Brantley (1992) found a negative correlation in this regard. These contradictory findings can be clarified by the nature of interlocking ties.

Mintz and Schwartz (1985) believed that the financial control theory originates from the resource dependence model. Richardson (1987) and Mizruchi (1996), suggested that members of financial institutions would sit on the boards of companies that are in financial turmoil, or to whom they have loaned capital. Through the interlock, the companies in distress gain access to additional funds whilst the financial institutions can monitor their investments. In the case of Steinhoff, a similar pattern can be identified. Rose (2019), in his book, Steinheist, gives evidence that, even when Jooste was under intense scrutiny, he (Jooste) could convince Investec to lend his Mayfair company more money. It would appear that Jooste not only had almost unreserved access to cash, but that this cash could be moved between various companies' balance sheets through various interlocks, as explained below. But were these interlocks applied in a positive or negative way in Steinhoff's case?

Sonquist and Koenig (1975) pointed out that interlocks facilitate coordination between interlocked companies when they share a director and Useem (1984), Lorsch and MacIver (1989), Haunschild and Beckman (1998), Carpenter and Westphal (2001) indicated that companies would interlock for strategic reasons. The social embeddedness discussed in the literature review indicated that directors who serve on multiple boards will have better access to information and resources. Companies who desire to grow their market share or deploy industry best practise would therefore be interested to offer board positions to individuals and obtain access to their knowledge and experience. Sonquist and Koenig (1975) were the biggest supporters of the class hegemony theory which states that interlocks allow for power to be concentrated within the upper class. Interlocks support class cohesion and that it will often be found that interlocked directors attended the same schools, or universities and belong to the same societies and social clubs. In a discussion that would follow later it will be explained how this was particularly evident in the case of Steinhoff.

The strategic intent and rationale with regards to the resource dependency of companies cannot be doubted, and throughout the literature review enough evidence of its undoubted benefit was provided. However, the Pujo Committee already identified in the early twentieth century that interlocks can potentially have negative consequences as too much power could be distributed into too few hands. An example to prove this point was the fact that the National Bank of Commerce shared directors with almost every other major bank in New York, resulting in an argument that interlocks restrict competition (Mizruchi, 1982).

Mizruchi (1982) asked whether coordination within interlocks, as advocated by Sonquist and Koenig (1975), could potentially be used for the wrong intent. Collusion is but one of the negative practises that comes to mind, also raised by Mizruchi. Section 8 of the Clayton Act of 1914 expressly prohibited any form of interlock between companies which compete in the same industry. As a result of the Act, the number of interlocks among leading United States companies decreased (Mizruchi 1982). However, the electrical price-fixing scandals of the early 1960s occurred after the Clayton Act was promulgated and did not stop companies to continue to collude. This raises two (2) important questions. Firstly, were the interlocks motivated by attempts to collude and secondly, did the interlocks assist in facilitating the collusion? For the sake of the current study, the questions are particularly pertinent to the Steinhoff debacle. The question could be asked if interlocks continue to occur, how many corporate failures could potentially have been the result of interlocks that were raised with ill intent. During the literature review, reference was made to Nelson (2005), who reported a shift in the balance of power in United States companies between shareholders and boards, pointing out that shareholders were conceding power over time so that the boards of directors became more powerful. Results from Andrews (2007) and Pretorius (2014) indicated that this occurred in South Africa as well, with more power shifting into fewer hands as the power base extended into the upper echelons of the South African network. Findings from Heemskerk, Fennema and Carroll (2015) supported this notion with their analysis of the largest European companies and the existence of a European network of corporate elite. Their findings pointed to a small group of European corporate elite network members which they describe as a handful of 'old boys'. As stated before, the study indicated that the European corporate network is the playground of a privileged few. In South Africa, the labelling of some prominent businessmen as the Stellenbosch Boys, or Stellenbosch Mafia could also be an indication that such an elite exists.[31] Not only Julius Malema was very outspoken about the Stellenbosch Mafia, but even Markus Jooste, disgraced ex-CEO of Steinhoff, often referred to all the directors of Steinhoff and subsidiaries as close friends. What role these close friendships played, and if they played a role in any wrongdoing will be discussed shortly.

Jana Marais wrote in the Africa report of 5 December 2014 that Stellenbosch is home to many wealthy business owners (http://www.theafricareport.com/Southern-Africa/south-africas-stellenbosch-mafia.html). Some of the well-known businessmen linked to the city include Christo Wiese of the Shoprite Group, Jannie Mouton of the PSG Group, Pepkor, Brait, Tradehold and Invicta Holdings, Koos Bekker of Naspers, Johan Rupert of Remgro and Richemont, G.T. Ferreira and Paul Harris of FirstRand and Rand Merchant Bank, Michiel Le Roux of Capitec and Markus Jooste, the former CEO of Steinhoff International Holdings. The dense connectivity is further revealed when board composition and shareholding is scrutinised. What emerges is that many of these business relationships and friendships, started way back in Johannesburg, where individuals such as Wiese, Mouton,

[31] Such an elite could be part of a nested group. Examples of nested groups are included in Appendix 4.

Ferreira and Jooste started their earlier careers, and before the majority eventually all moved back to Stellenbosch. Some of Jooste's acquaintances and some of the Steinhoff directors were residents in the same hostel whilst completing their studies at the University of Stellenbosch, residing on the same floor in Wilgenhof (Rose 2019: 45). Whilst completing his post-graduate studies, Jooste and two (2) individuals who would become leading figures in Steinhoff, Jan van der Merwe and Frikkie Nel, even shared a house (Rose 2019:47). Jannie Mouton, founder of PSG, confirmed, that despite some commercial rivalry, they have all been good friends since their early days as students at Stellenbosch University, a friendship which continued when they all returned to Stellenbosch (Rose, 2019: 227)

Surely, failures of corporate governance systems cannot be the only reason for financial crises. The findings of the current study indicate that a lack of adequate regulation combined with excessive corporate greed can very well give rise to financial turmoil and distress. Sahlman (2009) stated that, if governance is executed with more diligence, or if executives are less greedy, financial crises can be averted. The recent Steinhoff debacle illustrates that, in the wake of corporate scandal, every manager is exposed to scrutiny - not only those who potentially behaved unethically, or those who are consumed by greed. With a strong governance system in place and guided by company policies, one would assume that executives and managers would self-police. Even if the executives surrounding Markus Jooste as CEO of Steinhoff were equally entrenched in greed, it is unclear why they would not take steps to prevent their company's net worth vaporise.

In line with managerial theory, the Steinhoff executives' main duty was to maximise shareholder wealth. However, they failed their shareholders beyond reasonable measure. Periods of financial turmoil happen as a matter of course and Sahlman (2009) believed that these crises are not caused by greed alone, but also by incompetence. Companies such as Steinhoff that has proven itself to be very successful surely must have had highly skilled executives and managers, individuals acting with some degree of integrity. Sahlman (2009) supports the believe that successful companies have well designed and sensible incentive practises, that balance personal and reward, and mitigate all corporate risks. In Steinhoff's case, some of this most certainly went awry. A weak ethical culture may be the reason why the likes of Markus Jooste was driven to allegedly accelerate and overstate company values, or why he deferred expenses. However, there must have been internal controls to guard against such behaviours, coupled with competent and experienced directors serving on the Steinhoff board.

It appears that the recipe for disaster at Steinhoff was powerful and at times probably misguided incentives which were combined with misleading accounting. If there was any potential serious oversight at Steinhoff, it almost certainly could not have been due to the inadequacy or below standard quality of the human capital in terms of integrity and/or competency of the respective individual, as highly respected and qualified directors were appointed to the Steinhoff board. Steve Booysen, for example, is an ex-CEO of ABSA and Johan van Zyl an ex-CEO of Sanlam. The question could be posed if all the directors were not perhaps immersed in an internal cultural web which failed to officiate a sensible process, and guide towards proper and diligent managerial behaviour. After several interviews with various stakeholders, Styan (Steinhoff - Inside SA's Biggest Ever Corporate Crash; 2018) described the Steinhoff directors and management as “yes men”. He also refers to the exorbitant salaries and incentives of Steinhoff management which had been disclosed to him. This fact gives rise to the question whether Markus Jooste had, in his hunger for more power and more growth, had to find ways to gain access to more capital. Investec’s loan to Jooste’s Mayfair, as discussed earlier, is but one example, even while Jooste’s conduct was under intense scrutiny, suggests that the answer to this question is “yes”. Did Jooste, who is described as a master strategist, perhaps carefully select directors to interlock with to gain access to more capital to fund his aggressive growth trajectory against an economy in recession, and inflate shareholder wealth?

Rob Rose[32] exposed the sloth, plunder, greed, and betrayal behind the Steinhoff crash in his 2019 book Steinheist. The company that was historically labelled as the investors’ darling was exposed as a house of cards entrenched with tales of fraudulent accounting, a lavish lifestyle which involved racehorses worth multi-million dollars and friendships which stretched to the very core of the ‘Stellenbosch mafia’. In his book, Rose reveals the inside story behind Steinhoff based on interviews with key players in South Africa, the United Kingdom, Germany and the Netherlands, and using information derived from documents that have not yet been released to the public. Rose disclosed how Jooste shifted liabilities from Steinhoff’s balance sheet to mysterious companies overseas in order to present a false picture of the profits. Styan (2018), similarly based his book, Steinhoff - Inside SA’s biggest corporate crash on interviews with key players, revealing how Markus Jooste instructed Ben le Grange, CEO of STAR, and CFO of Steinhoff, to focus somewhere else whilst Jooste continued with the irregularities in Eastern Europe. Styan wrote that le Grange acquiesced, trusting Jooste blindly.

[32] **Rob Rose** is the editor of the Financial Mail. He has worked for Business Day and at the Sunday Times as an investigative journalist and as Business Times’ editor. His first book was The Grand Scam: How Barry Tannenbaum conned South Africa’s business elite.

What is about to follow is a description of various failures to adhere to recommendations of regulatory frameworks and suggested controls and even non-adherence to company law. These violations can be described as some of the leading components of interlock abuse, with resulting disastrous consequences.

5.9.1 Personal gain and misconduct

The collapse of Steinhoff started many years ago with the personal enrichment of Markus Jooste, as told by Rob Rose (2019), when Markus Jooste bought the Thesen forest for R11.9 million in 2001 and sold it off within a few years, to Steinhoff for R159.7 million. The story of betrayal is not limited to the manipulation of Steinhoff's balance sheets, but also includes several other companies. The core of the collapse and the main motivator appears to be Jooste himself. Days before Steinhoff's listing on the Frankfurt Stock Exchange, Jooste was criminally investigated by German tax authorities and Rose (2019:2) quotes Jooste saying that tax authorities worldwide are looking to earn and gain access to more money, "it is a game for more money". Jooste's affinity for this "money game" had never been a secret. With the dismantling of apartheid, former tax breaks were cancelled. However, in 1994, when Terence Graig, an investment analyst from Alan Gray, asked Jooste how Gommagomma [33] could remain profitable, Jooste responded that the company would simply have to find another tax break.

Steinhoff's independence was grossly sacrificed through several companies in Eastern Europe. These companies were declared as not related, although further investigations indicated that this was indeed the case. Jooste's misconduct was aired directly after his resignation when Heather Son who took over as chair. Rose (2019:4) quotes Son as saying: "that she believes there was purposeful deceit where certain people went to great lengths to mis-represent financial statements, in collusion with others." It is clear that, like the Enron scandal, innovative, off balance sheet transfers and methods were used to hide losses. Other poor accounting practices included inflated profits and hidden bad debts. When Ben le Grange, CFO of Steinhoff, was confronted by Wiese and Booysen, he stated that he had trusted Jooste (Rose, 2019:17) and that everybody trusted Jooste. Further issues in this regard are outlined below.

5.9.2 Non- disclosure of related party transactions

Early on and through the years, Markus Jooste consistently failed to declare his direct involvement with companies or trading partners. Rose (2019, 67- 69) discloses a web of

[33] **Markus Jooste** was the Financial Director of Gommagomma Holdings.

deceit within which Markus Jooste gained in his personal capacity. In May 2001, Steinhoff signed a deal to buy the Thesen forest from Barloworld for R45 million. The deal was not finalised, but Steinhoff still wanted access to the forest. Through Danie van der Merwe, a deal was struck with Fihag Finanz und Handels AG, a Swiss company, who created a shelf company (Kluh Investments) to buy the forest for R29.5 million. This is an example of a classic fronting deal, seeing as Fihag Finanz und Handels AG was at the time owned by Bruno Steinhoff, the then chairman of Steinhoff. The transaction was made possible by means of a R10 million loan from Steinhoff to Fihag Finanz und Handels AG. Jooste's company Mayfair, which he owns through the Markus Jooste Kindertrust, then bought Kluh by means of a handshake deal from Bruno Steinhoff. Although no money exchanged hands for the transfer from Kluh to Mayfair through Fihag, the company owned R644 million in assets. This gain in value was used to offset a loan in Capstone, another Jooste-owned company, and Kluh was sold to Steinhoff for R159.7 million. This directly benefitted Jooste. It is not only the sacrifice of independence that come in question but also a non-disclosure of several related party transactions that is of great concern. Not declaring a related party transaction is a violation of company law. Rose provides another example in his 2019 book, Steinheist (p 74 - p 81), disclosing how Jooste ensured that Steinhoff gained control over Unitrans through a related third party's company and his son in-law, whilst enriching himself in his personal capacity.

Steinhoff sales were inflated by creating fictious debtors. This was in the form of false sales which never existed and the creation of cash flows which never existed. The companies involved, of which Talgarth and GT branding are examples, were never independent but were ran by people close to Jooste, for example, Siegmar Schmidt, Alan Evans and Dirk Screiber (Rose, 2019: 252-254). When Ben le Grange testified before the parliamentarian standing committee for finance, it was clear that the buying groups Jooste claimed he had created, the supposed loans to these companies and monies paid back to Steinhoff were blatant lies (Rose, 2019: 256). Le Grange further testified that some of the companies did in fact exist, but he was mis-informed by Jooste that they were independent. Le Grange testified that all the companies involved were directly related to Jooste (Rose 2019: 257). International issues regarding corporate governance must be agreed upon and director interlock in some sorts of way disclosed or reported. Mechanism into and visibility into tis 3rd party transactions must be created.

5.9.3 A structure of an overseas board versus a local board

Steinhoff's problems were compounded by the fact that the managerial board is based on the Dutch model where the supervisory board is locally based. The managerial board was led by Steinhoff and consisted of Jooste, Le Grange and Van der Merwe. This board was segregated from the supervisory board. On the supervisory board, Len Konar, Steve Booysen and Teunie Lategan had doctorates in accounting, while Johan van Zyl, former CEO of Santam, had a doctorate in economics and Claas Daun was a qualified accountant (Rose, 2019: 264). Again, the question springs to mind: how is it possible that these bright business minds could not have known about the malpractices? Konar lectured in ethics and was a former head of the auditing committee of the International Monetary Fund. Rose (2019: 264) quotes Konar who claimed that they were misled and lied to. He further stated that information they had been asking for was not forthcoming or that it had been misrepresented. Was the board perhaps negligent? Konar, Booysen and Lategan, through their personal shareholding in Steinhoff, lost R37 million in the value of their combined Steinhoff shares; amounts ranging between R3 million and R40 million. Why then deliberately conspire or look the other way?

The only possible answer is that Markus Jooste was blindly trusted. By Booysen's own admission, the Steinhoff board usually met only four (4) times a year, but multiple times at the end of 2017 amidst the crisis. This is surely an indication that the risk increased in concert with the aggressive growth and transnational expansion. Rose (2019:265) quotes a study by the business school of Stellenbosch pointing out several interesting factors which indicates that the independence of the Steinhoff board might have been compromised by several factors. Between 1999 and 2015, the board was dominated by white males and clearly not adequately diversified. This may have contributed to the reasons why not enough critical questions were asked, and why certain reports were not scrutinised. In the literature review it was found that a director could no longer be regarded as independent if he had served on a board for longer than nine (9) years. In the case of the Steinhoff board, most directors had served for longer than the prescribed nine (9) years. What compounded their partiality is the fact that each of them held a stake in substantial shareholding. In the literature review, it was pointed out that a sense of cohesion in what is called group think, can exist. This is called homophily and the Steinhoff board could very well be a classical example of this phenomenon. Both Booysen and van Zyl were CEOs and both their appointments were criticised as they were both academics (Rose, 2019). Were they both too inexperienced and did this inexperience lead them into trusting Jooste too readily? The breach and violation of agency theory came to the fore with van Zyl stating that they were misled and bluntly lied to (Rose, 2019: 266). Another weakness of the Steinhoff board is that way too many people were way too entrenched in long and personal relationships with

Jooste. Board are exceptionally importance governance structures and their proper function critical and the discourse below will indicate by using Steinhoff as an example how it failed.

5.9.4 Non-independence, too many friends with personal ties and entrenchment of a culture of fear

From the outset, Jooste involved his alma mater in his business dealings, as both his former housemates, Frikkie Nel and Jan van der Merwe joined him at Gommagomma. It was from the start a close inner circle of Stellenbosch friends. Rose (2019: 52) tells the story of a Markus cult within which he was untouchable. Rose's account points out that Jooste intimidated and bullied, ensuring that he was never challenged, and with his egocentric nature combined with his charismatic personality, he was blindly trusted. Rose (2019:55) writes accounts of how Markus Jooste belittled colleagues, further ensuring that he remains unchallenged and unquestioned. According to Rose, the cult of Markus was kept alive by a culture of fear.

5.9.5 One auditing company for multi-national subsidiaries or groups of companies

When eventually agreeing to appear before the parliament's standing committee on finance, Jooste explained how Steinhoff used different auditing firms across the world, for example Deloitte in South Africa and other places in the world, Rodl and Partner in parts of Europe (predominantly Austria), Commerzial Treuhand (CT) in Germany, KPMG for Poundland in the UK, PWC for Poco in Germany, the Australasian cluster and for Pepkor.

In his book Steinheist, Rose (2019: 259-260) gives an account of how Jooste very carefully constructed a web of companies which involved various directors which were interlocked and consisted of fake Steinhoff debtors, but Steinhoff would simultaneously guarantee the same debt. Through fancy footwork this debt was recorded on the balance sheet as cash and cash equivalents and converted to cash in the cash accounts. Of course, investors would look at the cash position of a company to establish the company's health. When declaring Steinhoff's annual results, Jooste succeeded in hiding the true picture, inflating the company's cash position, and successfully portraying a significantly better outlook on paper.

5.9.6 Extraordinary shares and bonuses

One of the methods through which Jooste ensured the utmost loyalty was his liberal share options scheme (Rose, 2019:48). The share option scheme introduced in 2003 is but one such example. Rose (2019:80 -81) lists the enormous wealth that was issued to top executives close to Jooste and to Jooste himself. Jooste himself received R31.3 million for shares which he paid R 22 933 for, Nel received R5.1 million for shares which he paid R3,763 for, Jan van der Merwe received R12.9 million for shares which he paid R10,975 for, etcetera. In 2007, Terence Craig addressed a conference during which he pointed out that the incentive scheme was an example of poor governance of one of the JSE's top listed companies.

5.9.7 Deals that were done on handshakes, and with no or insufficient documentation

After Steinhoff's 2005 listing on the Johannesburg Stock Exchange, the first deal that turned Steinhoff into South Africa's largest furniture manufacturer was the Pat Cornick acquisition. This deal was preceded by an attempt from Steinhoff to buy Afcol[34] from South African Breweries, a deal which failed. Pat Cornick was successful in the acquisition but ran into trouble a year later, which meant that Jooste and Steinhoff bought Pat Cornick, including Afcol for a swop of Steinhoff shares (Rose, 2019:57-59). This pattern continued throughout the years and became a Jooste trademark. He attempted to take over Pat Cornick (and their largest buyer was the JD Group), which initially failed, but later succeeded on a handshake and by exchanging shares and without any cash changing hands. A number of such deals were based on the exchange of shares which were made possible through interlocks and even then, it was evident that Jooste could make a group of companies suffocating under a debt burden suddenly appear to become profitable.

The change in power structure was confirmed by Steinhoff's ex-chairman, Christo Wiese, who stated that 30 to 40 years ago the upper echelons of commercial business in South Africa was dominated by a combination of Jewish and English businessmen. Wiese added that the upper echelons are now dominated by a second generation of industrialists which, in combination, consists of Afrikaans speaking businessmen and black businesspeople (Rose, 2019:228). The relationship between Wiese and Jooste is by now well- known through Shoprite, PEP, Steinhoff and STAR. Some of the dealings that happened was the accusation in 2011 by Steinhoff, of a 20% stake in PSG [35] from Christo Wiese's investment group Titan. At the time, Markus Jooste sat on both the boards of PSG and Capitec, PSG's biggest investment. Jooste also owns a horse racing company, Mayfair Speculators.

According to Jean le Roux in an article on News24 (https://www.fin24.com/ Companies /Retail/ investecs-bernard-kantor-caught-in-steinhoff-headlights-20180209), published on

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[34] **Afcol** included brands like Sealy Posturepedic, Edblo, Grafton Everest and others.

[35] PSG was founded by Jannie Mouton and is one of the South Africa's top four investment firms

the 9th of February 2018, it is bizarre that Mayfair Speculators, refused to repay a R250m credit facility which was extended to the company by Investec, despite the fact that there was a well-known close personal and business relationship between Jooste and the managing director of Investec, which was Bernard Kantor. At the same time Kantor was also only one of the leading and important executives at Investec which granted Jooste access to capital. Kantor and Jooste served on a few boards through joint directorships and their joint respective shareholdings in several entities associated with the breeding, training and racing of racehorses. They were also part of numerous horseracing partnerships which was registered with the National Horseracing Authority. Investec group managing director Bernard Kantor has admitted that he has close personal and business relationships with Jooste. The shared businesses and shareholdings of Jooste and Kantor which are displayed below, is possibly an indication how the class hegemony status, interaction and relationship, has allowed Jooste to gain access to capital. Rob Rose in Steinheist (2019:47) quotes Markus Jooste who described how he had always recruited and appointed people from within a close inner circle.

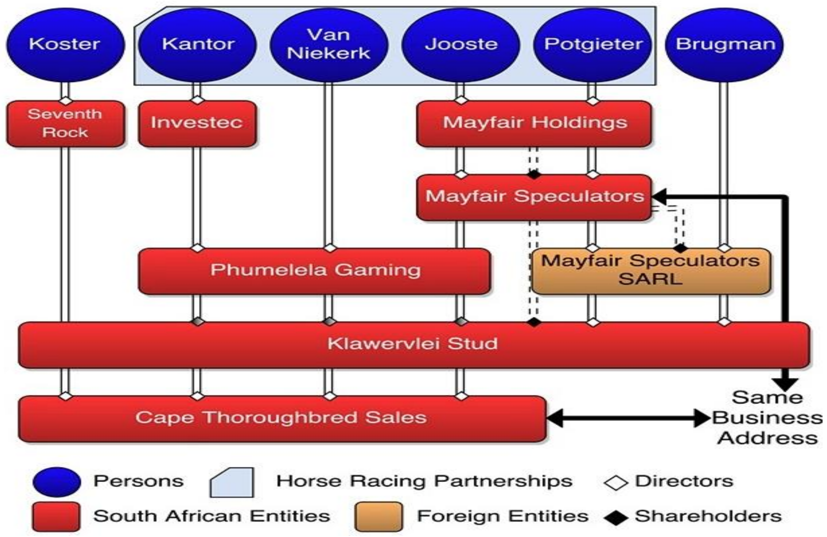

Figure 5.3: Jooste and Kantor's shared businesses and shareholdings (Jean le Roux, News24, 9 February 2018)

Situated near Bonnievale in the Western Cape, resides the Klawervlei Stud which describes itself as a corporate entity and is owned by John Koster. The co-shareholders comprise of a syndicate of businessmen, amongst others Jooste, Kantor, and Stefan Potgieter (Jooste's son-in-law). Chris van Niekerk is another member of the syndicate and director of the Klawervlei Stud, a former senior executive of Steinhoff and close friend of Jooste. Jooste and Van Niekerk also jointly served as directors of Phumelela Gaming and Leisure, currently trading and licensed as a horse racing operator. The Public Protector is in the process of investigating Phumelela Gaming with the focus on the alleged misappropriation of state assets, which benefitted the horse racing operator. The final report by the Public protector is still outstanding.

The Public Protector is further investigating an issue which is described as “smash and grab” and include allegations that Phumelela Gaming was involved in securing state-owned racecourses around the country through means of irregular funding, and which was apparently combined with some sorts of secured government funding. Cape Thoroughbred Sales (CTS), of which Kantor, Jooste and Van Niekerk are also directors, annually hosts the Cape Premier Yearling Sale. During previous years, Mayfair Speculators dominated the yearling sale, purchasing horses to the value of tens of millions of rand, from the Klawervlei Stud. Jooste and co-directors have apparently been reported to the Public Protector by industry insiders, for causing an artificial inflation of yearling horse prices by colluding to act as both buyer and seller, of these horses.

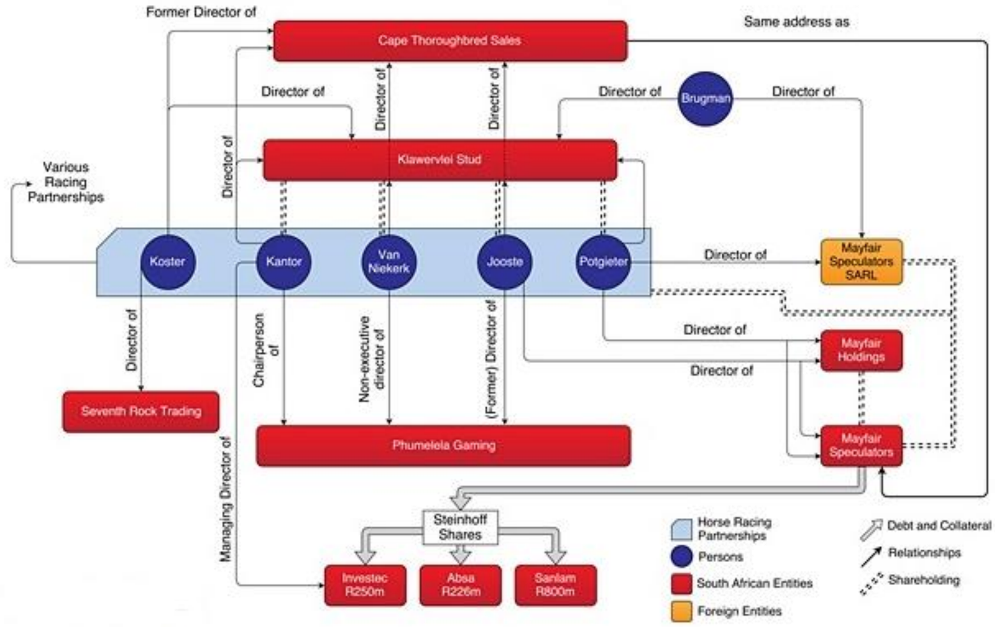

Figure 5.4: An expanded breakdown of Jooste and Kantor’s business and shareholdings (Jean le Roux, News24, 9 February 2018)

The interlocks were extended to a very personal level which often also involved property or residential estates, and the class hegemony was not only limited to Jooste’s abuse of the love of horses and the horseracing industry. He also made use of people’s love of wine and the wine-producing cult. Jooste, Danie van der Merwe and Frikkie Nel jointly bought Bengale on the Jonkerhoek hill, and all three (3) reside on the farm Jonkersdrift. It was mentioned before that Jooste and several other Steinhoff executives bought stands and are owners of property in the residential estate, Val de Vie. This critical discourse regarding the

Steinhoff debacle has evidently served to demonstrate the adverse consequences of deficient corporate governance in general and abuse of company director interlocks in particular.

5.10 SUMMARY

This section concludes the discussion on 'Findings' in chapter 5 as a basis for conclusions and recommendations regarding this research and which follow in chapter 6. Throughout the latter part of Chapter 5, and through various examples of previous research, evidence of both the positive and negative contribution of interlocks was provided, soundly based on the theoretical foundations provided in chapter 2. No study before provided conclusive evidence that interlocks could either have a beneficial or detrimental effect on businesses. The current study shows how the application of interlocks determines its contribution to value, or otherwise. From information obtained from cited sources, it is apparent how Jooste abused several interlocks to enable him to violate not only company law, but to ignore or bypass several recommendations from regulatory frameworks, including King IV. Not only did Jooste use interlocks for his own benefit but he succeeded in several transactions and transgressions to sacrifice the independence of several directors. Jooste has proven that if, *inter alia*, interlocks are abused, it could lead to the demolition of a business empire and destruction of considerable wealth, in addition to the reputational ruin of previously respected businesspeople. The wealth that was destroyed is not limited to personal individuals, but it is a well-known fact that it extended to the public sector, as the government pension fund, was also an investor in Steinhoff. Jooste also was very outspoken about the close friendships within his personal networks and especially the Steinhoff ranks. All of that is obviously destroyed beyond repair, and one example is Wiese who is in the process of taking personally legal action against Jooste in person.

CHAPTER 6 – CONCLUSION AND RECOMMENDATIONS

6.1 CONCLUSION

In Chapter 1, reference was made to studies dating back to the era of corporate capitalism at the end and turn of the twentieth century; and the studies during this time, on interlocked directors and the companies they represented. Many of the companies in the era of competitive capitalism transformed into today's mega corporations. Concerns have always been raised against the increasing potential for collusion and the accompanying constraint in competition, coupled with the fear that too much power resides within the ranks of certain minorities. The earliest example, that was provided, was Jeidels' 1905 research which uncovered 1,350 interlocking directorates between the six (6) biggest banks in Germany. According to Jeidels, the resulting concentration was caused by the 1900 economic crisis (Fennema & Schijf, 1978: 298). Other examples that were provided were, Hilferding, who published his Finance Capital in 1910 at the same time as Brandeis' (1914) findings on especially financial institutions through a concentration of share ownership control with "other people's money". Brandeis (1914), Mills (1956), and Domhoff (1967) were the first authors that indicated that this concentrated economic power resided within the ranks of a corporate elite.

The South African economic environment has been influenced by two (2) overarching meta-models. The class hegemony and environmental or resource dependency models, as discussed during the literature review in Chapter 2, which can be incorporated into the first of the two (2) overarching meta-models, namely the reciprocity, or exchange model. This meta-model focusses on the corporate elite and power relations. The study expands on the model of Bazerman and Schoorman (1983) which was discussed as part of point 2.15.5 which provided context for the environment within which interlock occurs. Society creates the external context for interlock to be created. All of Plato, Machiavelli, Marx, Blau, Emerson, Dahl and Domhoff, as discussed during the literature review in Chapter 2, were then correct to say power and who holds it, is central to any network structure. As quoted before, Lord John Dalberg-Acton was then most probably correct when he remarked that power tends to corrupt. The second meta-model is the control model which incorporates the management control and the financial control models.

In the current study, graph theory as a branch of applied mathematics was used to create visibility of the structure of a corporate elite and inter-corporate relations. Despite this and previous research over many years, no conclusive evidence has been provided regarding the benefit or detriment of the formation of director interlocks. In addition, the question remained: is too much power concentrated in the hands of too few?

6.1.1 Interlocks can be beneficial or detrimental, depending on how it is applied

As discussed, Mizruchi (1996) was one of the leading authors who pointed out that interlocking directorates put boards in contact with one another, enabling the coordination of business strategies between interlocked companies. The positive contribution of interlocks was discussed in the literature review (Section 2.16) in that interlocks create corporate affiliations which draw together key individuals representing large business enterprises. This economic organisation inevitably results in the establishment of a capitalistic class (Scott, 1988). Network analysis not only revealed elite cohesion but indicated how this elite then forms a power structure of its own (Domhoff 2016). The current research included an investigation into the power structure by means of a network analysis to identify the embedded elite and the companies they represent. In addition, the research created visibility of the individual embedded director interlocks and the companies they represent and affirmed the network of embedded companies in the wider system of power and influence that shapes corporate decisions and policies in South Africa.

The study used the Steinhoff debacle as evidence of the fact that the application of director interlock determines its benefit or vice versa. In the discussion it became clear how Markus Jooste used his abundance of power over others to abuse several interlocks. In the process, he violated not only company law, but used interlocks to ignore or bypass several recommendations from regulatory frameworks.

Proof was provided in Chapter 5 that the Steinhoff interlocks were used for several far-reaching transgressions that led to significant financial and reputational damage. Jooste deftly used interlocks for personal financial gain. This was, inter alia, made possible through non-disclosure of several related party transactions. Regulatory recommendations and requirements were ignored or circumvented, such as setting up a structure comprising a Dutch managerial board vs. a local supervisory board. In setting up board structures with the appointment of multitudes of friends and close acquaintances, independence was grossly sacrificed. Jooste made sure that he entrenched a culture of fear to ensure blind obedience. Several auditing companies were appointed for the multi-national subsidiaries or groups of companies instead of one. Jooste made sure that he was not questioned about company finances, that the ultimate power remained in his hands and that he retained loyalty from his so-called ‘yes-men’ by issuing extraordinary shares and bonuses. This allowed Jooste to conclude several handshake-deals with no or insufficient documentation.

6.1.2 Theoretical contribution and providing proof of changing interlocked patterns after a financial crisis

In the past, research has pointed towards a re-organisation of corporate power structures which had intensified in periods of capitalist accumulation after an economic crisis. South Africa was not excluded from the financial crisis which started at the end of 2008. Results of the current study also align with Sapinski and Carroll (2017) and their observation that the early 20th century saw the emergence of large corporations merging financial and industrial capital. In the South African context, the prominence of financial capital was replaced by merchant capital.

With each financial crisis in history - and in more recent times - concerns have been raised about the way in which economic relationships are organised, and the individuals and companies who have the power to decide how they should be reorganised. In this study, the comparison of the structure of and patterns within the 2010 and 2016 networks of interlocked South African companies is a clear indication that with each successive reorganisation, power appears to become concentrated in ever fewer hands. This is in line with observations from Sapinski and Carroll (2017).

6.1.3 Contribution to temporal dynamics of the South African network of interlocked companies and directors

This study contributes to the issue of spatial distribution and the tracking of temporal dynamics of corporate networks which could be found in studies from the 1970s (Sapinski & Carroll, 2017). The current study found a historic trend with the dominance of financial institutions in the upper echelons of the 2010 network, similar to the research carried out by Stanworth and Giddens in 1975. In their study of the British network during seven (7) time points between 1906 and 1970, these authors uncovered an increase in the concentration of financial institutions and ties to and between them.

The current study resembles the 2015 research of Barnes, who mapped the interpersonal network of American corporate directors at four (4) time points between 1962 and 1995. In his research Barnes indicated that a change in the pattern and structure did take place over time. The current study contributed to the 2008 South African network structure and pattern uncovered by Williams, Deodutt and Stainbank (2016) by comparing these authors' structure to the 2010 network structure to establish whether any changes had occurred over time. Whilst there was little change in the structure between 2008 and 2010 in terms of the prominence of financial institutions in the upper echelons, the current study contributes to indicate that a change in pattern and structure occurred from 2010 to 2016 similar to that uncovered by Barnes between 1962 and 1995.

6.1.4 Change in legislation and governance structures

Since the turn of the century, studies brought new light to bear on the classic themes laid out above. New legislation enacted in the 1990s in the face of recurrent economic crises and the reorganisation of corporate activity led to changes in corporate governance. Efficiency was emphasised, board sizes were reduced accordingly, and limits were placed (in some countries) on the number of boards on which directors could serve. In parallel, corporations sought to increase board diversity and thus invited a greater number of women and members of minority groups to serve on their boards (Heemskerk & Fennema, 2014; Domhoff 2012).

The current study's results concur with those that of Elouaer (2006). Elouaer who found that French companies increased their board sizes to comply with regulatory requirements. In the absence of any evidence to the contrary, this leads to the conclusion that the introduction of the King III and King IV reports led to the same results in South Africa.

6.1.5 Change in the commercial power structure and rise of the retail sector

In parallel with changes in legislation and corporate governance structures, accumulation processes and corporate ownership became increasingly transnational as the neoliberal regime was consolidated around the turn of the century, fostering some degree of internationalisation of corporate boards. These developments inspired theoretical debates around the possible emergence and political capacity of a transnational capitalist class. Following from these political and economic changes, the findings from the earlier period were recast, considering regulatory changes and broader debates around the organisation of neoliberal capitalism.

The current study revealed the prominence of merchant capital in the upper echelons of the 2016 network of interlocked companies and directors in South Africa.. This prominence was explained in the Provincial Treasury of Gauteng's Unit of Economic Analysis' Quarterly Bulletin (April–June 2012) as a result of the increase in both the supply of retail space and the increased development of a number of shopping centres in the country. The Bulletin claims that the country has seen a boom in the development of shopping centres, especially in informal settlements, and that multi-national companies are using South Africa as a springboard and basis from where they can establish a footprint and expand their business interest into the rest of the sub-Saharan African region. With the decline of mining and manufacturing within the South African economy, a change has taken place as the focus has shifted for the economy to become more customer-driven, and industry expansion has shifted to retailers. Imports, predominantly from China has further afield, contributed to a decline in manufacturing and resulted in more retail space being built.

A retailer like Shoprite, which is prominent in the upper end of what was identified as the ultra-elite, was one of the first players in the retail industry whose aggressive expansion was supported by decentralised mega warehouses, which optimised their supply chains and allowed for the efficient distribution of goods, decreasing lead time to the end users in all of the urban centres, townships and rural areas. There was also a shift in the focus of developing shopping centres and development has shifted from being concentrated in inner cities, to be more decentralised, and such development moved to suburbs and townships. High-density housing projects were launched in the vicinity of major urban areas, and construction expanded, in turn, leading to where the demand for and increased developments of retail centres in these residential areas ocurred.

Data from the website of Urban Studies (www.urbanstudies.co.za) indicated that in 2002, approximately 5,722,846 square meters of land in South Africa was occupied by the retail industry. This area consisted of 239 shopping centres. The eight (8) years from 2002 to 2010 saw the retail industry expand and grow to occupy 18,418,073 square meters of land, and the increase was subsequently reflected in the number of shopping centres, which grew to 1,443. These developments emphasise the increasing prominence of the retail sector in South Africa and hence the changing profile of company and director interlocks from 2010 to 2016 with specific reference to changes in board size, network density regarding interlocks, structure of the corporate elite, and power structure.

6.2 FUTURE RECOMMENDATIONS

Despite the expansion of the retail sector, the current study found that there was a slowdown in transformation. To address the recommendations of the governance codes, especially King IV, and to increase diversity, transformation will have to be fast tracked, and the following recommendations are made.

6.2.1 Ensuring that economic transformation regains momentum

Investors started to move their funds out of emerging markets, which impacted on African currencies. Global plummeting commodity and oil prices, and fears of a slowdown in the Chinese economy, with a resulting fall in demand for petroleum products from the United States and other countries, and the decline in economic growth has spilled over to the African continent. Questions were asked if growth in Africa has finally hit its ceiling? The annual growth average for the African continent was 6.4% for the period from 2002 to 2008, and the World Bank reacted and revised its growth forecast for the continent down to 4.2% in 2019. So, Razia Khan, chief economist, Africa, at Standard Chartered Bank responded to this issue by making the following comment “History suggests that any slowing in global growth is followed with some lag in Africa—reflecting its traditional commodity dependence”

Considering an ongoing trade war between the United States and China, stock markets are under- performing and global debt is rising, and the World Bank has reduced its forecast for global growth to just below 3%. Slower growth, accompanied by the global pressure of more expensive credit, will continue to have an influence on Africa. Lower reserves will continue to have a severe influence, and according to the IMF (https://www.odi.org/comment/10719-economic-transformation-africa-key-trends-2019), countries are currently less prepared for another economic slowdown, and that their readiness is at a lower level than it was before the last global financial crisis of 2008. Since then, the group of G20 countries took the lead in coordination and, among other initiatives, focused on the industrialisation of Africa. After disappointing submissions to the December 2018 summit, important initiatives will have to be presented and agreed upon at future G20 summits

Due to weakening global governance and trade, South Africa and other African economies will have to find regional and local solutions. This ensures that African bilateral trade deals are becoming increasingly important. Regional integration is making good progress, as is the signing of the African Continental Free Trade Agreement (AFCFTA). In the case of South Africa, negotiations will have to continue to improve cross-border infrastructure, which will significantly boost exports and productivity. The bilateral trade and investment initiatives with Africa which have been launched by Britain, China, the United States, France, and the European Union will have to be strengthened.

Renewed focus will be placed on competent African leadership to channel and support China’s Belt and Road Initiative (BRI) which ensures that large amounts of finance flow to the continent to deliver infrastructure. Debt levels had increased, and in some cases, transformation remains slow as finance is not being used effectively. The Belt and Road Initiative (BRI) also coincides with increased rivalry from the United States, Canada, and the United Kingdom, supported by the European Union, which has new financing plans to support African job creation (https://www.odi.org/comment/10719 -economic-transformation-africa-key-trends-2019).

6.2.2 Exploration of new opportunities in a digital era and manufacturing remains critical

A massive opportunity exists for South Africa and other African countries to expand their traditional industrial capabilities. Endless opportunities will be created through digitalisation as financial, legal and other services will be brought closer to global as well as African consumers. It will all depend whether countries can seize these opportunities by sufficiently supporting the development of appropriate digital skills in their workforces.

The contribution that manufacturing has made to the share of Africa's GDP has declined over the past decade, it was encouraging to see that manufacturing production has doubled over the same period, in absolute terms. Without an increase in manufacturing capacity and volume, jobs cannot be created. To attempt to work towards achieving the same sustained manufacturing growth as seen in Asia over periods of time, local input costs will have to be lowered and labour cost contained. South Africa will have to take lessons from other success stories of industrial growth in Africa. Ethiopia created special economic zones based on the initial success of Hawassa Industrial Park. It is unlikely that South Africa will attract further investment in car manufacturing as Rwanda and Namibia attracted new plants. Lessons can be learned on how Kenya is investigating small firms' roles in the country's economic transformation and initiatives to increase manufacturing. Tanzania is a good example of a country that purposefully intervened in the market for cashew nuts to stimulate growth.

6.2.3 Importance of promises of job creation in elections

In the local economy, South Africa has the highest unemployment rate in the world and resulting in the fact that more than a quarter of the labour force is unemployed Jobs and transformation have been central to the election campaign of the ruling party in 2019, and lessons can be learned from other African countries. As one of the world's largest oil producers, Nigeria as a country, suffered from plummeting oil prices and uncertainty surrounding elections earlier, but this did not in any way help. Razia Khan commented by saying that the "Increased frequency of fuel shortages ahead of the political transition,", have contributed to the slowdown. The elections indicated that despite an increase in foreign direct investment in 2018, foreign reserves, oil prices and growth have all been weaker than expected.

Meanwhile, South Africa as Africa's second largest economy, continues to report on contracted, or slow growth, and fears of a recession that might have been on the way, appears to become a reality. Matthew Graham, Lecturer in History at the University of

Dundee speculated in his article on how this relates to the African National Congress's (ANC's) inability to implement sustained policy changes. South African voters are increasingly angered by the rising level of unemployment, land expropriation without compensation and escalating corruption. In addition, the political elite has been badly mired by scandals which indicates that the ANC appears to have lost its sense of direction, of which most can be traced back under the reign and speculation of possible involvement of the former presidency of Jacob Zuma. Graham states that during the South African democratic era, only politicians can be blamed for the slow pace of South Africa's transformation, which is based on five (5) contributing factors. Firstly, persisting economic inequality, secondly growing unemployment, thirdly missed opportunities, fourthly unacceptably high levels of corruption and, lastly, the failure to establish a truly transformed equal and democratic society.(https://qz.com/africa/1329903/nelson-mandela-legacy-in-south-africa-hurt-by-zuma-politicians/). The electorate will have to vote more responsibly in ensuring that political leaders are held accountable.

6.2.4 African economies need to diversify

The reasons for calling for the diversification of African economies are threefold. If African economies diversified further and quicker, mainly away from commodities,, development and growth in more economic sectors would potentially increase the industrial and commercial sectors, increasing the corporate population which could lead to an increased demand for directors and hence the opportunity for directors to develop and gain experience, quicker and faster. It should potentially increase the limited talent pool from where directors are currently sourced. A growing African economy could thus possibly assist to encourage the movement away from any dominance of mines, or financial institutions, and open African economies up to diversify, grow and create more competition. Economic power would be distributed across more sectors with potential benefits referred to above., While not of direct importance to this study in the short term, it creates an awareness of a biger picture for the future which cannot be disregarded

Economist Aidan Eyakuze[36], believes that "A good chunk of the Africa Rising phenomenon was historically driven by strong commodity prices due to Chinese and other Asian demand", but this could not last forever. According to him it is not yet time to panic, as growth in the continent and South Africa remains positive although at a slower rate. Ricardo

[36] **Aidan Eyakuze** is the executive director of Twaweza, a civil society organization in East Africa

Soares de Oliveira, an expert on African politics[37] said, that the struggles of African resource-rich countries to grow faster, are evidence that these countries have not diversified enough. De Oliveira further added that "every major economy in Africa that did well out of the extractive industries over the past decades has failed to industrialise,"

Even the South Africa's economy, as the region's most industrialised economy, is still dominated by commodities which account for as much as 57% of atotal export volume. In South Africa, like anywhere else on the continent, there are continued problems with poorly developed transport links into Africa, inefficient government bureaucracy, corruption, and an unreliable supply of electricity. Most African nations import more than they export which does not improve or resolve the problem of weak local manufacturing and other industries (Available from https://qz.com/africa/488262/as-the-global-economy-hits-speed-bumps-africas-rise-slows-down/). South African has no choice but to diversify its economy faster and more efficiently.

6.2.5 Further regulatory reforms are needed

While the preceding, broad background recommendations in Sections 6.2.1 to 6.2.4 are mainly aligned to macro-economic as well as to socio-economic expectations that could, inter alia, provide a conducive environment for business expansion and economic growth globally, particularly for Africa, sub-Saharan Africa and, consequently South Africa, the purpose of this study was to investigate the nature and implications of director interlock and board structure of South African listed companies in the context of effective corporate governance. In the sections that follow, specific recommendations aligned to the purpose of the study and the research objectives regarding the implications and merits of director and company interlocks are provided in conclusion, although in no specific order of importance, given the integrated nature of the topic.

Although previous King reports address the issue of independence, it is recommended that a next revision, potentially King V, define the notion of independence better. In Chapter 5, the sacrifice of independence during the Steinhoff debacle was described. As stated before, the PWC report (2017:13), regards directors as independent when "it is proven that there are no interests, positions, associations or relationships which could be deemed as unreasonable, or likely to unduly influence, or cause bias in decision-making in the best interests of the company". The PWC report further states that "Independence is the absence

[37] **Ricardo Soares de Oliveira** is Professor of the International Politics of Africa at the Department of Politics and International Relations at Oxford University

of undue influence and bias which can be affected by the intensity of the relationship between the director and the company rather than any particular fact such as length of service, or age (p14)."

The recommendations of King IV which refers to relationships that is unreasonable, or which could potentially unduly influence decisions, were abused, especially by Markus Jooste (Section 5.4). It is by now a well-known fact how Jooste involved an inner circle of friends and alma mater –derived relationships in his business dealings. More effective processes to guarantee, scrutinise and safeguard independence will have to be developed and enforced. Although the King IV report does not necessarily make recommendations regarding limitations to tenure on any specific number of boards, a possible limitation of tenure to one board could be recommended. Complacency can easily set in; culture could be come to stagnant and change hampered. In an ever and faster changing world decision making and innovation is becoming more and more important and the speed of reaching board consensus and decisions is becoming more important.

6.2.5.1 Suggested board size of possibly not more than 15 members

The increase in board size is not solely a product of the King IV report. Board sizes have increased gradually after the King I, II, and III and IV codes were published. The publication of the codes increased both expectations and a demand for more board resources. As discussed in Chapter 5, the publication of the King IV code compounded the demand for increase in board sizes and recommended diversification and adequate representation of race and gender on the governing body. According to this code, the board should encourage diversity through its membership, addressing a variety of attributes which will contribute to better decision-making and effective governance. In creating this board diversity, the following attributes need to reflect which would include the field of knowledge, age, culture, race and gender, as well as individual skills and experience of the he relevant board members. As an example, it is questionable how effective and coordinated a Massmart board of 87 members can function?

Could international as well as local trends be used as guideline to establish what the ideal board size should be? In 2005, the work of Santella and Heemskerk indicated that Austrian and Belgian boards were larger than those of their global counterparts and Appendix 6, summarises international findings of nine (9) authors over the last 16 years with the average board size consisting of 11.21 members. Table 27 also shows that, in terms of average board size in 2008, German and Italian, boards were larger than those in South Africa. The picture changed as the results in Chapter 4 indicated that the increase in board sizes for

South Africa was more significant, growing from 9.16 in 2010 to 17.81 in 2016 (an increase of 94.43%). Boards surely cannot unaccountably continue to grow. Potentially, King V could formulate a possible ratio of board members versus turnover, and/or market capitalisation to make a recommendation on what board size should be, but with a definite, ultimate limit as indicated above.

6.2.5.2 Directors not to serve on more than three (3) boards

In the literature review and the discussion in Chapter 4, the issues around the number of directorships occupied by a director was raised. Indeed, how many directorships can directors hold while still allowing them to adequately perform their legal fiduciary duty and act in the best interest of the shareholders and the companies on whose boards they hold seats? In light of global scandals such as the collapse of Enron and the recent Steinhoff debacle, it would appear that regulatory frameworks must be improved to better protect shareholder interests. One of the recommendations of the current study would certainly be to limit the number of boards a director may serve on. The question flowing from such a recommendation would be what the limit should be. The answer might stem from global sentiments.

As mentioned in the discussion of the results in Chapter five (5), the Combined Code of the Financial Reporting Council in the UK recommends that directors serving in executive capacity of one UK company should not serve on more than one board in a non-executive capacity. The Australian Shareholders' Association (ASA) recommends that any director who occupies more than five (5) board seats cannot act in the best interest of the company and its shareholders. This association is in support of the United States Council of Institutional Investors who suggested in 2004 that directors who are professionally employed in a full-time capacity should not serve on more than two (2) other boards. A combined survey of 1 279 directors conducted in 2004 by the Corporate Board Member magazine and PricewaterhouseCoopers in the United States is proof that the majority of directors themselves believed that there should be a limitation to the number of other board seats directors may occupy (Kiel and Nicholson, 2006). The survey results recommended that outside directors could sit on three (3) boards.

If the research by the Combined Code of the Financial Reporting Council in the UK, the Australian Shareholders' Association (ASA) and the Council of Institutional Investors in the United States are to be combined with PricewaterhouseCoopers' 2004 survey to act as guidance, a director may sit on potentially only three (3) boards. These findings were given weight by the fact that more than 1 200 directors added their votes in the 2004 PricewaterhouseCoopers survey.

6.2.5.3 Required number of board meetings and only one audit company

In Chapter 5 it was disclosed that the Steinhoff board met only four (4) times per year. It is strongly recommended that the potential revised King V report should stipulate the required number of board meetings per year. If all the malpractices in Steinhoff were not detected during four (4) board meetings each year, it should be recommended that if malpractice, or irregularities is suspected, a mandate or provision for two (2) extra meetings, should be allowed for. One of the ways in which Markus Jooste ensured that many malpractices were kept under the radar was by appointing multiple audit firms across various businesses. King V could also consider recommending one audit firm per company or that audit firms could potentially cross-audit businesses, or business units that had been audited by other audit firms.

6.3 THE WAY FORWARD TO MITIGATE THE CAUSES AND CONSEQUENCES AND THE FORMATION OF INTERLOCKS

Nomination committees in conducting their annual board performance reviews, need to be much more vigorous in their assessment of the possible and real contributions that board members are making, and properly evaluate if they are overcommitted, or not. The nomination committees need to be stringent in their evaluation of directors, be clear and come to a decisive decision whether appointed directors are doing what they were appointed for. A clear recommendation followed by action is needed to decide if they are executing their duties effectively or not. If it is found that a director is overcommitted, it is the responsibility of the nomination committees to take firm action before the next board re-election. It appears that not enough time, or effort, is dedicated to investigate the possible over commitment of potential appointees even before they are appointed. Nomination committees need to prioritise and re-think the criteria for and methodology of the evaluation process. Such stringent practises will curb the possible formation of potentially less effective interlocks which company are sometimes forced into, or engage in, for the wrong reasons.

Despite the fact that first time board appointees require extensive development, boards will have to engage and increase the number of “first-time board appointments” they are prepared to make (Mans-Kemp *et al*. 2018:215). The progress towards the development of inexperienced directors and efforts to increase the size of the limited talent pool is way too slow. The number of ‘old-timers’ or experienced directors who prefer “to stay connected” in non-executive capacity (Mans-Kemp *et al*., 2018:215) and with the intention to coach and mentor younger directors, is not enough, and need to increase. Companies need to introduce formal mentoring programs. Clutterbuck and Megginson (1999) and Mans-Kemp *et al*. (2018) are supported and the researcher recommends that more weathered directors have to be approached, to act as mentors, and coach upcoming potential and groom diverse candidates to reach their full potential. If the recommendations mentioned in the paragraph above could be instituted, it will further assist to curb the formation of interlocks since the strain on the limited pool of talent will be partially relieved, as there will be more directors to choose from. The practises mentioned above should increase the number of available possible appointees in the talent pool in future.

There is definite scope and space for more director recruitment agencies, and existing agencies can play a far bigger role. The researcher is in full support of one of the interviewees in the Mans-Kemp *et al* (2018:218) study who remarked that the problem is that these agencies were “not bringing new people to the table”. These recruitment agencies could add a lot more value, by widening their horizons and by sourcing potential board candidates from alternative sources such as, academic circles or even abroad. Professional industry associations, such as the South African Institute of Chartered Accountants, business forums, engineering councils and other professional associations could be sources where promising board candidates could be identified. The researcher also agrees with two (2) of the interviewees who recommended that more business schools should offer training programmes for aspiring board candidates (Mans-Kemp *et al*., 2018). Such a program, including existing programs in Corporate Governance, could be expanded to even further enhance and develop the skills of both potential and existing directors.

6.4 PRACTICAL RECOMMENDATIONS FOR FUTURE BUSINESS OR COMPANY USE

The current study revealed the pattern of South African companies that are interlocked and listed on the Johannesburg Stock Exchange (JSE) and the directors who serve on their boards. Visibility of these networks, either through mapping, sociograms, or bipartite graphs, can be highly beneficial. Firstly, it can help a company to understand the scope and context of the corporate landscape in which they operate. Additionally, this visibility allows them to determine how they are positioned in relation to all other companies. Bipartite graphs display the inter-relationships between stakeholders, providing a very clear picture of how competitors are positioned. Similarly, visibility of networks creates an understanding of potential future growth opportunities, strategic investments, potential alliance partners, mergers, acquisitions, and joint ventures. The visibility simply enables anyone who has access to the network to see who is connected to whom. Any form of potential conflict of interest is therefore very visible. How are we placed and how is our opposition placed? What corrective action do we have to take? Do we change our relationships, ties, and positioning?

In any potential board appointment, insight into the mapped network can assist a company or board to select the best possible candidate. This could be a combination of the skills and expertise the individual holds, in addition to strategic and valuable links the individual holds with other strategic and/or important other individuals. By having access to the network information, the combination of skills and expertise could be combined with full visibility on who would be the best possible candidate that could be approached and what strategic links and relationships they can bring to the boardroom table.

In terms of clustering, power formations can be identified, and possible anti-competitive practises can be investigated. Clustering can also forewarn companies to steer away from companies or directors who could potentially be damaging. By making use of tools such as the INET BFA database and the website “Who’s Who SA”, a further investigation could be conducted to see if there is any further possible social links between the identified elite.

The results of this study made it abundantly clear that transformation has slowed down. Muchemwa and Padia (2016) recommended that transformation, with specific reference to gender diversification on board level, must be further investigated. Not enough focus is placed on gender transformation within boards and a study in this regard is recommended. Any study which could further delve into the deeper social ties, focussing on social relationships on a personal level between the directors themselves could make a valuable contribution in terms of our understanding of the nature of the phenomenon and its results on business enterprises. A study which investigates the equity holding within interlocks could make a further valuable contribution to our understanding of the phenomenon and its application.

6.5 IN CLOSING

This study has proven that the dynamics of interlocking are thought-provoking and worthy of consideration and research. This comprehensive study, the first of its kind in terms of extent, revealed that the causes of interlock will differ from one time point to the next due to its dynamic nature. The study of the structural dynamics of interlocks was achieved by the statistical analysis and mapping of director interlock in all South African listed companies and their directors in 2010 and 2016. The characteristics of the current South African network of listed companies were successfully revealed and changes in the key structural dynamics were noted. The changes were compared to earlier network studies, both in

South Africa and globally, which deepened the understanding of structural dynamics over a longer time frame.

The South African economic environment has been influenced by two (2) overarching meta-models. The class hegemony and environmental or resource dependency models can be incorporated into the first of the two (2) overarching meta-models, namely the reciprocity model. The second meta-model is the control model which incorporates the management control and the financial control models. The study highlighted two (2) further main streams in the sense that interlocks form part of the strategic considerations considered by companies, whereas the other mainstream focuses on the corporate elite and power relations.

Five (5) distinctive features characterised the study. The first was the vast increase in board size between 2010 and 2016, the second was the comparative increase in network density during these time slices, thirdly the move away from the dominance of financial and financial services companies to retail companies, and the lack of progress towards the transformation agenda. Evidence could be provided of the existence of a corporate elite and lastly in the strategic consideration of involvement in interlocks it could be beneficial or detrimental to a company depending on how director interlock it is applied.

The massive increase in board size was, *inter alia*, but mainly in response to changes in the regulatory framework from the King III to King IV reports which placed more demands on board resources. The higher demand in expectations contributed to added responsibilities and requirements and resulted in a demand for board resources. Not only did the governance codes change, but the Companies Act changed as well in 2008. King IV followed with a requirement for the independence of directors, increased disclosure of information by companies and the alignment of how groups of companies should be managed. Increased globalisation, the financial crisis of 2008, the changes to the company act and changes in the regulatory framework also increased pressure on board resources, resulting in the network of interlocked companies becoming denser.

A swing away from the prominence of financial institutions and banks were driven by the increased demand for convenience shopping among the largest portion of low to middle-income consumers. Growth and development of shopping centres in township areas increased, with evident migration of a substantial portion of the black market into the formal retail sector. General demographic changes also contributed to growth and expansion in the retail market. In a 16 April 2017 article (https://www.iol.co.za/news/opinion/the-unfettered-power-of-white-monopoly-capital), Professor Malikane[38,] wrote that the first phase of the democratic revolution in South Africa, the "post-1994 breakthrough", is fast approaching its end. The post-1994 period expanded the black middle class through the development of professionals and black businesspeople by means of affirmative action, the introduction of black economic empowerment through the tender system and the opening up of opportunities in the private sector.

No one can argue with the 6 December 2017 statement in the Daily Maverick by the Minister of Water and Sanitation, Nomvula Mokonyane, in which she said that the Johannesburg Stock Exchange's top 25 listed companies are in the hands of white people who, combined, control more than 80% of the shares (Available from https://www.dailymaverick.co.za/opinionista/2017-12-06-whatever-one-calls-it-white-monopoly-capital-entrenched-capital-historical-capital-it-exists/#.WnoK366WbIW). This study revealed a white elite residing in Stellenbosch. Well-known businessmen like Johan Rupert, Jannie Mouton, Christo Wiese, Koos Bekker, G.T. Ferreira, Paul Harris, Markus Jooste and Michiel Le Roux are all linked to the city. The Stellenbosch elite is an example of a local nested group, with examples of similar groups shared as presented in Appendix 4.

The study found that little progress has been made on board level regarding transformation, especially regarding gender transformation and that this needs to be an area of focus. Conclusive evidence was, however, provided of an upcoming black South African elite.

In conclusion, this study provided clear substantiation that director interlock should be regarded with a good measure of ambivalence. It can indeed be applied for the good of business enterprises as the transference of skills, knowledge and know-how benefit shareholders and add to reputational and financial gain of companies. Without the proper safeguards and sanctions, however, interlock can be abused by those whose desire for personal gain override societal norms and the need to comply with legal and fiduciary duties to shareholders and business partners. This study contributes to the body of knowledge in the fields of corporate governance, including application of management theory, agency theory, social network theory,resource dependence theory, small world theory and power dynamics in corporate domains.in the context of corporate governance.

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APPENDIX 1 – ACRONYMS AND ABBREVIATIONS

ANC	African National Congress
BBBEE	Broad-Based Black Economic Empowerment
CA	Chartered Accountant
CEO	Chief Executive Officer
DBL	Doctorate in Business Leadership
Dti	Department of Trade and Industry
IOD	Institute of Directors
NED’s	Non-Executive Directors
NYSE	New York Stock Exchange
OECD	Organization for Economic Co-operation and development
PFMA	Public Finance Management Act
SAICA	South African Institute of Chartered Accountants
SAS	Statistical Analytical Software
SEC	Security Exchange Centre
SNA	Social Network Analysis
TMT	Top Management Team
UK	United Kingdom
UNISA	University of South Africa
USA	United States of America
US	United States

APPENDIX 2 - GLOSSARY OF TERMS AND DEFINITIONS

Board Process

The board process is made up by a relationship between board governance and corporate performance (LeBlanc and Gillies, 2003). The board process is complemented by an understanding of boards' composition, with evidence of what boards do, how they work and how they reach the decisions they do (LeBlanc and Gillies, 2003 and Dunn 2005).

Board Dynamics

The board composition and the conduct and behaviour of directors within the board decision- making process relate to internal dynamics and is labelled as board dynamics (Dunn 2004, Kula 2005, Wan and Ong 2005). Board dynamics include the mechanisms and processes which link "input" variables such as board composition to "output" variables such as board performance.

Board Demographics

Demographic characteristics focus on the structure of boards, the independence of directors and the separation of the respective roles which includes size, composition, and diversification.

Director Interlock

Battiston and Catanzaro (2003) describe director interlock as directors serving on several boards at the same time and the interconnectedness of many boards as a result of sharing directors. They see interlock as being the influence on decision-making when social ties link a director to other directors, at the same time influencing decision-making. Battiston (2003) was in support of this notion and extended it to the belief that interlock influences the directors' individual opinions. Van der Walt and Ingley (2003) saw interlock as multiple interconnected directors, tied together by the friendships they share, similar backgrounds, and economic interests. Buris (2005) explained that interlock includes the social ties which are created through the shared membership of corporate boards and that these social ties contribute to similarity in political behaviour which outweighs the commonalities of economic interests. In the business community, the corporate elite and the social networks they belong to facilitate political cohesion and there is an indication that director interlocks increase the potential for political cohesion among corporations

Interlocking network

Wong and Gygax (2007) defined interlocking networks as all the boards and all the interlocks that exist among them.

Isomorphism

Isomorphism exists when there is a similarity in the processes or structure of one company compared to that of another company under similar constraints resulting from imitation or independent development.

Social Network Analysis (SNA)

Social Network Analysis (SNA) is a research technique that models the interaction between individuals, groups, social systems and networks after the identification and comparison of the relationships within. It is about 'who knows whom' and 'who shares with whom'. Network analysis is a fundamental approach to the study of social structure. Network analysts criticise the normative, categorical, dyadic, and bounded-group components of the network structure. The structure of this social system is studied by analysing the pattern of ties which link the members by analysing the complex ranked and categorised structures of disproportionate ties and to study the stratification and distribution of power (Wellmann, 1983).

Social Networks

Social networks are made up by network members acing as nodes - connected to each other through, one or more types of relation (Wasserman and Faust, 1994). These networks form the primary building blocks of the social world for social network analysts.

Social Relations

Network analysis is concerned with the attributes of pairs of individuals, of which binary relations are the main kind. Social science focusses on monadic attributes which includes remuneration, sex and age. Social relations between directors can be seen as dyadic attributes. Some examples are:

- Family ties which is also described as kinship
- Being someone's acquaintance or friend is described as social roles
- Likes, dislikes, respect for, or to hate are examples of affective attributes
- To know, or to share similar views are described as cognitive attributes
- Talking to, or having lunch with someone is described as actions
- Interaction in the form of phone calls or e-mails are described as flows

- Geographic location and number of kilometres between another is described as distance
- When two (2) individuals belong to the same club, attended similar schools or studied together it is called co-occurrence
- When two (2) links or nodes or network members are removed from others, or connected to other nodes or network members is described as mathematical

Social Network Analysis Software

The software creates visibility of connections and relationships using relational and non-relational input data. It identifies, analyses, maps and simulates the connections and resulting relationships between individual nodes or network players such as directors, or network player groups such as companies.

SAS - Statistical Analysis System

Statistical Analysis System (SAS) was founded by Jim Goodnight and John Sall in the early 1970's intended to analyse agricultural research data. The demand for the functionality escalated and SAS started to develop and sell the software. Today, SAS is the provider of the world's leading software and services for business analytics.

APPENDIX 3 – EXAMPLES OF STUDIES INVOLVING INTERLOCK WITH INCONCLUSIVE FINDINGS

List of inconclusive findings as pointed out below, and submitted by the author as part of the 2007 DBL unpublished reading list assignment, is further evidence that board processes and dynamics need further investigation:

- Board structure in relation to composition and compliance with governance codes has been researched, but not the structure relating to interlock, board dynamics, causes or consequences (Coles and Hesterley, 2000; LeBlanc and Gillies, 2003 and Pye and Pettigrew, 2005).
- Diversity, as earlier defined, in board structure and composition with reference to inside and outside directors and social ties of individual directors within the board process and inter relationships have not been researched (Forbes and Milliken, 1999; LeBlanc and Gillies, 2003; Miller and Millesen, 2003; Van der Walt and Ingley, 2003; Dunn, 2004; Buno, 2005 and Pye and Pettigrew, 2005).
- The impact of board diversity, the structure, composition and the consequences are not understood (LeBlanc and Gillies, 2003; Montgomery and Kaufman, 2003; Van der Walt and Ingley, 2003; Battiston, Bonabeau and Weisbuch, 2005; Pye and Pettigrew, 2005; Rogers and Blenko, 2006 and Useem, 2006).
- Board dynamics are not understood; further research is therefore required. No paradigm for the process or methodology exists and no conclusive results were documented (Ansoff, 1987; LeBlanc and Gillies, 2003; Miller and Millesen, 2003; Van der Walt Ingley, 2003; Dunn, 2004; Bruno, 2005; Pye and Pettigrew, 2005; Brett, Behfar and Kern, 2006; Sarra, 2006; and Useem, 2006).
- Board performance and board dynamics are influenced by the bringing in of diversity (Mufune, 2003; Van der Walt Ingley, 2003; Lau and Murnighan, 2005 and Sarra, 2006). However, the impact of this diversity is not fully understood (Miller and Millesen, 2003).
- Due to a potential critical skills shortage, conformance and compliance could take priority over competence (Ruigrok, Peck and Keller, 2003; Van der Walt and Ingley, 2003; Nadler, 2004; Li and Hambrick, 2005; Pye and Pettigrew, 2005 and Sarra, 2006).
- Conformance, compliance and interlocks could potentially sacrifice independence (Nadler, 2004; Bruno, 2005)
- The resulting literature on interlocking directorates is inconsistent, advocating or opposing the use of the strategy according to the constituency represented by the

respective authors (Bazerman and Schoorman, 1983).

- Research on corporate interlocking has tended to accumulate in a confused rather than a coherent fashion. Each different group of writers has tended to employ different languages, methodologies, emphases and concepts and to view different facets of the common phenomenon as problematic (Sonquist and Koenig, 1975).
- Very little is known about the processes through which interlocks might affect corporate behaviour (Mizruchi, 1996). During the explosion of research on inter-organisational relations in the 90's, research into director interlocks became even more prominent (Mizruchi, 1996). Mizruchi (1996: 293) which quotes Stinchcombe (1990) by saying that so little is known about the actual operation of interlocks that he suggests studying "what flows across the links. Who decides on those flows in the light of what interests, and what collective or corporate action flows from the organisation of links, in order to make sense of inter-corporate relations".
- Research tends to display a strong moralistic and legalistic bias and its theoretical framework is either lacking or under-developed, although the data are often extensive and reliable (Fennema and Schijf, 1978). The following problems are detected:
  - The definition of interest – or group – is not very clear.
  - No distinction is made between the different types of corporate interlocks.
  - It is not clear how interlocks are detected

Compiled by the Author, LM Neuhoff (2007) as part of his unpublished DBL reading list assignment – "PARADIGM FOR BOARD EFFECTIVENESS: CORPORATE GOVERNANCE AND BBBEE IN SOUTH AFRICA – THE INFLUENCE ON BOARD DYNAMICS"

APPENDIX 4 - INTERNATIONAL EXAMPLES OF NESTED GROUPS

4.1 The Kigyoshudan of Japan

In Japan, the Kigyoshudan is an example of a nested group which is tied together through interlocks including reciprocal shareholdings and relations of credit extension. The group members are aligned, controlling each through coalitions and collaborative participation. In 1986, 1989 and 1990, Ueda applied a social network analysis and he identified high levels of interlocks within the Japanese economy (Scott, 1991). Ueda identified the Japanese inner circle which comprises directors of prominent organisations like the Keidanren. This inner circle has multiple ties and extensive business interests.

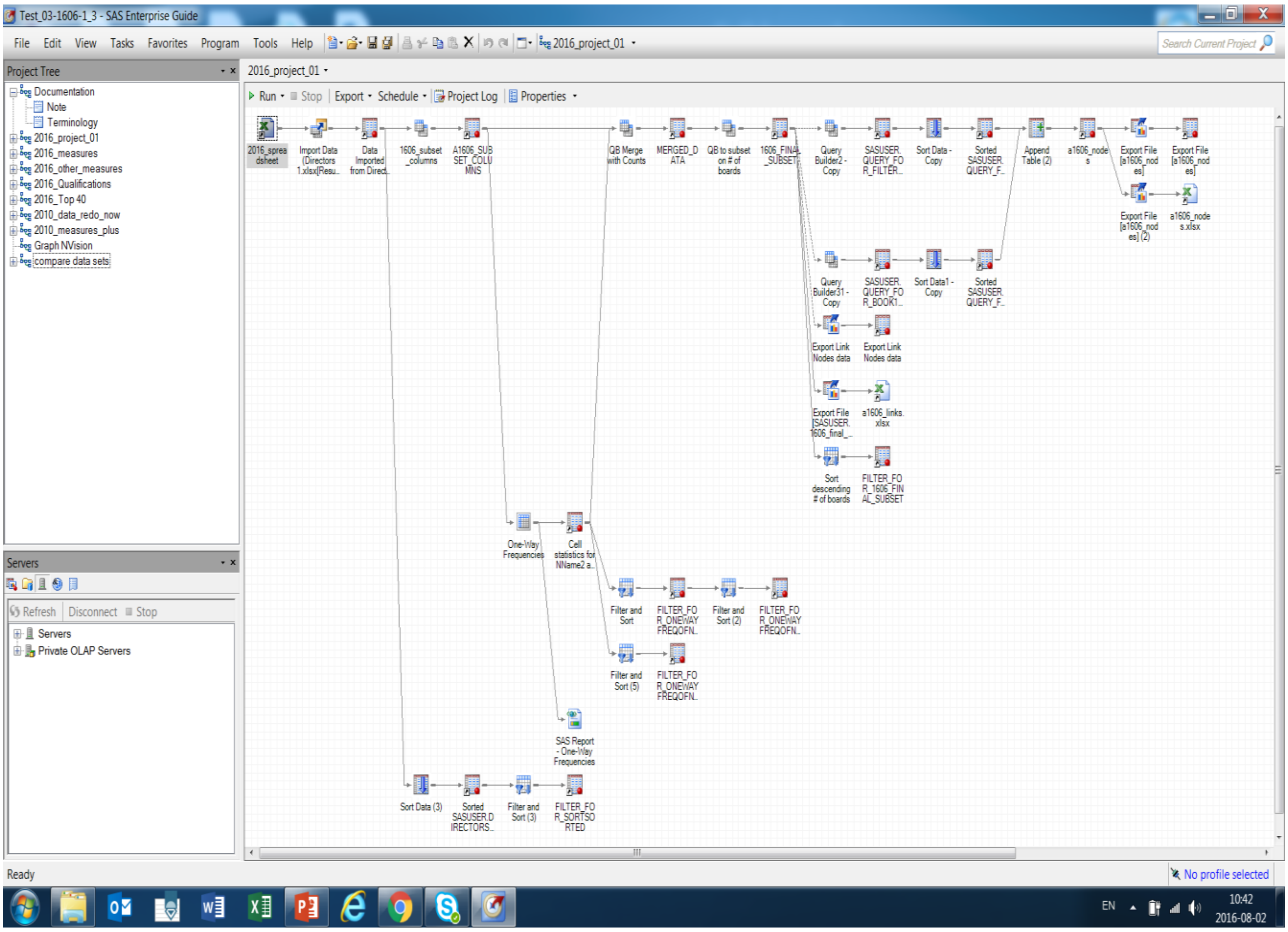
4.2 The Taiwanese Xiejinhui and other groupings of Latin America, China, India, Chile, Israel, and Korea

Numazaki (1986, 1988) identified “central” directors in the Taiwanese business network which belong to the Xiejinhui (the Taiwanese central business federation) (Scott, 1991). Numazaki, quoted authors who identified and described various groups which are vertically and horizontally aligned within the business structures of China, Japan, India, Chile, Israel and Korea:

- In China they are called the Chaebols (Keister 1998, 2000)
- The Zaibatsu of pre-war Japan, and after the war the Keidanren and Keiretsu of Japan
- The Business House of India (Khanna and Rivkin, 2006)
- The Grupos in Latin America (Strachan, 1976)
- Similar to China, in South Korea they are also called the Chaebols (Amsden, 1989; Chang and Choi, 1988), and in Israel they are called the Kibbutzim

Scott (1991:194) referred to Hamilton *et al*. (1987:101) who defined what he described as “the role of the state, and nature of the kinship system, as crucial explanatory factors” for the formation of such groups. Both Scott (1991) and Hamilton (1987) identified the existence of business organisations such as the Ie and Dozuku, the Omotokata or Honsha, the Jittuanqiye and the Hegu or Lianho in Japan, China and Taiwan. Various permutations of interaction lead to the formations of interlock and developed as the result of the interaction between individuals and the state, as well as dominant families who owned large portions of the businesses. These authors described interlocks with other family members and even interlocks with members of other families.

APPENDIX 5 – THE SAS ENTERPRISE GUIDE QUERY THAT WAS WRITTEN AND THE PROCEDURES THAT WERE PERFORMED



APPENDIX 6 - SUMMARY OF NINE (9) INTERNATIONAL STUDIES ON BOARD COMPOSITION

Author/s	ar of stu	Country	Date	Population	Directors	Seats	Multiples/links	Companies	%	Ave /dir	Ave b size	Density	Ave degree	Centrality	Closeness	Betweeness
Au, Peng and Wang	2000	Hong Kong	Pre 1997	Top 200	1628	2105	276	200	17%	1.29	x	0.029	x	x	x	x
		Great Britten		Top 250	2682	3091	282	250	11%	1.15	x	0.017	x	x	x	x
		US		Top 250	3108	3976	564	250	18%	1.28	x	0.035	x	x	x	x
Conyon and Muldoon	2006	USA	2003	Listed	13330	17277	x	1733	x	1.30	9.97	x	x	x	x	x
		UK		Listed	11541	14552	x	2236	x	1.26	6.51	x	x	x	x	x
		Germany		Listed	12747	14904	x	2354	x	1.17	6.33	x	x	x	x	x
Santella et al	2008	Italy	2007	Top 40	491	575	x	40	x	1.17	14.38	0.1039	x	x	x	x
		France	2008	Top 40	487	595	x	40	x	1.22	14.88	0.1551	x	x	x	x
		UK	2008	Top 40	485	515	x	40	x	1.06	12.88	0.041	x	x	x	x
		Germany	2008	Top 40	795	908	x	40	x	1.14	23.28	0.1984	x	x	x	x
		US	2008	Top 40	489	532	x	40	x	1.09	13.30	0.0564	x	x	x	x
Brookfield	2009	Taiwan	1990	Top 200	2062	2502	283	200	14%	1.21	x	0.023	x	x	x	x
		Taiwan	2000	Top 200	1881	2209	228	200	12%	1.17	x	0.015	x	x	x	x
		Hong Kong		Top 200	1628	2105	276	200	17%	1.29	x	0.029	x	x	x	x
		China		Top 250	2521	2589	62	250	2%	1.03	x	0.002	x	x	x	x
		Thailand		Top 200	1511	1833	213	200	14%	1.21	x	0.015	x	x	x	x
		UK		Top 250	2682	3091	282	250	11%	1.15	x	0.017	x	x	x	x
		US		Top 250	3108	3976	564	250	18%	1.28	x	0.035	x	x	x	x
Heemskerk	2011	Austria	2005	FTSE 300	71	74	9	4	13%	1.04	18.5	x	x	x	x	x
		Belgium			223	234	34	12	15%	1.05	19.5	x	x	x	x	x
		Denmark			47	49	2	4	4%	1.04	12.3	x	x	x	x	x
		Finland			43	45	8	5	19%	1.05	9	x	x	x	x	x
		France			608	753	145	44	24%	1.24	17.1	x	x	x	x	x
		Germany			514	610	81	37	16%	1.19	16.5	x	x	x	x	x
		Greece			120	120	2	8	2%	1.00	15	x	x	x	x	x
		Ireland			64	65	6	5	9%	1.02	13	x	x	x	x	x
		Italy			334	379	54	26	16%	1.13	14.6	x	x	x	x	x
		Netherlands			133	166	45	19	34%	1.25	8.7	x	x	x	x	x
		Norway			48	49	4	5	8%	1.02	9.8	x	x	x	x	x
		Portugal			76	76	1	4	1%	1.00	19	x	x	x	x	x
		Spain			268	293	30	18	11%	1.09	16.3	x	x	x	x	x
		Sweden			138	158	24	14	17%	1.14	11.3	x	x	x	x	x
		Switzerland			149	161	32	15	21%	1.08	10.7	x	x	x	x	x
		UK			805	920	137	78	17%	1.14	11.8	x	x	x	x	x
Salvaj and Lluch	2011	Argentina	1970	Top 100&B	861	x	63	116	7%	x	8	0.0604	1.638	x	x	x
		Chile	1970	All	588	x	159	165	27%	x	9	0.0558	11.539	x	x	x
Bellenzier and Grassi	2014	Italy	1998	All	1782	2267	845	x	47%	1.27	9.65	0.04017	x	x	x	x
			1999		1913	2434	654	x	34%	1.27	9.58	0.03873	x	x	x	x
			2000		2212	2781	718	x	32%	1.26	9.57	0.03309	x	x	x	x
			2001		2309	2899	740	x	32%	1.26	9.64	0.02643	x	x	x	x
			2002		2306	2875	689	x	30%	1.25	9.75	0.02814	x	x	x	x
			2003		2106	2636	661	x	31%	1.25	10.06	0.03382	x	x	x	x
			2004		2171	2719	673	x	31%	1.25	10.14	0.03479	x	x	x	x
			2005		2236	2836	701	x	31%	1.27	10.24	0.03299	x	x	x	x
			2006		2290	2845	651	x	28%	1.24	10.05	0.02916	x	x	x	x
			2007		2403	2949	639	x	27%	1.23	10.06	0.02866	x	x	x	x
			2008		2356	2871	577	x	24%	1.22	10.14	0.02664	x	x	x	x
			2009		2381	2866	536	x	23%	1.20	10.30	0.0259	x	x	x	x
			2010		2263	2728	493	x	22%	1.21	10.41	0.02678	x	x	x	x
			2011		2227	2671	470	x	21%	1.20	10.35	0.0275	x	x	x	x
nkar, Asokan and Kum	2015	India	2013	Listed	8184	10182	1209	1220	15%	1.24	0.12	0.0077	x	x	x	x
Bacinni and Marroni	2016	Italy	2010	Top 100	1411	1621	312	100	22%	1.15	x	0.063	6.24	0.193	0.287	0.11
		US	2011		1227	1386	167	100	14%	1.13	x	0.034	3.34	0.097	0.239	0.16

APPENDIX 7 - SUMMARY OF 26 INTERNATIONAL STUDIES AS LISTED BY KIEL AND NICHOLSON (2006) AND SANTELLA, DRAGO AND POLO (2007)

Study Year published	Year of sample	Country	No of companies	No of directors	Focus of the study	Key findings and methodology
Malcolm (2003)	1976/1996	Australia	Unknown	Unknown	"The interpersonal network of 1996 is broader, more cohesive and more densely connected than that of 1976. However, there is only minimal change in the density of intercorporate linkages over these two (2) decades"	Network analysis (directors)
Ornstein (2003)	Not known	Canada	Unknown	Unknown	"The Canadian network is neither unusually sparse nor fragmented; there is no pronounced cleavage between, or subordination of, non-financial corporations to financial corporations; nor do the foreign controlled corporations constitute an alternative centre or fragment of the network. It resembles the networks of countries such as Germany and France"	Not known
Rodriques Gardenas Oltra (2003)	Not known	Europe	Unknown	Unknown	"We can point to some different models of class and power"	Network analysis. Descriptive
Chabi Maati (2005)	1996/2000	France	Unknown	Unknown	Existence of a small world	Matching small world phenomenon

Study Year published	Year of sample	Country	No of companies	No of directors	Focus of the study	Key findings and methodology
Elouaer (2005)	1996/2005	France	Unknown	Unknown	Centrality of financial institutions. Big companies tend to be more central. “Less dense network in 2005”	Network analysis (Directors and companies)
Maati (2007)	2005	FTSE100	Unknown	Unknown	Existence of a Small world	Matching small world phenomenon
Heinze (2004)	1989/2001	Germany	Unknown	Unknown	“Qualitative dissolution of interlocking directorates “This process of quantitative erosion did not yet affect considerably structural properties of the networks”. Centrality of financial institutions	Network analysis
Mac Canna, Brennan and O’Higgins (1998)	Not known	Ireland	Unknown	Unknown	“Network of interlocking directorates is in some way structured and not the result of random processes. Irish boards were found to have a relatively loosely connected network structure which is sparser and less dense than those of other countries. This is reflected in the relatively low percentage of multiple directors and the relatively fewer number of directorships per multiple direction. In general, indigenous Irish public companies tended to be central in the network while the disproportionately	Matching small world phenomenon

Study Year published	Year of sample	Country	No of companies	No of directors	Focus of the study	Key findings and methodology
					large number of foreign and private companies were isolated on the periphery. However, a number of foreign-owned companies were central to the network”	
Rinaldi Vasta (2005)	1952/1960/1972	Italy	Unknown	Unknown	“In 1952 and 1960, the system, centred on the larger electrical companies, showed the highest degree of cohesion. This centre dissolved after the nationalisation of the electricity industry in 1962 and was replaced by a new and less cohesive one, hinged on financial intermediaries; banks; insurance and finance companies. More generally, contrary to conventional wisdom, we argue that banks maintained an important role throughout the period investigated”	Descriptives
Aquilera (2006)	1970/1990	Italy	Unknown	Unknown	Overall static structure (1970 – 1990) Existence of a small world	Network analysis. Matching small world phenomenon
Barbi (2000)	1983/1998	Italy	Unknown	Unknown	“A decreasing trend in overlapping membership in order to support block-holders is given by a decrease in density as well as by an increase in the asymmetry of links distribution”	Network analysis (Concentration analysis)

Study Year published	Year of sample	Country	No of companies	No of directors	Focus of the study	Key findings and methodology
Corrado Zollo (2006)	1990/2000	Italy	Unknown	Unknown	"Stability of Small World coefficients" Fragmentation of the system. Relative stability of the key players	Network analysis (Ownership network)
Carbonai Di Bartolomeo (2006)	2004	Italy	Unknown	Unknown	"The Italian insurance industry is characterized by a low degree of competition. This paper provides some evidence to the idea that the absence of competition is due to a violation of a basic assumption"	Graph Theory, Principal component analysis
Bertoni Randone (2006)	1999-2004	Italy	Unknown	Unknown	Existence of a small world	Matching small world phenomenon
Casaleggio (2004)	2004	Italy	Unknown	Unknown	Existence of a small world	Not known
Murgia (2006)	2006	Italy	Unknown	Unknown	Higher level of companies isolates. Higher percentages of multiple directorships	Network analysis
Stockman *et al.* (1990)	1960/64/69/72/76/80	Netherlands	Unknown	Unknown	Reducing interlocks per multiple director. Increasing the density of the network.	Network descriptive analysis
Stablein *et al.* (2004)	2004	New Zealand	Unknown	Unknown	Existence of a Small World	Matching small world phenomenon
Ong, Chin Huat, Wan, David and Ong, Kee-Sing	1997	Singapore	Unknown	Unknown	Company size correlated with interlocking directorships. Financial companies share a higher level of	Network explorative analysis

Study Year published	Year of sample	Country	No of companies	No of directors	Focus of the study	Key findings and methodology
(2003)					interlocks with not financial companies	
Conyon Muldoon (2006)	2005	Singapore	Unknown	Unknown	Existence of a small world	Matching small world phenomenon
Aquilera (2006)	1970/1990	Spain	Unknown	Unknown	Large changes over the time (1970 – 1990). Existence of a small world.	Network analysis. Matching small world phenomenon
Davis Yoo et Baker (2002)	1982/1990/1999	US	Unknown	Unknown	Stability of the aggregate connectivity. Existence of a small world	Network analysis. Matching small world phenomenon
Davis Yoo et Vast (2003)	1990/2001	US	Unknown	Unknown	Existence of a small world in 1990 and 2001	Matching small world phenomenon
Ferris and Jagannathan (2001)	1995	US	6,089	37 774	Multiple directorships	The incidence of multiple directorships is low and the number of directorships held is influenced by factors such as company size, board size and company performance.
Ferris *et al*. (2003)	1995	US	3,190 firms with total assets of at	23 673	Multiple directorships and board monitoring	Determined that the evidence from the study did not support limits on the

Study Year published	Year of sample	Country	No of companies	No of directors	Focus of the study	Key findings and methodology
			least $100 million			number of directorships held by individual directors.
Harris and Shimizu (2004)	1981–1989	US	143 companies drawn from the Top 100 deals in Mergers & Acquisitions magazine	Not stated	Multiple directorships and acquisition performance	The study suggests that boards with “over-boarded” directors are able to make informed acquisition decisions.