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## DOCTOR OF PHILOSOPHY

### **The effects of personality trait diversity of UK company directors on board governance processes and board task performance an empirical study**

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**The effects of personality trait diversity of UK company directors on board governance processes and board task performance: an empirical study.**

Alan K.I. Walker

A Thesis Submitted to the University of Dundee in Fulfilment of the Requirements for Award of the Degree of Doctor of Philosophy

School of Social Sciences  
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SCOTLAND

2016

## **Dedication**

This thesis is dedicated to my parents Gladys and Stanley Walker who encouraged and supported me when I was a younger student and my wife Susie who has done the same in my mature years.

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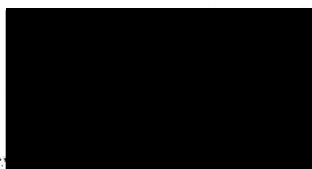
I completed my psychometric training at the Psytech company. I am grateful that they added my board questionnaire to the 15FQ+ survey without extra charge and subsequently supplied me with the raw data with speed and efficiency. They made the data from their general management data base available for comparison with my own director profile findings. I hope the significant differences I found will be of value to them.

Of course the 198 participating directors who answered 54,450 questions between them and without whom there would be no data and no results.

### Declaration

I hereby declare that I am the author of this thesis; that the work of which this thesis is a record has been done by myself; and that it has not previously been accepted for a higher degree.

Signed.....



Alan K.I. Walker

Date.....

2 / April / 2016

### Certificate

We certify that Alan K.I. Walker has worked the equivalent of nine terms of this research, and that the conditions of the relevant ordinance and regulations have been fulfilled.

Signed.....



Date.....

12 April 2016

Signed.....



Date.....

12 April 2016

## **Abstract**

### **The effects of personality trait diversity of UK company directors on board governance processes and board task performance: an empirical study.**

This study examines whether homogeneity in personality traits on a board of directors enhances the processes and outputs of that board. The question of whether homogeneity or heterogeneity of director characteristics is better suited to positive board outcomes has a rich history (Milliken and Martins, 1996; Williams and O'Reilly, 1998; Nielsen, 2010; Adams et al., 2015).

In this thesis the role of the board is first reviewed under four main governance theories, finding that all are limited in the extent to which they explain director behaviour. The influence of board demographic diversity on process and outcomes is then examined. Several authors have attempted to relate top management team and board output with the demographic diversity of input (Pfeffer and Salancik, 1978; Hambrick and Mason, 1984), but have generally failed to show many significant correlations.

It is proposed in this thesis that the deeper diversity of personality traits is a better and more fundamental explanatory input variation than surface demographics. This input is measured using a well validated psychometric tool, the 15FQ+ and relationships between the diversity of personality trait data, the key cognitive mediating processes including trust, conflict and cohesiveness (Forbes and Milliken, 1999, Minichilli et al., 2009) and the task outputs of strategy, service and control (Zahra and Pearce, 1989) are investigated. A business process of “competitiveness”, extrapolated from sport psychology (Jones, 1997), is also included.

Hypotheses are created and tested on the statistical relationships between personality trait diversity (PTD) of input calculated from mean Euclidean distances of personality traits on UK company boards. Hierarchical multiple regression is used to establish the relationship



between PTD and processes / outcomes. The mediation of the effects of PTD by board processes on outcomes is also examined.

Thirty complete UK company boards were surveyed between 2010 and 2012, with all 198 directors participating. No incomplete boards were included in the data since measuring diversity depends on total team member participation. Each director completed two separate questionnaires, one the 15FQ+ psychometric tool (200 questions) which generated 16 independent personality traits in each case. Another novel questionnaire (75 questions) investigated key board processes and the key board outcomes of strategy, service and control.

It was found that homogeneity of many personality traits can have a significant positive effect on process and outcomes. It was found that PTD in general has a negative effect on board outcomes of strategy and control. Duality of the CEO / chair role and some other control data were also found to influence process and outcomes, particularly conflict and strategy.

## **CHAPTER ONE**

### **INTRODUCTION**

## **Chapter 1 Introduction**

### **1.1 Context of research**

It has been argued that current theories of board behaviour are unable to fully account for or rationalise the large number of governance failures (Mace, 1986; Kakabadse and Kakabadse, 2008; Monks and Minow, 2008, Huse et al., 2011). More generally concern has existed for several decades that corporate board directors do not contribute the quality of output required to optimise business strategy (Mace, 1971; Mullins, 2005; Monks and Minow, 2008) and that governance theory is not adequately defining, influencing or describing what actually takes place on a board (Monks and Minnow, 1991; Dalton et al., 1998; Daily et al., 2003; Huse et al., 2011). In the wake of the 2008/9 financial crisis there were many calls in the press (Costello, 2008; Croft, 2008; Kavanagh, 2008; Simms, 2008; Costello, 2009; Davey, 2009; Rees-Mogg, 2009; Russell, 2009; Wighton, 2009; Whitehead, 2013; Subramanian, 2015) for greater non-executive director involvement and investor scrutiny if boards were to face major new challenges in a meaningful way. These authors raised the question of both director competence and the ability to work in effective teams. Hodgkinson and Sparrow (2002) point out that business school syllabi are largely built on theories of unbounded rational expectations of behaviour which do not stand up to close examination in the real world. This issue arises from individuals' limited ability to process the variety of real world data and use cognitive processes which encode, simplify and filter them efficiently (Broadbent, 1954; 1971).<sup>1</sup>

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<sup>1</sup> The implications of this human imperfection (which in the past was ignored by economists) have been highlighted by authors such as Simon (1957), Hambrick and Mason (1984), Finkelstein and Hambrick (1996) and Hendry (2005). These contributions discussed in greater detail in the chapters that follow.

It is useful to step back and start with an examination of the role of a director team in a corporation. Bakan links his position on board responsibility to examination of the genesis of the modern corporation. Starting in England in the 17<sup>th</sup> century the corporation was created to facilitate the separation of focussed (small) management teams of appointed directors from the capital providers (Bakan, 2005). Thus directors are delegated full powers by the shareholders to run the corporation, but with the owners retaining voting rights on key matters. The need for a board of directors to accept for example, the constraints of governance regulation aimed at protecting shareholders can be traced back a long way in UK history. The South Sea Bubble (Walsh, 2014), is described in the Encyclopedia Britannica as: “the speculation mania that ruined many British investors in 1720” (2003, p. 45). The South Sea Company was a British firm with monopoly rights trading slaves to South America. In 1718 King George 1<sup>st</sup> became a governor of the company thereby creating an impression of security and stability (Walsh, 2014). The company paid 100% interest to investors and even at one stage proposed taking over the national debt. The shares rose from 124½p to 1,000p, but fell back to 124p thereby ruining many investors who had: “been inveigled by overly optimistic company promoters” (Britannica, 2003, p. 45). Directors were disgraced and government ministers were implicated including the Chancellor of the Exchequer. The UK’s Prime Minister, Walpole, introduced retrospective legislation and some directors were prosecuted. The need for robust governance regulation in the UK was thereby established as a principle of “good” corporate behaviour (Walsh, 2014).

This reasoning is especially relevant in the 21<sup>st</sup> century with the increased level of scrutiny on board behaviour following the recent spate of corporate governance scandals (Monks and Minow, 2008) and the chaos in the banking sector (Croft, 2008; Kavanagh, 2008; Raynor, 2009;

van Ees et al., 2009). Even before these events, however, Zahra and Pearce (1989, p. 291) referred to the:

“growing awareness of the need to understand better how boards can improve their effectiveness as instruments of corporate governance through refinements in their composition, their internal organisation, and the processes they follow in making decisions”.

While Garratt (1997, p. 120) pointed to the impact of the Maxwell, BCCI and other cases thus:

"All over the world the media is fixated by the lack of competence, unreliability, untrustworthiness and sheer greed of directors".

The roots of scepticism regarding company director team competence can be traced back more than half a century. For example Everett Smith (1958, p.43) stated that: “For all practical purposes the board is a creature of the chief executive”, reflecting that, at least in the US at that time the CEO set the agenda and had dominant influence over director selection/de-selection. Geneen (1985, p. 191) who built ITT through more than 300 acquisitions, and twenty years of 10-15% annual growth in earnings, described (US) boards at that point as: “an archaic, creaking contraption.....connecting the mass of owners to the corporate pyramid” .

Monks and Minow (2008, p. 4) quote from a speech delivered by the then Enron CEO Kenneth Lay in 1999:

“ A strong, independent and knowledgeable board can make a significant difference to the performance of any company.....Our corporate guidelines emphasise the qualities of strength of character, an inquiring and independent mind, practical wisdom and mature judgement . ...They should be people whom other directors and management will respect and listen to very carefully and who can mentor CEOs and other senior managers.....the responsibility of the board is to ensure legal and ethical conduct by the company”.

Monks and Minow describe the common high regard amongst investors for Enron’s governance practices at that time, but as they point out the reality proved very different.<sup>2</sup> This critique of

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<sup>2</sup> Enron went on to become one of the most infamous board failures at the beginning of the 21<sup>st</sup> century leading to calls for more governance regulation and to the Sarbanes-Oxley Act in the US

directors' behaviour has continued. Rayner (2009, p. 6), when describing the 2008 collapse of the Royal Bank of Scotland refers to the overbearing personality of (then Sir) Fred Goodwin, the former chief executive:

“There were people in that boardroom during the ABN Amro takeover who must have thought “this is madness”, but no one was prepared to stand up to Sir Fred (*who*) wielded total power in the boardroom”.

As a reaction to these failures, socio-political pressure to increase diversity on boards to improve corporate governance arose (Sealy et al., 2009a). This process begs the question, though, of what type of diversity best improves board behaviour and outcomes (Neilsen, 2010), the issue at the heart of this thesis.

The seminal work of Hambrick and Mason (1984) on upper echelon theory is described below. The definition of director diversity used by these and other authors (Wiersema and Bantel, 1992; Milliken and Martins, 1996) is based on surface stereotyping of gender/ age/ ethnicity/ education/ disability etc. There is a paradox, in that stereotyping persons according to these demographic characteristics are often seen as wrong and laws have been drafted in several areas to eliminate this tendency (e.g. Equality Act, 2010); however, authors such as Hambrick and Mason (1984) point to the benefits that might arise from utilising such markers. There have been recent general calls to research director diversity more effectively, including Metcalfe and Woodhams (2012, p. 123) who argue for: “scholars to re-imagine different possibilities for ...diversity enquiry so as to encourage interdisciplinarity and align with social science research...”. Ben-Amar et al. (2013, p. 85) begin their analysis by addressing the effects of surface demographic diversity, stating that: “Board’s diversity and its effect on firm performance have been extensively studied and yet it seems that we (*still*) know little about the issue”.

One could argue that a deeper and more basic diversity rests within the forecast of typical responses and behaviour, a notion described in psychology as “personality” (Cattell, 1957; Allport 1961; Furnham; 2008; Cooper, 2010; Zhou and Rosini, 2015).

There is a lack of definitive research on the effects of personality diversity on board processes and outcomes, and this issue is explored in Chapter 4. The chapter includes a review of the detailed descriptions of personality that must be defined before attempting to address the issue of the diversity impacts of this variable. The key question addressed by this study is whether directors would function more effectively if they were heterogenic or homogenic as regards personality traits. The argument is made in Chapter 6 that measurement of such traits should be grounded in robust tests that have been shown to be both psychometrically reliable and valid.

Adams et al. (2015) point out that diversity has benefits and costs, in that a more diverse board may have access to more information, but this diversity may itself give rise to more conflict in teams thus frustrating such access. This suggests that the precise meaning of board diversity needs to be better defined (Harrison and Klein, 2007, Neilsen, 2010). In the context of the current social focus on board diversity and effect on efficiency, it is therefore timely to investigate deep (e.g. personality trait) diversity and its effects on board functions (Adams et al, 2015; Zhou and Rosini, 2015).

## **1.2 The management issue**

It might be expected that future models of board behaviour will try to mirror the reality of the psychological inputs to board processes more precisely at each iteration (Doucouliagos, 1994; Davis et al., 1997; van Ees et al., 2009; Abatecola, 2011) and offer more useful guidance on selecting, managing and designing a team of directors so as to improve board task output. As

these board models become more sophisticated they may need to include techniques borrowed from psychology and sociology to adequately capture an improved understanding of the interplay amongst cognitive board processes such as conflict and trust (Forbes and Milliken, 1999; Minichilli et al., 2009). Research on boards can therefore help management in tangible ways if it is directly relevant to the real issues that corporate boards face, offering practical solutions.

It is important to understand the context of UK board demographics at the time this research was embarked upon. In 2010 (when the first board was surveyed) the UK Companies House report had 2,633,456 companies registered with 6,105,097 directors listed (Evans, 2010)<sup>3</sup>. This high number includes the duplication of persons who are directors of more than one company, but this figure averages out at only 2.3 per company board for all registered UK companies (Evans, 2010). Brammer et al. (2007) analysed the FTSE 500 boards and found the mean number of directors at that time to be 8.4 men and 0.5 women.<sup>4</sup> According to Wilson and Harris, (2006) members of the Institute of Directors (IoD)<sup>5</sup> in 2005 exhibited a higher proportion of university degrees (59%) than the general population (26%) revealing a positive bias towards higher education. This issue is explored (Section 3.3.2) by Hambrick and Mason (1984). Membership of the IoD was claimed by directors on 84% of FTSE 100 and 71% of FTSE 350 company

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<sup>3</sup> In Feb 2015 Companies House reported the highest ever number of UK registered companies, (3,440,919), more than double the number in 2002 (Companies House, 2015).

<sup>4</sup> The latest (2015) data on UK board gender diversity is used in the discussion of Table 7.1

<sup>5</sup> The UK Institute of Directors had 53,000 members in 2009 (Director, 2010) although only 865 of those were fully qualified chartered directors, as registered by the Institute of Directors (Palmer, 2010) at the time this research was conducted..



boards.<sup>6</sup> The IoD report (Wilson and Harris, 2006) found a mean company employment tenure of 9.07 years although this was not specifically as a board member. At the commencement of this research, the norm for a UK company board was therefore the direction of a small company (Evans, 2010), although the large public companies will have a disproportionate effect on the economy and should be included in any comprehensive sample.

UK boards are typically built as a single-tiered team of executive directors from senior management (including the CEO) and a group of non-executive directors (including the chair) who have no other role in managing the company. In the US, the CEO and chair roles are often combined, a notion often termed as “duality” (Donaldson and Davis, 1991). Duality was included in the research control data and the impact of such arrangements are reported in Chapter 7 and discussed in Chapter 8.

Non-executive directors add theoretical “independence” to governance behaviour and a formal requirement for half the board of FTSE 350 firms to fulfil the criteria is set out in the current UK corporate governance guidelines (Financial Reporting Council, 2011; 2015). As noted above however, the UK press has, reported a growing concern with the effectiveness of non-executive directors on the board team. Russell (2009, p. B5) quotes Peter Chambers of Legal and General who, when giving evidence on the 2008 financial crisis to the Treasury Select Committee in January 2009, is reported as saying:

“One would have to conclude that non-executive directors were not effective in controlling the activities of the executive directors otherwise we would not be where we are now”.

---

<sup>6</sup> A high level of entrepreneurship is implied, with 52% of these IoD director members having started their organisations from scratch and 60% employing 50 or fewer staff. In fact 37% of the IoD membership-directed companies at the time the research started had only 1-10 staff (Palmer, 2010).

This possibility raises a number of questions regarding the management of large firms. For example, how can a board be constructed with executive and non-executive directors to optimise performance (Stiles and Taylor, 2002; Huse, 2007) ? Is there sufficient cognisance of the positive and / or negative effects of diversity of the board team (Hambrick and Mason, 1984; van Ees et al. 2009) ? Why do governance regulations often fail to achieve target director behaviours (Monks and Minow, 2008; Huse et al. 2011) ? Whilst Hambrick and Mason (1984) and Hambrick (2007) suggested that board task output (Section 2.7) could be predicted from the demographic diversity of board directors, the empirical evidence remains poor, one of the prime motivations for the present study (Section 3.2.2). Belbin (2004) concluded from his Henley management team game experiments that diversity in personality type was essential for team success, although he did not follow this up with data from practicing boards. Higgs (2006b) did attempt this, but with poor methodology<sup>7</sup>. Garratt (1997), Minichilli et al. (2012) and Zhou and Rossini (2015) make the case for a more systematic examination of the issue.

One key assumption made in most analyses of board management practices has been that more regulation will improve performance (Financial Reporting Council, 2015). In line with this reasoning there are a series of governance regulations attempting to impose improved director behavioural standards in the UK which have emerged over the last 20 years. These led Mallin (2007, p. 41) to predict that:

“The new rules should also enable shareholders to monitor the companies better in terms of their performance, and hopefully reduce the incidences of corporate scandals or collapses”.

Unfortunately, this prediction turned out to be premature and, as described above, the corporate scandals continue to occur.

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<sup>7</sup> Further details of this study are provided in section 3.2.2

These failures of regulation caused Priem et al. (1999, p. 935) to urge researchers to:

“eschew demographic proxies and instead direct their efforts toward more difficult, but potentially more rewarding TMT issues (such as).....psychographic variances”.

In this context, Harrison et al. (1998) argue that dissimilarity in (say) gender and age are less important than the psychological differences within teams. It can be argued that this separation of surface and deep characteristics is key to furthering the understanding of board functioning, which is itself critical to improved corporate performances and national prosperity. Indeed Roberts et al. (Roberts et al., 2005, p. S5) state:

“Better understanding of the inner workings of boards is necessary both to advance management research and to promote it’s relevance to corporate governance practice and reform”.

It is evident from inspection of prior literature in this area that the question of whether regulation that does not fully consider the psychological complexity of the board can succeed to improve corporate governance and financial performance. This study therefore attempts to clarify how the personality trait diversity (PTD) structure of a company board team is formed from the individual director personality trait profiles and investigates how the homogeneity or heterogeneity of those trait diversities around the norm of individual personalities interacts in the cognitive processes of trust, conflict etc.. This endeavour should facilitate the optimisation of board task outcomes by leading to improved board design (Minichilli et al., 2009). Indeed the Financial Reporting Council (FRC, 2011 (a) p. 10) point out that: “Diversity of psychological type, background and gender is important to ensure that a board is not composed of like-minded individuals”.

The latter two are clearly easier to determine than the first; this also assumes that being “like-minded” is a negative team characteristic, an assumption that will be challenged in this thesis.

### **1.3 The research issue (rationale for the study and contribution to knowledge)**

Only fairly recently have investigators attempted to look at the causes of specific behaviour happening inside the boardroom i.e. “opening the black box” (Lawrence, 1991; Minichilli et al., 2009). Within this literature few studies have either theoretically or empirically investigated the diversity of non-surface inputs such as director personality traits or the emotional aspects of board behaviour(s). Forbes and Milliken (1999) amongst others<sup>8</sup> report on the need for more research on the “black box” processes rather than simply correlating board output with the demographic input diversity of the US board (Hambrick and Finkelstein, 1987; Finkelstein and Mooney, 2005; Hambrick 2007). These cognitive processes include trust (Stiles and Taylor, 2002; Gillespie and Mann, 2004), conflict (Minichilli et al., 2009), competitiveness (Houston et al., 2015) and cohesiveness (Hogg and Vaughan, 2010), qualities that require the techniques and methodology of psychology to investigate (Cooper, 2010). The present study is therefore specifically designed to clarify the effect of personality trait diversity inputs on these cognitive board processes.

Psychological transactions between directors are key to a company’s future (Forbes and Millken, 1999; Kakabadse and Kakabadse, 2008), but most researchers have shied away from investigating the personality traits and their influence on the behavioural processes that affect board meetings - it was simply assumed that this would be too difficult to research in practice (Hambrick and Mason, 1984; Pettigrew, 1992; Boone et al. 2005; Zhou and Rosini, 2015). Surrogate demographic factors have therefore been used instead (Hambrick and Mason, 1984) and this literature is discussed in detail later in Chapter 3 of the thesis. A rare exponent of a

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<sup>8</sup> (Pettigrew, 1992; Zona and Zattoni, 2007; Adams et al., 2015; Veltrop et al., 2015)

pervasive approach to the issues was Garratt (1997, p.192) who suggested benchmarking the whole board's personality: "taking individual scores through psychometric tests, but concentrating on the pattern for the whole board rather than the individuals".<sup>9</sup> Garratt suggested using tests that indicate the range of thinking styles and the ability to work together in a group - such as the thinking intentions profile (TIP) (Garratt, 1997).

There is a psychological paradox, as described by Watson (Al-Chalabi et al., 2006, p. 3), whereby board scholars try to describe aspects of human cognitive and emotional processes in business, to which the researchers themselves are subject, but not, implicitly to the extent that their role as objective observers, outwith the process, is compromised. This dilemma can be addressed in the experimental techniques developed by psychologists (Howitt and Cramer, 2008) and this issue is discussed in detail in Chapter 6 below. It is difficult to observe, describe and classify emotional behaviour in business and authors have not yet reached a consensus on the taxonomy of human emotions (Cattell, 1965; Dulewicz and Higgs, 1999; Bartell and Saavedra, 2000; Goleman, 2004; Aamodt and Wang 2008). It is though possible to conduct an objective audit of personality traits (Cattell, 1965; Eysenck and Eysenck 1969; Costa and McCrae, 1991) as explained in Chapter 4 of this thesis. Investigators often attempt now to observe and report what they perceive to be the true personality antecedents (as opposed to hypotheses induced from demography) of the processes and behaviour of the board as they affect performance (van Ees, 2009). Such research has shown (e.g. Westphal and Khanna, 2003; Westphal and Stern, 2006) that behaviours and outcomes are at least partly moderated by emotional and non-rational processes. These observers report real behaviours that may differ from the directors' rational

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<sup>9</sup> However, Garratt proposed methodology was as a management consultancy working tool and the results were not published.

intentions; one implication of this that is of direct relevance to this present study is that current governance theory and regulation, which are based largely on an assumption of unbounded rationality may be rendered insufficient. More than forty years ago Mace (1986, p. 2) noted: “mounting evidence of a considerable gap between the academic or legal definition of board functions, and what boards actually do”. A number of authors challenge the notion that there has been a significant improvement in board functioning since Mace’s comment, (Pfeffer, 1972; Chitayat, 1984; Paton and Baker, 1987; Westphal and Stern, 2006; Zona and Zattoni, 2007; Monks and Minow, 2008). There also seems to be a disconnect between economic theory and observed behaviours; in this regard Baker et al. (1988, p. 615) state that:

“Ultimately, it may be that psychologists, behaviourists, human resource consultants and personnel executives understand something about human behaviour and motivation that is not yet captured in our economic models”.

In their review, Abatecola et al. (2011) who defined the top management team (TMT) as including the board, state (2011, p. 21):

“In general, from our literature review it results that, although promising, the research in this area seems to require further theoretical and methodological improvements to enhance the understanding of how TMT (top management team, Cyert and March, 1963) personality affects its decisions”.

The pertinent questions here relate to the manner in which diversity in personality profiles on a board affect the key processes and outcomes (Torchia, 2015). Houston et al. (2015) question if “competitiveness” for example, especially in the CEO is fully recognised as a contributing process. It is arguable that board behaviour is not entirely explained by the rational cognitive processes assumed in governance regulation. Clearly there remain issues about what is understood and what still remains obscure about the psychological dimensions of the key relationship between the board and the CEO and the CEO and the Chairperson. Krause and Semadeni (2013) have questioned whether these leadership roles are better separated or does

duality work better in some contexts. The current thesis investigates this issue in a UK context. There is also an issue over the understanding of the relationship between the causes of cognitive diversity and effective board processes. Attempts to answer these questions have been frustrated by the great difficulty in accessing psychological data about board members (Hambrick and Mason, 1984). Hambrick concludes (2007, p. 336) in this context that behavioural integration is essential for a top management team (TMT) to function, describing this notion as: “the degree to which a TMT engages in mutual and collective integration, ....share (ing) information and decisions”. Hambrick goes on to suggest that the best way forward in terms of creating such teams would be to investigate the psychological processes which distort and filter information and use this (as yet undiscovered) knowledge to construct teams designed for purpose. He does not, however, suggest a methodology, to this end, but comments how difficult this would be (Hambrick, 2007).

This present study introduces a novel way of overcoming this difficulty, namely with a validated and reliable personality audit, and is intended to make a real contribution to new knowledge by addressing the psychological issues head on and clarifying the specific effects of director personality diversity.

There have been calls for clarification on whether homogeneity or heterogeneity of personality characteristics improves team performance (Bowers et al., 2000; Boone et al., 2005; Torchia et al., 2015). Nielsen (2010) reviewed 60 journal articles over a 22 year period (1984-2005) on board diversity and found that they were dominated by organisational demography with inconsistent results. Apart from two articles on Canadian firms and one based on firms in the Netherlands, her review found the studies to be exclusively based in the US. There therefore seems to be a gap in the literature on the effects of UK board diversity on process and outcomes;

this absence is surprising given the strength of the UK corporate sector and the leading role of the nation's regulators have played in designing governance standards that have pervaded across international borders. This study therefore focusses on the issue of whether homogeneity of personality traits on UK boards of directors enhances the processes and outputs of that board. The research is carried out by means of an established personality trait questionnaire completed by every director on a board with hypotheses on the relationship between personality trait diversity and processes and outcomes derived from the extant literature. This study is one of the first quantitative studies of the effects of personality profiles of UK board directors on board governance processes and is ultimately intended to facilitate better board design and regulation.

The author has more than 20 years experience of serving on corporate boards. That experience was gained mainly in the UK, but also in Belgium (CEO) and Italy (CEO). The UK experience has included the position of Chairman, non-executive director, executive director and mainly as a CEO of several companies. In that position he noted many of the practical issues described in this thesis. These included the predictions of the main governance theories. Certainly the precepts of agency theory, stakeholder theory, stewardship theory and resource dependency theory as described in Chapter 2 were seen at various times on specific boards. The argument in this thesis should not be interpreted as a repudiation that these theories describe some actual phenomena of board behaviours. The argument is that the description is incomplete because they did not account for the effects of the diversity of individual differences.

Neither should the benefits of surface demographic diversity described in Chapter 3 be discounted. Many times, in the experience of the author, boards searched for new directors who could add value because of knowledge, experience or skills that were missing or under



represented on that board. These were commonly specialist in nature, often professional expertise in HR, science or finance that was missing.

The thrust of the thesis argues that the boards that he served on rarely if ever took account of personal compatibilities in any formal procedure. That in his experience constructive cognitive conflict (or critical debate) as discussed in Chapter 3, was difficult to achieve because of two reasons. Either there was time pressure to reach consensus or there was an inability to separate cognitive conflict from affective conflict. It is indeed a highly skilled board that can consistently achieve the former without triggering the latter. As this thesis argues, increasing the levels of cohesiveness can mitigate that danger and the author attempted to do this via “voluntary” psychometric analyses of the board. This was often successful in the UK, but failed in Italy and Belgium where possibly for cultural reasons this was not accepted by the directors.

Thus the practitioner experience of the author concurs with his long experience in the board room that there is a deficit of cognitive conflict and that is most likely to be enhanced when there is an underlying harmony of personalities (Chapters, 4 and 5). The evidence of this thesis has borne out this experiential observation with concrete data. Holland’s (2010) work on bank boards reviews the literature and concludes that diversity of knowledge of risks and value drivers on banking boards and TMTs led to the variation in outcomes for different banking organisations. Thus he identified another confounding variable when evaluating the effects of the diversity of personality trait diversity. To some extent this will have been mitigated in the present work by the wide variety of industries from which the studied boards were drawn.

Some of that personal experience of the author has also included board room power fractures arising from diversity of disparity (Harrison and Klein, 2007). On occasions an alliance of the

Chair/CEO and finance director will yield significant power v.s. the rest of the board, at other times the dominant investor representative will be in that position. None of these diversity by disparity effects invalidate the findings that deep diversity by separation has a real effect on board function. In real life all these factors will interact. In the experience of the author, the board still has to attempt to foster cognitive conflict on strategic issues even if the power disparity will skew the final conclusion. The board debate has a separate, but real value, wherever power lies. Personality trait harmony will facilitate that critical debate process. The power alliances benefit from the surface diversity of the other (possibly non-executive) directors' wider knowledge base. In practice that is how the author has seen it work on the boards he has served on. Bourdieu (1977) introduced some theoretical ideas in his Theory of Practice, based on an epistemology of phenomenology. In his model capital is extended beyond financial into social, symbolic and cultural. One of his primary concerns was the description of power relations, such as might be found on a board. His empirical results showed that the apparent freedom of choice was illusory and for example the subtleties of accent and grammar can determine the power positions, so preserving the privileges of class as cultural capital. This may be a factor on UK boards that would influence the effects of personality diversity, but have not been looked for in this work.

Thus it is acknowledged that there is a potential personal bias since the researcher is immersed in the world of UK boards, but the positivist epistemology utilised is an attempt to discount this issue as a major influence on the results.

## **1.4 Organisation of subsequent chapters**

Chapter 2 (Literature Review part 1) discusses the major extant corporate governance theories, the (consequent) regulations and the effect these are designed to have on director behaviour. Board governance regulation as shown tends to be based in most cases on the tenets of agency theory and the implications and limitations of this convention are explored. Stakeholder theory, stewardship theory and resource dependency theory are also reviewed. It is concluded that existing governance theories have poor explanatory power of board performance.

Chapter 3 (Literature Review part 2) then reviews theories on the functioning of business groups and teams. Effort is made to define these terms exactly and relate the characteristics to UK company board functions. The origins of the input/process/task classification of board functioning are reviewed and a board process model is described. The details of upper echelon theory are discussed in detail, but found wanting as a complete explanation of demographic diversity's input effect on board processes and outcomes.

Chapter 4 (Literature Review part 3) reviews the various psychology theories that can be used to examine board behaviour and suggests that personality trait theory can be used to create an independent variable as board input. The literature on board diversity is reviewed in depth and it is suggested that personality trait theory (PTD) can better explain input diversity's effect on output than can models based solely on just demographic diversities.

Chapter 5 describes the synthesis of the theories outlined in the earlier chapters into a set of 17 testable hypotheses linking the effects of PTD to board processes, board task outcomes and the mediation of processes on the effect of PTD on outcomes. A model of the hypothetical effect of PTD on processes and outcomes is illustrated.

Next, Chapter 6 describes the methodology of the research including its ontological and epistemological underpinning. The chapter explains why a positivist hypothetico-deductive quantitative methodology was used.

Chapter 7 details the empirical results. The descriptive statistics are followed by analysis of the correlation between PTD and processes and outcomes. This is followed by the multiple regression tables testing the ten process and outcome hypotheses. The seven mediating hypotheses are then examined. The results of these analyses are shown to suggest a number of tangible insights.

Chapter 8 concludes the thesis by synthesising the results, outlining the key implications and making recommendations for further research.

## **CHAPTER TWO**

### **CORPORATE GOVERNANCE THEORIES OF BOARD BEHAVIOUR**

#### **Literature Review part 1**

## **2.1 Introduction**

The main corporate governance theories advanced in recent years are explored in this chapter. These models originated as explanations by economists of how boards are structured and behave so as to deliver key corporate goals (Monks and Minow, 2008). Governance theories tend to make fixed assumptions about the uniform behavioural responses of directors to explain the role, composition and tasks of boards (Monks and Minow, 2008). Section 2.2 of this chapter begins by reviewing and comparing alternative definitions of corporate governance. There follows then a discussion of the implications of these theories for board structure and tasks as well as a review of the empirical studies that have tested these. These are critiqued in order to identify the gaps in knowledge that this research is aimed to address.

In Section 2.3, agency theory is highlighted as the most widely-used governance theory (Gabrielsson and Huse, 2004). It is a contractual theory and rests on the principle that the owners' (principals') interests are not perfectly represented by the agents' (managers') with the consequent costs referred to as "agency costs" (Grossman and Hart, 1998). There are mechanisms postulated to reduce these costs (Eisenhardt, 1989). The board of directors is the governance mechanism which is expected to curb this potential managerial opportunism (Stiles and Taylor, 2002). The key tasks explained by agency theory are monitoring and control (Huse, 2004), but it is broadly accepted that this model offers an incomplete explanation (Daily et al., 2003) of board functioning. The principles of agency theory include the premises that non-executive directors of the board can better monitor the executive team than can executive directors (Zattoni and Cuomo, 2010) and the roles of the board chair and chief executive officer are best separated (Daily and Dalton, 1994). These rules can be described as statutory diversity (Ben-Amar et al., 2013). However, the empirical evidence relating to the predictions of agency

theory is equivocal. Roberts et al. (2005) argue for a theoretical pluralism to also include contributions from additional theories when circumstances are appropriate. Joseph et al. (2014) also point out the dangers of CEO hegemony if all the rest of the board are non-executive with no executive director input.

Section 2.4 of this chapter describes how stakeholder theory differs from agency theory by including other groups affected by the activities and success of the firm such as employees (Donaldson and Preston, 1995). It is possible to question whether a large modern corporation even has principal owners in any meaningful sense (Fama, 1980); indeed the modern UK public corporation usually combines the capital and thus the economic power of unlimited numbers of people who are protected from any liability from any debt beyond their investment. The principal/agent theories thus become less relevant as the owners are relegated to one of many possible sources of capital for “the business team” (Donaldson and Preston, 1995). The company or “firm” becomes a self sustaining organisation with long term survival in the (competitive) market place the main driver. Indeed Fama (1980) uses the example of bondholders who share risk with shareholders, but at a lower level. He questions the manner in which the division of ownership rests between them. Handy’s concept suggests that employee stakeholders are the true owners (Handy, 2002). Fama (1980, p. 290) describes the notion that a firm is owned solely by its security owners as: “tenacious, but (one) needing to be dispelled”. The shareholders have the ability to divest the risk in efficient capital markets, which the employees do not (Fama, 1980; Baysinger and Hoskisson, 1990).

Section 2.5 reviews stewardship theory, a body of thought offered as an alternative governance theory and which includes assumptions about non-financial psychological motivators. It is suggested here that these can meld individual objectives with corporate ones, thus denying that

the managers will always behave - as predicted by economists / agency theorists – in an attempt to maximise their personal economic utility (Donaldson and Davis 1991) at the expense of the company's owners. Stewardship theory would suggest combining the CEO / chair leadership roles (duality). One implication of stewardship theory is the notion that the board should comprise a majority of executive directors as they have the motivation and knowledge to improve company performance, particularly in advisory and strategic contexts (Hung, 1998; Stiles and Taylor, 2001; Sundaramurthy and Lewis, 2003). It is a direct challenge to agency theory which elevates the role of non-executive directors (Eisenhardt, 1989) as providing critical checks and balances.

Resource dependency theory discussed in Section 2.6 is an alternative explanation of the structure, functioning and behaviour of company boards. The proposers of this theory suggest that success depends upon access to the availability of restricted resources such as capital, materials, talent skills, customers, intellectual property and legitimacy (Pfeffer and Salancik, 1978) and board members' contributions to accessing such resources outwith the company boundaries (Daily and Schwenk, 1996). It is the external perspective of resource access and independent (non-executive) directors are viewed as boundary spanners (Pfeffer and Salancik, 1978). The key task associated with this theory is the service role of directors.

The chapter concludes by reviewing the key board tasks identified in the literature on governance theories (Section 2.7) providing a summary in Section 2.8 of the key points.



## 2.2 Corporate Governance Defined<sup>10</sup>

Huse (2007) categorised corporate governance definitions according to: (i) the internal and external; and (ii) discrete/short term versus relational/long term dimensions. This gives four categories. Firstly, external, short term definitions that focus on the shareholder and closely relate to agency theory (Section 2.3). The board are hereby held accountable to the shareholders alone to maximise their wealth. Secondly, longer term, external perspectives encompassing the interests of stakeholders. These include employees, customers, creditors and indeed general society where affected. The board, under stakeholder theory (Section 2.4) would be expected to take their interests into account when directing the company. Thirdly, the internal short term perspective which includes the managerial definition. In this context, the board would behave so as to enhance the interests of management with the directors servicing and protecting senior management. Finally a long-term, internal perspective gives a firm definition, emphasising the importance of the board team being able to take effective decisions for value creation in the firm.

Below are six alternative classes of corporate governance defined by focus;

### a) Focus on shareholders

Shleifer and Vishny posit (1997, p. 737) that:

“Corporate governance deals with the ways in which suppliers of finance to corporations assure themselves of getting a return on their investment”.

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<sup>10</sup> The “official” definition in the UK Corporate Governance Code, (2014, p.1) is, “Corporate Governance is the system by which companies are directed and controlled. The board of directors are responsible for the governance of their companies. The shareholders’ role in governance is to appoint the directors and the auditors and to satisfy themselves that an appropriate governance structure is in place. The responsibilities of the board include setting the company’s strategic aims, providing the leadership to put them into effect, supervising the management of the business and reporting to shareholders on their stewardship. The board’s actions are subject to laws, regulations and the shareholders in general meeting”.

This is key to understanding why companies in the UK seeking funding are forced to address governance regulation compliance seriously. That concern is likely to increase in difficult economic times and will necessarily attract more corporate and investor focus. Denis and McConnell (2003) define corporate governance as the set of mechanisms that induce the self interested company executives to make decisions that maximise shareholder returns. They point out that in practice the system is imperfect because boards include insiders who need to be monitored and management can heavily influence board director selection.

b) Focus on wider stakeholders

Monks and Minow (2008) describe governance as a way of making corporations accountable through the behaviour of their directors. The control mechanisms are, in the view of John and Senbet (1998), designed to optimise efficiency. This is not necessarily congruent with protection. For example the duality of having one leader combining CEO and chair might be more efficient in successful companies, but suggests less protection at least in failing companies (Krause and Semadeni, 2013). Checks and balances may not necessarily increase corporate efficiency and there may be a partial trade off.

The practitioner viewpoint is represented by Waring and Pierce (2005) on behalf of the Institute of Directors. They emphasise board structure including independent committees for audit, nomination, remuneration etc., filled with non-executive “independent” directors and define corporate governance as (2005, p. xii) the: “rules of the game for a company in its relations with its shareholders, its lenders and other stakeholders in the business community and society at large”.

c) Focus on control of managers

Governance is defined by Gillan and Starks (1998) as a system of laws and rules that control company managerial operations. John and Senbet (1998) also define corporate governance in terms of the relationship between external stakeholders and the internal managers. The mechanisms of corporate governance are assumed to protect the interests of these stakeholders. John and Senbet (1998) refer this definition to the classic agency theory concerns over the separation of ownership and control (Jensen and Meckling, 1976), discussed below in Section 2.3.

Denis and McConnell (2003) also point out that there are external governance mechanisms in the takeover market and the legal system. Since takeovers command a premium it could be argued that shareholders are protected by this “last resort” governance mechanism.

d) Focus on direction and use of organisational resources

Daily et al. (2003) take an alternative view. They define corporate governance as the uses of organisational resources and resolutions of conflicts. There is no emphasis by them of protection of shareholders against the self interest of executives. Their view seems to be informed more by resource dependency theory (Section 2.6) than agency theory. They do acknowledge that shareholders and executive interests need to be aligned and this is usually achieved by attention to internal structure and processes such as incentive compensation. This is a natural concordance of interest that aligns with stewardship theory. Agency theorists also recognise the value of targeted financial incentives.

e) Focus on control and direction

Charkham (1994) describes governance as simply the system used to direct and control a company. Useem (2004) states that good governance is characterised by good decision making which he acknowledges is likely to take place in the privacy of the boardroom. He draws attention to the difference between the good decision making and a public façade. George (2004) argues that corporate governance is defined by the duty of boards to practice oversight, vision and control.

f) Focus on investor confidence

Stiles and Taylor (2002) describe the concept of corporate governance as the reaction to unregulated takeovers in the 1980s, compounded by the series of corporate failures and frauds that followed. Dalton and Dalton (2005, p. S93) though express a cynical view: "Often the perception that effective governance is in place is as important as the reality of corporate governance effectiveness". This defines corporate governance as a system to give confidence to investors, whether or not such confidence is justified.

Part of the explanation for these differences in definition lies in the theoretical stance of the scholars that have developed these definitions, i.e. the extent to which they see corporate governance deriving from agency theory, stakeholder theory, etc. The governance concept itself is fairly recent although the underpinning ideas go back to Adam Smith (1776). As shown above there is no universal agreement on the definition. The definitions span across a range of views and are derived from different views on the prime function of a corporation's board. These different underpinning theories are reviewed in the next section.

## **2.3 Agency theory**

### **2.3.1 Theory review**

Jensen and Meckling (1976) addressed the apparent paradox identified by Berle and Means (1932) to explain how companies can succeed when ownership and control are separated. They describe the corporation as a nexus of contracts (Jensen and Meckling, 1976; Fama, 1983; Grossman and Hart, 1986; Eisenhart, 1989) by which the shareholders (principals) ensure that the managers (agents) act in the interests of the principals. Such contracts are needed because of the assumption that the managers (agents) will tend to satisfy their own interests (Jensen and Meckling, 1976; Fama and Jensen 1983) first. These executives may for example manage the business to reduce their own unemployment risks (Baysinger and Hoskisson, 1990) when individual investors may prefer to manage their risk by investing in a diverse portfolio, within which each independent firm contributes a high or low risk/reward potential. The role of the board of directors (executive and non-executive) has in agency theory evolved to counter this tendency (Eisenhardt, 1989) by supervising management on behalf of the principals. There is an information asymmetry between agents and principals which could facilitate management opportunism (Ghoshal, 2005). The information asymmetries are known as moral hazard when information is available to operational management that is not shared by the principals (Huse, 2007). The role of the board in the explanation offered by agency theory is to reduce the agency costs to the principals by controlling management and reducing the moral hazard of information asymmetry where important (Huse and Rindova, 2001).

Mace (1971, 1986) found that the US boards that he studied were regarded mainly as advisory and not decision making bodies. From his interviews he concluded that many US CEOs found it

of value to have a legally constituted committee, the board, to whom their subordinates had to present results and proposals, but in practice difficult penetrating questions were avoided. The only real decision making role occurred when company results deteriorated to a point where either the outside (non-executive) director resigned to avoid responsibility or joined a group of director colleagues to ask for the CEO's resignation. Other than this rare event Mace found little active direction being imposed on US CEOs at that time. His research accords with the findings of other later authors (Chitayat, 1984; Paton and Baker, 1987; Westphal and Stern, 2006; Monks and Minow, 2008). Tashakori and Boulton (1983, p. 69) offered a counter view that: "at least some of the inadequacies pointed out by Mace are being overcome", linking the adequate submission of information to the board with active discussions on strategic issues.

Eisenhart (1989) defined agency theory as the recognition that two key problems need to be resolved;

- a) Potential conflict between the goals of the agent and the principal
- b) Monitoring the agent is difficult or expensive for the principal

In particular the agent and principal may have different attitudes towards risk, the agent as noted above, possibly for example having a stronger preference for security or the agent may seek greater personal power using sub-optimal investments (Berle and Means, 1932) such as pursuing acquisitions of marginal shareholder value.

Eisenhart's review contrasted the difference between outcome based contracts and behaviour based contracts. The latter require more detailed information systems (Eisenhart, 1989).

If the tenets of agency theory are accepted then principals may try to align their interests with the agent by aligning rewards with mutually beneficial outcomes. One mechanism would be to use share option schemes.

All of which underline the need for the principals (shareholders) to choose to either:

- a) monitor the behaviour of the agents (internal executive directors and top management team) carefully to ensure their interests are being properly represented (Daily et al., 2003)
- or
- b) create reward systems based on outcomes and thereby align the agents' interests with the principals' (Eisenhart, 1989; Davis et al., 1997).

The essential dilemma has been how to select and govern the executive directors to ensure they manage a corporation in the best interests of the owners and not their own utility.

Dalton et al. (2007) list the three main ways that principals use to try to minimise agency costs. These are 1) to ensure the board is dominated by independent directors, 2) provide equity incentives to management to align their interests with shareholders and finally 3) to ensure the company is subject to the market for corporate control which ensures low stock returns will attract a takeover premium and new management. To reduce the agency costs it is important that the board be: "psychologically and financially independent of management" (Huse, 2007, p. 48). There has been a growth in the importance of the non-executive (US "outside") directors on boards to give apparent "disinterested" and objective oversight of management performance on behalf of the remote owners (Fama and Jensen, 1983) and to demonstrate that appearance of independent control to potential investors. The remaining executive directors, who nowadays will usually be a minority in UK public listed companies, still have a fiduciary duty to the shareholders when acting as board directors. Fiduciary duty is defined as the requirement for

directors to manage the owners' assets "with the care of a prudent expert and with loyalty solely to their beneficiaries" (Monks and Minow, 1991, p. 250). This defines the essence of "governance" (Baysinger and Hoskisson, 1990).

The key role of the board chair person should, under agency theory, be independent and separate from the position of chief executive officer (Daily and Dalton, 1994; Aguilera and Jackson, 2003). This offers an independent counter to managerial dominance (Huse and Eide, 1996). The combination of the roles under one person is called duality. The question is whether a CEO combining the roles in one executive can offer an objective overview of management proposals and CEO performance (Mintzberg, 1983). Chair persons on the board are expected to behave as independent monitors (Baysinger and Hoskisson, 1990; Davies et al., 1997). Zattoni and Cuomo (2010, p. 3) see directors' independence: "as a necessary prerequisite for.....the unbiased oversight of management".

The question remains as to whether the behaviour of any directors, executive or non-executive can truly ever be "independent" if they are paid enough to be incentivised (Shen, 2005). It is also difficult to see how a non-executive director can be independent if they are appointed to represent the interests of significant shareholders (Zattoni and Cuomo, 2010).

Westphal and Stern (2006) further underline the dilemma of an executive director who outside the board meeting reports to the chief executive officer (CEO). This management relationship makes it difficult for an executive director such as a chief financial officer (CFO) to maintain the required objective independence on the board and behave as a free and independent director. It is clear that executive directors will find it difficult to challenge management proposals at a board meeting and in reality (if not in law) their behaviours and optimal competencies are likely to differ from non-executive directors, who enjoy the theoretical independence described above



(Stiles and Taylor, 2002; Mallin, 2007). Hermalin and Weisbach (1991) also point out like Mace (1971) and Hendry (2005) that non-executive directors who in theory counterbalance the executive director bias, are also usually appointed by the CEO and to some degree will tend to be aligned to management's interests. Patton and Baker (1987) also took this critical view of the performance of non-executives and highlight the uncomfortable fact that few of them own significant amounts of stock and as they are in practice appointed by or only with the approval of the CEO, they are in the view of these authors, also de facto employees (of the CEO), not representative investors. As a result Patton and Baker (1987, p. 12) argue that at some board meetings: "little happens that isn't ceremony". This view echoes the earlier view of Pfeffer (1972, p. 220) who argued that in the US board members are selected by top management and that as a result: "in many practical respects, management is, therefore in control of the board".

Hermalin and Weisbach (1991) point out that a problem with defining the board as the body controlling management agents for the shareholders is that many of the directors can themselves be considered agents. Hendry (2005, p. S56) refers to the role of executive directors as: "an extraordinary arrangement", since the executive directors are both assumed to be agents driven by self interest when acting as managers and also directors responsible for selfless oversight. He argues like Mace (1971) that non-executive directors can also be assumed to be self-seeking agents, appointed by and subservient to the CEO (Hendy, 2005). Hendry (2005, p. S58) suggests that this seeming anomaly is resolved: "by simultaneously removing both the assumption of opportunistic self-seeking and that of total competence".

He suggests the theory of "honest incompetence".<sup>11</sup>

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<sup>11</sup> Also see discussion of bounded rationality below Section 3.3.3

The definition of “independence” of non-executive directors is itself an issue. Clifford and Evans (1997) quote the Australian corporate guidelines;

Independence is deemed most assured when:

- The director is not a substantial shareholder
- Has not been employed in any executive capacity by the company
- Is not retained as a professional advisor
- Is not a significant supplier or customer
- Has no other significant contractual relationship with the company

The authors classified directors so compromised by any of these qualifications as “grey”, neither executive or independent (Clifford and Evans, 1997). They found that such “grey” directors on average hold the balance of power in Australian companies, which challenges the concept of independent direction. The theoretical concept of independent behaviour may be a convenient myth in part designed to comfort shareholders (Dalton and Dalton, 2005). Zattoni and Cuomo (2010) investigated how governance codes across the world have defined the role of non-executive directors. They concluded that there is a general consensus in governance codes that non-executive directors add value through their independence. This is they suggest because agency theory still dominates the governance literature and codes more than because of empirical evidence.

Baysinger and Hoskisson (1990, p. 76) also raise the issue of executive directors needing to avoid the conflicts of issue between: “loyalty to their superiors and the fiduciary obligations to shareholders”. They answer this in part by pointing out that in addition to their strategic board role which is the same as the non-executives, the executive directors best fulfil the secondary

board role of supervising the management. Thus executive directors may be in the best position to comply with the monitoring and control requirements of agency theory, despite the trend in governance towards emphasising non-executive (supposedly independent) roles and the fact that they cannot monitor and control themselves. This is explained by the superior information executive directors are likely to have on specific management performance. It can be argued that the non-executive directors are primarily there to protect the interests of the principals when determining corporate strategy (Zara and Pearce, 1989; Stiles and Taylor, 2001; Mallin, 2007; UK Corporate Governance Code, 2014) not in fact to manage the management in detail. Thus Baysinger and Hoskisson, (1990, p. 76) state that by using the internal knowledge of executive directors, the board of: “directors (as a complete team) are able to discriminate legitimate and illegitimate causes of financial misfortune” and also manage executive management appropriately.

### **2.3.2 Empirical studies of agency theory**

The empirical evidence supporting agency theory is mixed.

According to the predictions of agency theory scholars we should find lower agency costs and hence better firm performance in boards that are comprised of a majority of independent directors and that have separated the roles of the CEO and chair. It could be argued that shareholders will measure financial performance, either accounting or market based above all else (Baysinger and Butler, 1985; Pearce and Zahra, 1992; Ezzamel and Watson, 1993; Akash and Abbas, 2015), but as a number of authors (Hambrick and Finklestein, 1987; Hermalin and Weisbach, 2003; Berman et al., 2005) have pointed out this ignores the effect of the intervening management, a major confounding variable. Other authors suggest the focus needs to be on

board tasks that can be fairly allocated to board efforts (Forbes and Milliken, 1999; Huse, 2005; Minichilli et al., 2009).

A number of empirical studies have offered evidence that supports agency theory.

Supporters of agency theory suggest that alignment of the interests of the CEO and shareholders should increase shareholder returns. Some time ago Baysinger and Butler (1985) concluded from their study of 266 major US business corporations that boards with a higher number of non-executive directors achieved higher financial returns for the firm. This was measured as the relative financial performance (the firm's return on equity divided by the average RoI for that industrial sector), although they describe the effect as complex, mild and lagged.

Nyberg et al. (2010) examined 2,166 US firms over 13 years and found evidence that CEO alignment has a substantial effect on shareholder returns. This relationship is much stronger when the CEO is forced to maintain equity positions in the company, not just hold unexercised options. Brindisi (1989) linked very large grants of stock options, "super options" for key executives, closely to dramatic rises in return on equity. Morgan et al. (2006) report the evolution of US company shareholder voting patterns on management compensation proposals. They found that from 1992 to 2003 shareholders became more sensitive to potentially harmful plans. Thus shareholders' behaviour confirms the predictions of agency theory in that shareholders are showing concern over agency loss (Ozkan, 2007). Recent events labelled "Shareholder Spring" in the UK may appear to have reinforced agency theory predictions including a number of shareholder revolts against CEO pay (Treanor, 2012). The CEO of the UK's largest insurance company Aviva resigned following David Brennan then CEO of Astra Zeneca and a number of other such executives accused of low performance v.s. excessive compensation. Certainly there

are signs of increased use of shareholder power. Sir Martin Sorrell chief executive of WPP, the largest advertising agency in the world was reported as being under threat from a shareholder protest on his compensation package (Shah and Duke, 2012). This movement continues with HSBC under attack for its CEO pay (Donnelan, 2015), Aviva being forced to scale back its CEO package by institutional shareholders (Leroux, 2015) and the Chairman of the UK pension body targeting executive pay (Marriage, 2015). Brossy (1986, p. 38) investigated US CEO pay via 204 answered questionnaires from US directors and HR executives. He concluded that, at that time: “heads of America’s boards are sensitive to criticism about executive pay, but have confidence in their ability to tie pay to performance”. This begs the question of how CEO performance is measured in practice. Brossy (1986) found that on a ranking of critical/very important, soft measures such as establishing strategic direction (86%), building management team (84%) and leadership qualities (79%) far outweighed hard measures such as earnings per share over 5 years (66%), total return to shareholders (56%), cash flow (32%) and stock price performance (9%). The latter is perhaps the most surprising since this might be considered the key metric for shareholders (Monks and Minnow, 2008). There is a question of whether director remuneration affects board behaviour. Patton and Baker (1987) noted that the CEO can influence the board using social influence and others (Cialdini, 1984; Mace, 1986; Baker et al. 1988) have questioned the objectivity of the systems that operate in remuneration committees. Baker et al. concluded that strong pay-for-performance systems can motivate people to do exactly what they are told to do, no more, no less, which lack of initiative can be counterproductive to the actual best interests of the firm. With lower cash incentives they note that other rewards such as feelings of self esteem and praise from co-workers can motivate performance. Wade et al. (1990) explored the issues around the granting of golden parachutes (GP) i.e. significant extra

compensation for top executives such as CEOs should a company be taken over. The theory is that such packages align the interests of the CEO etc with the shareholders in accepting such bids and the premium over current share price even with the consequent loss of the executive board positions. Thus such incentives conform with the principles of agency theory in aligning the interests of the CEO even when losing his (her) job, with that of the principals'. However, too large a GP could motivate a CEO to seek a bid for the company for reasons of self-interest. Kosnik (1987) used successful greenmail resistance as a proxy measure of board effectiveness. In her study of 53 US companies she concluded that boards with more outside directors were more successful in resisting such attempts.

Other empirical tests of agency theory include the detection of constraints on executive indulgence by the board. Yermack (2006) explored the basic tenet of agency theory looking for evidence that managerial abuse of company assets for personal purposes would erode shareholder returns. He did find that US companies whose CEOs had access to company planes and corporate golf memberships in Augusta did underperform market benchmarks by more than 4% annually, supporting the need for better corporate governance as described in Jensen and Meckling's (1976) model. The subsequent stock price depression far exceeded the costs of the aircraft. This confirms the agency theory premise that shareholders need to constrain management, but not that the board are able to do it.

Rechner and Dalton (1991) found support for agency theory in that the US firms they studied with an independent chair person outperformed those where the role was combined in one person as CEO and chair (duality). Performance was measured as return on equity, return on investment and profit margin. A more recent study (Krause and Semadeni, 2013) has found in the US that

separation of the roles is beneficial when performance is poor, but negative when performance is already high.

Dahya and McConnell (2005) concluded that UK boards complying with the Cadbury Report's recommendation (Cadbury, 1992) of recruiting at least three independent directors showed improved Return on Assets, maybe through better cost control. This was associated with superior gains in the stock price.

Other authors have found evidence that contradicts agency theory. Many (Dalton and Dalton, 2005; Monks and Minow, 2008) find either no relationship or even a negative correlation between ever more stringent controls and financial returns. Indeed, Daily et al. (2003, p. 375) when referring to the regulatory fashion in favour of a higher proportion of independent directors behaving as assumed by agency theory and thereby improving financial performance, state: "extant empirical research, however provides virtually no support for this belief".

Some authors have found a positive correlation between superior financial performance and boards dominated by executive directors (Vance, 1978; Pearce, 1983; Kesner and Dalton, 1987) which is not what agency theory would predict. Ozkan (2007) looked at the compensation of CEOs in UK companies and found that the proportion of non-executive directors was positively related to CEO compensation after controlling for firm size. He suggests that this demonstrates that they are not more efficient than executive directors in monitoring and controlling management expense.

McGuire and Matta (2003) studied the US firm performance implications of the exercise of CEO stock options. Agency theory would predict a positive result of aligning the interests of the CEO with the shareholders. However, they found no relationship between exercise and firm

performance. Rather they detected a desire for the CEOs to reduce their personal risk by broadening their stock holdings. This contradicts the argument above that stock options will improve CEO performance. In fact, Denis et al. (2006) found a significant positive association between fraud allegations and stock option incentives. This is evidence that rather than aligning the board with shareholders, large option packages can exacerbate the tendency for the management to look to their own interests first and if necessary at the expense of shareholders. This incentivises management to overstate the financial results to increase the stock price. Agency problems are thus increased not reduced. This finding was endorsed by the work of Burns and Kedia (2006) who also found that the greater the CEO option incentive the greater the propensity for unusual accounting practices.

Specifically looking at the value of non-executive directors Finegold et al. (2007) reviewed 105 studies published between 1989 and 2005 in an attempt to identify governance practices that result in more effective US firm performance post Sarbanes-Oxley (2002). Baker et al. (1998, p. 611) concluded that there is: “no consistent evidence to suggest that increasing the percentage of outsiders on the board will enhance performance”. (Finegold et al., 2007, p. 867) concur and point out that: “studies failed to show that adding independent directors improved subsequent performance”. Wade et al (1990, p. 602) concluded that: “the evidence suggests that outside (non-executive) directors may be more responsive to management’s interests than those of the shareholders”.

A considerable number of authors have found no evidence that agency theory can explain board behaviour and performance. Dalton and Dalton (2005) were unable to find evidence that high levels of equity holdings on the board more perfectly aligned executive interests with those of shareholders. Stiles and Taylor (2002) cite authors (Singh and Harianto, 1989; Hermalin and



Weisbach, 1991) who found no evidence that boards ran under the tenets of agency theory performed better than others. One difficulty as noted above is separating the performance of the board from all the other factors effecting firm performance. Core et al. (2006) examined the potential link between weak governance and stock price returns. The hypothesis was that under agency theory weak shareholder rights should increase agency costs and cash flow expectations. However, using a return on assets measure Core et al. (2006) found no association between publically held information on poor governance and this measure. They conclude that this anomaly might be replicated with other governance related tests. They cannot explain the results other than by suggesting that governance, as defined by agency theory is irrelevant to shareholder returns.

### **2.3.3 Summary and critique of agency theory**

Agency theory does not provide a complete explanation of the link between board structure and task output. Agency theory offers an explanation of how boards are structured and function to overcome the ownership / control paradox, directors representing the principal. It assumes that principals need to be protected from the self interests of the agents managing the firm. It is not always clear whether a director is an agent or representing the principal to manage the agents. Indeed as discussed, directors, especially executive directors will commonly find themselves conflicted between these roles.

Dalton et al. (2003) cast doubt on the bases of agency theory. They analysed empirical ownership-performance studies and found few systematic relationships. The hypothesis as predicted by agency theory was that by using stock ownership to align agent's and principal's interests it was more likely that managers will act to increase shareholders equity value. They

were unable to demonstrate this relationship using financial measures including return on assets, return on equity, return on investment, earnings per share and the price to earnings ratio. These are the parameters that shareholders are most likely to be concerned about. But as mentioned above it could be that they are not the only relevant measures to specific board output. Tricker (1994) points out that agency theory by focussing on control misses swathes of other important relationships.

It is at best unclear whether high numbers of non-executives consistently improve board performance, not least because of the difficulty in measuring board output (Chapter 3). Dalton et al. (1999) and Stiles and Taylor (2002) point out that however intuitive, the evidence that non-executive directors do actually act with more independence, as commonly assumed by agency theory and governance regulation is thin if not absent. Core et al. (2003) point out that whilst some authors (McConnel and Servaes, 1990; Frye, 2001) find evidence of a positive relationship between option grants and performance it is not clear that this is causal. It could well be that companies expecting higher returns so incentivise executives to achieve these returns.

In their review of 159 studies over a 40 year period Dalton and Dalton (2005, p. S93) concluded that directors interactive processes were more important than the structures now imposed by agency theory based governance in the US and the UK: “We can conclude that there is no empirical support to warrant the guidelines and/or legislation mandating independent board structures”.

Minichilli et al. (2009, p.55) describe the empirical evidence for agency theory as “still equivocal”, but indicate a move towards measuring board performance on the more specific tasks proposed by Huse (2005) that might resolve this uncertainty.

It seems that many of the tenets of agency theory are currently based more on convenient intuition than on empirical data. Daily et al. (2003) suggest it is a popular theory because it is simple, reducing the governance actors to two players: agents and shareholders. It also appeals to the image of humans as primarily driven by self interest. Shareholders may be comforted by the alignment of interests. Dalton and Dalton (2005) point out that if the function of agency theory based governance regulation is to re-assure potential investors (Shleifer and Vishny, 1997) then this perception may be as important as the reality of effectiveness. Applying agency theory board structures may be no more than a fragile mantle to maintain investor confidence and may not respond to direct empirical testing of improved firm performance since in reality that may not be its prime function. Agency theory is an incomplete explanation of how boards function.

Blair and Stout (1999) differentiate between the agency theory needs of a small firm board and the efficient organisation of a large public corporation. They challenge the foundation of agency theory, asserting that corporate assets should rather be seen as belonging to the corporation itself, not the shareholders. Not a position currently recognised in law, but enabling a board of directors to take actions that benefit all stakeholders including employees and creditors. They claim this explains why directors are insulated from direct shareholder control.

Agency theory has been described as paradoxical and damaging by Segrestin and Hatchuel (2011) who argue that agency theory has constrained directors' freedom and caused them to take decisions which are economically inefficient in that they are forced to favour the short term interests of shareholders over other stakeholders in society. Segrestin and Hatchuel (2011) also posit that agency theory creates unrealistic behavioural hypotheses based on assumptions that calculating, opportunistic behaviour is to be expected and needs to be controlled. Other theories try to fill these deficiencies. The first of these is stakeholder theory.

## **2. 4 Stakeholder theory**

### **2.4.1 Theory review**

Stakeholder theory can be seen as an extension of agency theory, but encompassing a broader range of principals beyond the shareholders (Huse, 2007). There was an early recognition in the behavioural theory of the firm that actual behaviour of firms is a function of a social bargaining process (Simon, 1957; Cyert and March, 1963). Board task outcomes cannot be totally explained by the economic models such as agency theory's emphasis just on shareholder's interests (Freeman, 1984). Other actors may have a claim on the firm. Freeman's (1984) description of these includes employees, customers, creditors and the general community. They can be grouped into the size of the potential affect the company's interests, e.g. creditors who have a prior claim above shareholders on the company's assets. Scholars have debated how wide the definition of stakeholders should be and have contributed a range of choices including such phrases as, "legitimate and non-trivial" (Brenner, 1993, p. 205), "claimants with contracts" (Cornell and Shapiro, 1987, p. 5) or just those who: "have a stake in or claim on the firm" (Evan and Freeman, 1988, pp. 75-76). Jensen (2002, p. 236) points out that paradoxically this could include: "terrorists, blackmailers and thieves". The company board may be forced to take such stakeholders into account, but not on the basis of moral equity. Jensen's quip is because a) some definitions of stakeholders are very wide and b) some scholars advocate that stakeholders should be represented on boards. Other examples include (Donaldson and Preston 1995, p. 67),: "stakeholders are identified by their interest in the corporation, (and) whether the corporation has any functional interest in them".

Freeman (1984, p. 46) offered a wide ranging definition: “any group or individual who can affect or is affected by the achievement of the organisation’s objectives”.

Clarkson (1995) was more narrow and specific, defining both voluntary and involuntary stakeholders as those accepting risk. A stake becomes (Mitchell et al., 1997, p. 857): “something that can be lost”.

It is perhaps of more value to focus in on the three key attributes of a stakeholder: power to influence the firm, the legitimacy of the claim and it’s time critical urgency (Mitchell et al., 1997). This definition gives rise to a hierarchy which management may attend to depending upon how many of the three defining characteristics of a stakeholder are salient at that time. For example power and legitimacy combine to give authority. Add urgency such as an immediate demand from the government and management will attract immediate and deep attention. This gives rise to the concept of stakeholder classes with varying power and legitimacy to command action from the board (Mitchell et al., 1997). Thus a stakeholder theory explanation of board structure should encompass the board view on the importance of all stakeholders, not just shareholder principals.

In fact stakeholder theory itself is still subject to a variety of definitions which can create contradictory arguments (Mainardes et al., 2011). The theory can include an ethical dimension which embraces corporate social responsibility (Jones, 1983; Jamali, 2008) or can be more closely aligned with a business strategy (Donaldson and Preston, 1995; Verbeke and Tung, 2013). Jones (1985) argues that agency theory opportunism may not lead to the enhanced performance sought and that because of the high costs of reducing such behaviour, firms based on principles of trust and ethical behaviour will outperform them.

Stakeholder theory can usefully be approached in three ways: normative or what managers should do to accord with moral guidelines (Donaldson and Preston , 1995), instrumental or what managers have to do in order to reach corporate objectives (Jones, 1985) and finally, descriptive what they actually do (Donaldson and Preston, 1995). There is an argument that these perspectives can be combined into one theory (Jones and Wicks, 1999) based on normative theory converging with instrumental theory. Thus the narrow achievement of corporate success to increase the shareholders' value may include recognition that some other stakeholders will indirectly influence that result and so has direct value to the principal stakeholder, the shareholder (Jones, 1985). Some scholars argue that a firm should accept a greater responsibility towards the community (Lepineux, 2005; Jamali, 2008). As such a corporation becomes part of a greater society and therefore its role broadens beyond maximising stockholder return. A view echoed by Post et al. (2002) who describe the modern corporation as an extended enterprise dependent and accountable to an interrelated network of stakeholders.

Jones (1985) argues that a general concern for stakeholders enhances a firm's reputation which has positive commercial value. This will be reflected in the incentives and sanctions imposed by the board on management. Thus concern for stakeholders can become institutional in the firm and does not depend upon any individual's morality.

Investors are able to quickly sell off shares traded on stock markets of companies that under perform. It is therefore quite normal to evaluate the success of a firm on the basis of shareholder returns (Baysinger and Butler, 1985; Pearce and Zahra, 1992), but within the constraints of legality and conventional morality (Cragg, 2002). This exposes a gap in agency theory which requires no such ethical constraints to explain how boards are structured to overcome the ownership paradox. This is the gap filled by stakeholder theory. Jensen (2002) offers a

reconciliation between these apparently conflicting objectives. He describes this as enlightened value maximization. Jensen defines value as the long term market value including debt, equity and warrants. He posits that firms need a single overriding metric objective and normally this will be value maximisation. It will not, for example usually be full employment, maximising taxes or other socially desirable outcomes. Social welfare in this model is maximised when all firms in that economy attempt to maximise their own value. Social welfare for all stakeholders therefore need not, and it is argued does not, intrude too far on board decision making. This sounds like a reversion to agency theory with an acknowledgment that the consequent consumer surpluses will benefit society. Jensen (2002) claims this interpretation is consistent with the argument found in normative stakeholder theory that a firm should attend to all the constituencies it affects. It would be poor business practice and inconsistent with value maximisation not to do so. But Jensen (2002) argues that for directors to behave without this financial discipline, focussing on stakeholders for any reason other than financial value will increase agency costs and subject the firm to adverse market control forces. The thesis is that surviving businesses have more focussed boards who understand the multiple and various values of different stakeholders, but attend to them only to the extent they contribute to value maximisation.

#### **2.4.2 Empirical studies of stakeholder theory**

Empirical evidence for stakeholder theory should demonstrate that the top executives (board) of a firm are influenced by the moral or financial impact of stakeholders and this effects their decision making.

In support of the theory Voss et al. (2005) examined non-profit theatre companies by survey to examine the trade offs between the conflicting needs of stakeholders, including actors and the audience. They found the entrepreneurial orientation of the board influenced its willingness to employ an instrumental approach towards stakeholder interests. Likewise Polonsky and Scott (2005) used modelling with marketing executives and found that stakeholder claims did impact on managers' views. The respondents classified stakeholders into a matrix along axes of threatening v.s. cooperation and chose appropriate strategies. It was clear that some stakeholders were more important than others. Hillman and Kiem (2001) used data from the S & P 500 to show evidence that positive stakeholder management (by a company) improved shareholder value measured as market value added. Hillman and Shropshire (2007) in their longitudinal study found a wide variety of stakeholder management focus amongst US firms which they tried to correlate with CEO changes and managerial discretion delegated from the board. They were able to correlate managerial discretion with changes in stakeholder management, but no evidence that CEO succession was related to such changes. Holtbrugge and Puck (2009) found that German investors in Russia had to take account of non-market stakeholders to accelerate decision making and reduce political risks. Cole et al. (2011) found that insurers were impacted by a variety of stakeholders and that by doing so were able to reduce overall firm risk.

Stakeholder theory is offered as an explanation of how and why boards control the actions of management in the interests of multiple stakeholders. It might be expected that boards with stakeholder representation would therefore be more effective. Hillman et al. (2001) report in their study of 250 US companies that they were unable to find many significant relationships



between stakeholder board representation and stakeholder relations as measured on the KLD<sup>12</sup> index. The exceptions were some positive effects on demographic diversity, but negative on environmental performance.

Proponents of stakeholder theory would expect companies to be swayed by the moral claims of concerned and powerful stakeholders. There is some counter evidence that this does not always happen. Magness (2008) examined investor and management response to two mining accidents and found that stakeholder status is not permanent. The shareholders did not react to the first accident, only the second when it became an industry issue. She argues therefore that stakeholder status is transitory in nature and will not affect management unless the group achieves sufficient power to challenge management and impact share value. Kujala et al. (2012) examined stakeholder relationships in a conflict situation. The case studied was a Finnish pulp mill built in Uruguay. It created 8000 jobs, but had a negative impact on tourism due to potential river pollution. Argentina took Uruguay to court in an attempt to stop the development. The authors argue that stakeholders do not just have a relationship with the company, but also with each other. They took data from the reports of the biggest Finnish newspaper which extensively covered the conflict. In fact the company did all it could to distance itself from the political conflict between the stakeholders and proceeded with the construction. So the company selected to support the stakeholders representing the economic arguments that were congruent with their own. There is little evidence therefore that the moral arguments of stakeholders changed board policy.

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<sup>12</sup> The FTSE KLD index is a social index designed so that socially conscious investors can weigh social and environmental factors in their investment choices.

### **2.4.3 Summary and critique of stakeholder theory**

Stakeholder theory usefully extends the definition of the principals to other groups who influence boards. Some scholars question why a firm should pay attention to a moral imperative and what is the function of ethics in business (Cragg, 2002). The argument is based on the observation that corporations exist and enjoy their own individual legal status only with the explicit agreement of society. For survival in this form corporations must acknowledge the implicit understanding to obey the law and treat all stakeholders ethically (Cragg, 2002). The issue though is whether this constraint actually explains real world director behaviour. Or are corporations driven primarily, as explained by agency theory, to increase shareholder value even to the exclusion of other stakeholders. It may be that in practice corporate boards act ethically more because they perceive it to be in their direct business interests than because of any moral imperative (Clarkson, 1995).

So the central argument within normative stakeholder theory is the extent to which a social morality intrudes above financial objectives and influences board decision making. Some authors (Jones and Wicks, 1999; Phillips et al., 2003; Lepineux, 2005; Jamali, 2008) argue it should and does. Others, (Jensen, 2002) argue that it should not and does not. There is a wide agreement that directors should and now do take account of the wide spectrum of stakeholders in their deliberations and when forming strategies. Stakeholder theory informs us about this behaviour. However, it leaves unresolved the question of how stakeholders should be prioritised and rewarded (Hendry, 2001). Other governance theories try to explain director behaviour from different premises. The first of these is stewardship theory.

## **2.5 Stewardship Theory**

### **2.5.1 Theory review**

This theory is based on the proposition that directors may in reality: “have interests that are isomorphic with those of shareholders” (Daily et al., 2003, p. 371). Stewardship theory models and describes the directors – managers - shareholder relationship as personal identification with the organisation’s mission, vision and objectives. Davis et al. (1997, p. 29) refer to Brown’s view (1969): “Through identification, an organisation becomes an extension of the steward’s psychological structure”.

This theory was proposed by Donaldson and Davis (1991). Barney (1990, p. 385) had conceded that in real life a sense of duty may induce a manager not to seek opportunistic ways to improve his/her interests at the expense of shareholders: “some individuals are inherently opportunistic and others are not”. Donaldson and Davis (1991) identify other management motivators, the need to achieve, to gain intrinsic satisfaction and gain recognition from peers and bosses (Rotter, 1982; Donaldson and Davis, 1991).

Thus this theory offers a contrasting explanation of how boards work more effectively and is based on some principles of organisational psychology rather than economic modelling. Davis et al. proposed that the stewardship model is based upon: “the subordinate’s psychological attributes” (Davis et al., 1997, p. 20) and suggest that there are often circumstances when it is a more appropriate explanation than agency theory. They point out that whilst the utility of the principal and agent coincide there is no problem in either model. Agency costs occur when the principals no longer believe this is true and controlling mechanisms are needed to force the company’s executives away from serving their own interests with more priority than the owners’.

They argue that in other circumstances as described by stewardship theory, the agents' behaviours will be a function of their psychological desire to achieve collective goals. As such the agent is acting as the principal's steward and will not succumb to self serving short term behaviours. These authors point out that earlier theories were based on an economic view of man that can now be challenged (Doucouliagos, 1994) and refer back to the evolution of leadership theories since Taylor (1911) at the beginning of the 20<sup>th</sup> century. Economists base their models on the paradigm that all the human actors will act purely rationally to increase their own utility (Daily et al., 2003). They argue that whilst this produces useful insights and facilitates theoretical modelling, it is not an accurate reflection of the totality of the real world since it ignores the impact of other psychological processes. Maslow proposed a complex hierarchy of needs other than simple monetary reward (Maslow, 1943)<sup>13</sup>, Donaldson and Davis (1991) suggest that these drivers can motivate the behaviour of the directors of a company. Later authors have challenged the empirical basis of Maslow's theory and found it impossible to replicate (Hall and Nougiam, 1968; Arnold et al., 1998) nevertheless it stimulated a search for a leadership theory based on the recognition that there was much untapped potential in the workforce that could be released with a more modern inclusive leadership style. It opened the debate on whether even directors might be motivated by their psychological needs, identifying with the company, as well as their monetary reward.

Davis et al. (1997) proposed the following model as shown in Figure 2.1, of the choices to be made by the key business actors, the principals (owners) and the agents (managers).

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<sup>13</sup> i.e. in order; physiological, hunger, thirst etc. which need to be satisfied first and then in turn: safety, the need for security, social, the need to belong, to gain recognition, love and affection, esteem, the desire to be respected and self-actualisation, the need to achieve ones full potential.

**Figure 2.1****Principal / Manager Choice Model****Davis et al., (1997)**

		<b>Principal's Choice</b>	
		<i>Agent</i>	<i>Steward</i>
<b>Manager's Choice</b>	<i>Agent</i>	Minimise potential costs Mutual agency relationship 1	Agent Acts opportunistically Principal is angry Principal is Betrayed 2
	<i>Steward</i>	Principal Acts opportunistically Manager is Frustrated Manager is Betrayed 3	Maximise potential performance Mutual Stewardship relationship 4

Note: This figure illustrates Davies et al.'s analysis of the choices that can must be made by the manager and principal which lead to conflict or harmony.

Thus the principal and agent have to choose. If they both choose an agency relationship then costs are minimised and expectations are likely to be met (box 1). The agents will if the opportunity arises without risk, optimise their utility at the expense of the organisation. There is “understanding” and thereby control. If though both agent and principal choose a steward relationship and the agent’s psychological profile fits then the mutual gains are high (box 4). Davis et al. describe the dilemma if either party make different choices. If the steward agent is controlled by a principal using agent controls they will be frustrated (box 3) and become anti-organisational. Of course if the principal chooses a steward relationship and the manager an agency, the manager will as Davis et al. describe (1997, p. 40) act as “a fox in a henhouse” in box 2 and will satisfy their utility at the expense of the organisation. Davis et al. (1997) thus are

able to argue that evolution from agency theory has culminated in stewardship theory which they claim can deliver higher performance by focussing on structures which facilitate and empower rather than monitor and control.

Davis et al. (1997) argue that increasing internal motivation of the agents (directors) and their use of personal power rather than coercive institutional power will produce better corporate performance in those circumstances where the selection and leadership abilities of the executive management make it more appropriate than agency theory controls.

In their model combining the role of CEO and chair (duality) would avoid confusion over strategy and be more effective and is common practice in the US. In 2008 the UK retailer Marks and Spencer's CEO announced plans to combine the roles which created many objections from UK financial institutions (Davey and Ashton, 2008), but most large UK (FTSE 350) companies conform to agency theory and governance regulations that separate the roles.

### **2.5.2 Empirical studies of stewardship theory**

One of the main functions of a board in agency theory is to monitor and control tendencies to exploit the shareholders' assets and as such requires a separation of the role of CEO and chairman so that the independent chair person can monitor executive management headed by the CEO. Donaldson and Davis (1991, p.49) argue in their seminal work on CEO / chair duality thus:

“Agency theory argues that shareholder interests require protection by separation of incumbency of roles of board chair and CEO. Stewardship theory argues shareholder interests are maximised by shared incumbency of these roles. Results of an empirical test fail to support agency theory and provide some support for stewardship theory”.

They ascribe the superior results measured in their study by the reported return on equity of 321 US firms, to: “the classic benefits of unity of direction and of strong command and control” (Donaldson and Davis 1991, p. 52)<sup>14</sup>. Donaldson and Davis’s study though was cross sectional rather than longitudinal which made causal inferences less certain. Indeed their conclusions were criticised by Arthur et al. (1993) as having misunderstood agency theory which Arthur et al. (1993) argue is no longer based on the simplistic view that boards need to be independent to prevent conflicts of interests between executives and owners. Arthur et al. (1993) claim that modern agency theory works because modern owners tend to be diverse (and so relatively powerless) which requires that managers are motivated by a mutually beneficial exchange of contracts with shareholders, debt providers and employees. They challenge the assumption (Arthur et al., 1993, p. 95) that only stewardship theory accounts for the behaviour of managers who: “will want to do a good job within the confines of the incentives, essentially property rights, facing him or her” and assert that even motivated stewards will look for personal reward and not prefer or accept corporate growth in the face of personal penury. Whittred (1993) also criticises Donaldson and Davis (1991) measurement criteria in that a return on equity calculated as the average of three years accounting profit divided by the book value of net assets is highly volatile and unreliable, thus putting the apparent objective conclusions in doubt.

Donaldson and Davis (1993) argue that it is necessary now to distinguish between modern agency theory and what they now term the earlier agency-control theory on which governance regulations are based. As such it was agency-control theory they chose to contrast with

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<sup>14</sup> Krause and Semadini, 2013 also report evidence supporting the combination of CEO / chair roles as discussed in Sections 2.8 and 8.2 below.

stewardship theory. Donaldson and Davis (1993, pp. 215-216) re-emphasise the basis of stewardship theory:

“draws inspiration from a tradition of psychological theorising and research that sees the job the manager does as being the most powerful shaper of his or her work behaviour”.

Stiles and Taylor (2002, p. 132) describe the empirical evidence for stewardship theory as “slight”. In fact and as described above the evidence from Donaldson and Davis was strongly challenged by scholars such as Arthur et al. (1993) and Whittred (1993) on the grounds of lack of evidence. Otherwise the evidence for stewardship theory tends to rely on the failure of agency theory.

### **2.5.3 Summary and critique of stewardship theory**

Stewardship theory challenges the assumptions of agency theory and argues that directors can be motivated by isomorphic interests with the principals to achieve enterprise success. However, the risk is that the principal and manager (agent) have an uncoordinated understanding and working model. If either conform to another paradigm then this theory does not offer a complete explanation of board function. It describes what some authors (Donaldson and Davies, 1993) may believe should be normative, but fails to account for alternative scenarios such as described by resource dependency theory.

## **2.6 Resource dependency theory**

### **2.6.1 Theory review**

This theory is based on the proposition that the success of organisations depends upon their access to the restricted availability of resources (capital, materials, talent skills, customers, intellectual property, etc.) (Pfeffer and Salancik, 1978) and board members' contributions to



accessing such resources outwith the company boundaries (Daily and Schwenk, 1996). That is how an organisation links to its environment. This contrasts with the internal perspective of agency theory. The directors creating these links were described by Pfeffer and Salancik (1978) as “boundary spanners” since they linked the board with its external environment. This has important implications for board composition. The implication is that diverse skills, experience and networks will enhance board functioning. Resource theory depends on the exploitation of director functional diversity.

Pfeffer and Salancik (1978) defined this theory by reference to three principles governing director activity. The first of these is the understanding of corporate decisions in the context of the external environment of the firm (Pfeffer, 1972; 1973) and which corporate alliances and mergers to pursue. This takes the focus away from internal dynamics and towards the outside situations of firms. The second deals with the external constraints that gave rise to strategic opportunities. This enables boards to gain competitive advantage by overcoming the adverse environmental factors through creating alliances with suppliers and governments that were better than other firms’ strategies. Lastly they emphasised power as opposed to economic efficiency. Governments for example had usually more power over multiple suppliers than the firms did over them. This echoes the principles of Porter’s five forces model (Porter, 1987). The dependency on external resources also (Pfeffer and Salancik, 2003, p. xiii):

“affected internal power dynamics. The people who could reduce uncertainty ....and help the organisation obtain resources held more power as a result of their critical role”.

The theory emphasises the service role of directors (Zahra and Pearce, 1989). This may be particularly important in high tech start ups or other SMEs (Knockaert and Ucbasaran, 2013). As Huse (2005) pointed out, firms need to find externally those strategic resources which are

lacking internally. The smaller the company the more likely it is that such gaps will exist. This encourages boards to add directors who can access such resources (Hillman and Daziel, 2003).

According to Zona and Zattoni, 2007, p. 854):

“Outside directors with high prestige and high status are usually co-opted by managers to increase the legitimisation of the firm within its environment” which concords with resource dependency theory.

Pfeffer (1972) had already found a positive correlation between the percentage of outside directors and the need for external finance i.e. monitoring the use of resources and representing the funding sources. It could be extrapolated that accessing the key resource of finance will tend to alter the board structure in this way. This view is repeated by Fligstein (1987) and others (Kotz, 1978; Mintz and Schwartz, 1985) who traced such appointments to the rising importance of capital markets and the need for board skills in managing relationships with the investor shareholders who provide this resource. Mizruchi and Stearns (1988) conducted a longitudinal study of 22 large US industrial corporations over a 30 year period, to track the appointment of financially orientated outside directors. These were typically appointed from banks or investment houses. They found statistically supported evidence of increased interlocking financial directorships on corporate boards with two environmental processes. Firstly, in a period when demand for capital was increasing and capital was plentiful and inexpensive then non-financial corporations were in a strong position and could compete to co-opt such directors. It is assumed this is in return for increased and privileged access to funds. Secondly this situation is reversed in poor economic conditions when non-financial institutions will be weaker and financial institutions may place such outside directors on boards to represent and protect their investments. Mizruchi and Stearns describe this as “infiltration”. In either case, such appointments are closely linked with competitive access to needed capital whether it is plentiful or scarce.

Some authors (Pfeffer and Salancik, 1978; Daily and Swenk, 1996; Hillman et al., 2001) thus argue that firms structure their external relationships in response to these resource restrictions. The board of directors have to modify their behaviour to be concerned with the control of these relationships and the identification and development of corporate “core competencies” (Prahalad and Hamal, 1990) for strategic advantage. However, the extent that such strategic questions are normally addressed by a board might be questionable, especially if the issues are uncomfortable (Westphall and Khanna, 2003; Rindova, 2009).

Pfeffer and Salancik (2003) describe how companies are managing the potential shortage of resources in the environment by seeking to create alliances with companies which can be trusted. This is a phenomenon that arises from interlocking directorships which is the term used to describe the presence of the same directors on many boards so creating a complex series of interlocking relationships between the companies (Useem, 1984). This interlocking is postulated to facilitate the flow of interorganisational knowledge which becomes a valuable resource of information (Pfeffer and Salancik, 1978; Haunschild and Beckham, 1998). Kotz suggested that the providers of finance (banks) used this method to monitor and control their capital investments (Kotz, 1978). Since then studies of interlocking directorates have shown that having such relationships makes the directors who have this knowledge a competitive resource in themselves and will lead to convergence of competitive strategies (Davis, 1991; Mizruchi, 1992; Palmer et al. 1993). Haunschild and Beckham (1998, p. 817) ascribe the success of interlocks as a resource to the fact that:

“interlocks can be inexpensive, trustworthy, credible information sources. Interlocks are low cost sources in that directors are required for all public firms and the information that comes from a director is thus an inexpensive by-product of such mandated relationships”

Thus such information resourcing can become a secondary function of particularly well distributed non-executive directors.

### **2.6.2 Empirical studies of resource dependency theory**

Pfeffer (1973) examined a random sample of 80 US corporations with a typical turnover between \$100 million to \$500 million plus. He looked for statistical correlations using the Spearman correlation coefficient and found evidence supporting some of the predictions of resource dependency theory. For example the number of board directors was significantly related to the firm's size, which Pfeffer, (1973, p. 223) predicted on the basis that a large organisation needs: "to have more members who can relate and legitimise the organisation to it's external environment".

He also found that specialist directors were appointed and that for example the percentage of legal attorneys was positively related to the debt to equity ratio and to the occurrence of regulation. Perhaps most telling was the finding that the number of outside (non-executive) directors representing financial institutions was significantly related to the need for external capital. Provan (1980) studied 46 US human service agencies to test the importance of an externally powerful board of directors to the ability to attract scarce resources, particularly funding. He found the thesis was supported for single time period funding, but not over time. This study is somewhat restricted in being focussed on sourcing mainly from one charity (United Way) and the board structure with its mean of 29 members being atypical when compared to modern commercial company boards. Thus although Provan offers his results as giving strong support that board prestige, interlocking linkages and board size can predict successful short term funding, it is doubtful whether this gives empirical support to resource dependency theory within

the context of a UK commercial company board. In fact he concludes (1980, p. 234): “the results of this study strongly suggest that a powerful board of directors may be less important than previously believed”.

Pearce and Zahra (1992) offered a contrary view from their US board study that increased environmental uncertainty was significantly positively associated with board size and more outsider representation. Pearce and Zahra found evidence that a higher representation of outsiders was associated with ineffective past company performance, and concluded (1992, p. 432):

“larger boards and higher representation of outsiders appear to be viable ways of co-opting the environment and reducing uncertainty surrounding strategy development and execution”.

They speculated that this may be because CEO dominance is so reduced and the leadership talent pool is so increased. Donaldson (1995) later concludes that there is no empirical evidence confirming the value of independent directors' interlocking relationships.

A more recent study specifically looking at SMEs (Knockaert and Ucbasaran, 2013) found that boards employ less external boundary spanners if the competencies are already found in house. But if those were lacking at an early stage then there was empirical evidence that appointing non-executive directors does add legitimacy to a firm and give it enhanced access to external technology.

So in conclusion the empirical evidence for resource dependency theory is weak at best.

### **2.6.3 Summary and critique of resource dependency theory**

Resource dependency theory explains the role of the board in an open system helping to source scarce or missing strategic resources from outside, and be themselves a resource to guide and counsel management (Pfeffer and Salancik, 1978). This can include legitimacy (Daily and Schwenk, 1996). It fails to explain the monitoring and control functions of the board.

## **2.7 Board Tasks**

Governance theories thus define key board tasks. Huse (2007, pp. 38-39) catalogued actual observed (albeit Norwegian) board specific tasks into firm-external (1 and 2), firm internal (3 and 4) and strategic (5 and 6). He implies that these six task outcomes will have a different emphasis depending upon the mission, characteristics and personality profile of that specific board.

1. Board output control tasks. Boards which focuss on these tasks are acting on behalf of external stakeholders including shareholders to optimise firm outputs, usually financial. Congruent with stakeholder theory.
2. Board internal control tasks. The board is representing external stakeholders including shareholders to control top management's behaviour. Huse describes this as more time consuming than output control since the emphasis is on how things are done rather than the outcome. This is congruent with agency theory.
3. Board networking tasks. The boards focus here is on external stakeholders and will involve resource dependence theory tasks involving networking and lobbying.

4. Board advisory tasks. The directors provide knowledge and competencies internally which may be rare and valuable as defined by resource dependency theory.
5. Board decision control tasks. The board ratify and control important decisions and allocate resources including strategic control. A task defined by agency theory.
6. Board collaboration and mentoring tasks. A collaboration with management in shaping strategy through mentoring and support. (Huse, 2007)

Pugliese et al. (2008) explore the idea that boards may give different tasks priority depending upon the internal and external contingencies. They grouped the board tasks into “networking”, “monitoring” and “strategic” and investigated 301 Italian boards via a questionnaire to the CEO (alone). They found that organisational crisis was claimed to create higher board involvement in all three of these tasks. Pugliese et al. (2008) were unable to demonstrate statistically significant correlations for board outputs with other parameters such as the degree of industry regulation.

It may be reasonable to assume the priority ranking of the board tasks is at least partially defined by the nature of the company situation, but that there are likely to be output tasks to some degree common to all UK company boards. The assumption is that these will not differ significantly from those defined in the extensive US, Israeli, Italian and Norwegian literature (Chitayat, 1984; Zahra and Pearce, 1989; Huse, 2007; Zona and Zattoni, 2007). Machold et al. (2011, p. 369) posit that: “strategy involvement (is a) key indicator of board performance and effectiveness” and differentiates between boards who ratify strategy and those who define and shape it.

Zahra and Pearce (1989) attempt to integrate board task theory, whatever the background theoretical perspective of legalistic, resource dependency, class hegemony (Marxist) or agency, into service, strategy and control (Zahra and Pearce, 1989). They accept that the emphasis

between these will change from strategy to control as the company evolves from entrepreneurial stages to a financial bureaucracy, (Greiner, 1972; Johnson 1997), but nevertheless it offers a simple classification which will normally be relevant to all commercial company boards.

Zahra and Pearce argue that the “service tasks” are best addressed by outside (non-executive) directors who are in a better position to exploit industry links, source external resources and provide counsel to management. They speculate that “strategy tasks” are best debated with a majority of outsiders especially if this includes representative minorities. Likewise they suggest “control tasks” are best served when the directors are non-executive.

There is obviously a possibility that different boards will assume different task objectives ranging from just self-monitoring each other as guardians for the principals, or additionally providing advice and counsel and sourcing external resources beyond the normal service role for the management through the range of proactive strategic, monitoring, networking, guiding or approval outcomes often assumed as board tasks by academia. Boards, especially for companies in crisis might exceptionally take on executive management roles, outwith the normal expectations (Chitayat, 1984), but this research assumed this is not within the normal board role of the UK companies studied (Huse, 2007).

For the purposes of this research board output tasks have been operationalised into the classic three divisions of strategy, control and service (Zahra and Pearce, 1989) which can encompass all the outputs described above (Section 5.3.2).



## **2.8 Governance theories conclusion**

Obviously these theories complement and contradict each other. There is no clear unequivocal empirical support for any of these theories as a stand-alone explanation of board structure and behaviour although they all offer partial explanations. Indeed, governance regulation at least in the UK is still largely based on agency theory (Rejchrt and Higgs, 2015). There have been a number of corporate governance meta-analyses since Zahra and Pearce (1989). Johnson et al. (1996) suggest new lines of research to fill some of these outstanding gaps. For example, they point out that the agency theory assumptions that outside directors will better monitor performance need substantiation. Their review concedes that inside directors may be conflicted in their fiduciary duty given the fact they report to the CEO (Patton and Baker, 1987), but as Fama and Jensen (1983) and Baysinger and Hoskisson (1990) point out without the intimate firm knowledge of inside directors the CEO enjoys considerable information asymmetry. So Johnson et al. (1996) suggest more research on whole boards including inside and outside directors would be appropriate. In their view the role of the outside “independent” non-executive director needs further empirical examination. Institutional investors are actively campaigning to reform boards to increase the proportion of outside directors on boards, but Johnson et al. (1996) point out that we have little evidence as to the effect this will have. The drive for such change may be based on agency theory, but does not necessarily have enough supporting empirical data. Indeed, Dalton and Dalton (2005) analysed 159 studies and found no evidence between the financial performance of firms and the outside director ratio. There is a need to research the specific influences of outside directors. Zellweger and Kammerlander (2015) examined the tensions within family firms from an agency theory perspective and concluded that costs can be increased by the separation of executive oversight, which they term double-agency costs. Daily and Swenk

(1996) surveyed the literature to that date on CEO duality. They point out that there seemed to be a consensus since Pearce and Zahra (1992) that company performance is most effective with a “healthy balance” (Daily and Swenk, 1996, p. 188) between the CEO and board powers. This separation of power is a basic tenet of agency theory and conflicts with stewardship theory. Krause and Semadini (2013) challenge this and offer alternative propositions such as firms in periods of organisational change, or low institutional ownership or low resource dependence requirements will often be found to have positive market value growth associated with a structure giving a high CEO dominance through duality. Daily and Schwenk (1996) argue that there is no consistent empirical evidence that the inside /outside director ratio which of course agency theory would suggest is better biased towards more independent outside directors, will benefit companies. They were able to find some support (Provan, 1980; Boeker and Goodstein, 1991) for the resource dependency theory view that such directors helped access external assets.

Another criticism of agency theory has been proposed, named team production theory (Kaufman and Englander, 2005). These authors also recognise the limitations of traditional agency theory in that it focusses on monitoring management to enhance short term shareholder value even at the expense of longer term firm growth efficiencies. They propose that a deliberate diversity be constructed on a board using stakeholders with specialised skills and knowledge. Kaufman and Englander, (2005, p. 9) describe this as: “a cooperative team to produce new wealth”. It has a clear link to resource dependency theory, but is focussed on diversity of competences. Machold et al. (2011) analysed this team production approach to the determination of strategy using survey data from 140 small company boards in Norway. They describe the board as a mediating hierarch which fosters team production. They found that this model offered a better

understanding of effective board processes than agency theory in harnessing diversity even within a small firm.

Daily et al (2003) take stock of where decades of governance research has brought scholarly understanding. They are critical of the over reliance on agency theory dominating research agenda since it's scope is quite limited and is not well supported by positive financial endpoints in empirical studies. The one exception they note is that board independence may be related to firm performance in avoiding bankruptcies. Daily et al (2003) urge that researchers lose any prejudice in favour of independent governance structures until the value of these are better empirically demonstrated. These authors conclude that firm financial performance may not be the best measure of board effectiveness because of the many confounding variables between board output and this measure. They urge that more attention be paid to board processes (Forbes and Milliken, 1999) although acknowledge that access continues to be a problem. They also urge that board research be based on more than one respondent, usually the CEO, again acknowledging the difficulties. Rejchrt and Higgs (2015) found that non-domestic companies stock exchange listed in the UK were less compliant with governance codes derived from agency theory, if the home culture did not coincide with agency theory principles. They conclude that board behaviour is not completely determined by such codes. Hillman and Dalziel (2003) try to improve the description of the causes of director behaviour and propose that both agency and resource dependency theories are individually deficient. They suggest it is better to integrate these perspectives since directors are expected to both monitor (agency theory) and provide resources (resource dependency theory). This leads them into describing the characteristics of directors as including expertise, experience and reputation, as well as the individual ability to create and exploit relationship networks. This moves us towards examining the differences on

board members in what these authors describe as “board capital”, the sum of these abilities. Minichilli (2009) also calls for the dismantling of the fortress of old ideas relying on explaining board processes and outcomes by reliance on agency theory and demographic inputs. Ben-Amar et al. (2013) looked at superficial demographic diversity in Canadian firms. They used the success of Merger and Acquisition projects as the performance output. They hypothesise that the explanations of agency theory demand statutory diversity to give the theoretical independence whereas resource dependency theory will require demographic diversity to function optimally. They conclude that if boards value demographic diversity it can add value to creative debate, but at increased risk of conflict and decreased commitment. Nicholson and Keil (2007) tried to link board demography with firm performance, hypothesising from the three (agency, stewardship and resource dependency) main extant governance theories discussed above, using in-depth case study analyses, but they failed to establish such links in the majority of cases and concluded (Nicholson and Keil, 2007, p. 599): “there was no clear pattern supporting any one of the predominant theories”. It became clear from their research that a single governance theory is inadequate to describe the relationship between board structure and firm output. Indeed Huse (2007, p. 5) says: “different definitions (of) corporate governance may be seen as a struggle between ideologies”. Nicholson and Keil point out that between the board and corporate financial performance lies “management”, a major confounding variable. Investigations of board performance should therefore take clearly defined board tasks as the dependent output. A number of authors (Adams, 2012; Song, 2013; Starbuck 2014; Heemskerk and Takes, 2016) challenge the relevance of the traditional governance theories in the 21<sup>st</sup> century, and Dalton and Aguinis (2013) suggest ways in which new constructs can be modelled to progress understanding. The corporate governance theories reviewed here predict different board tasks (monitoring and

control based on agency theory; service based on resource dependency theory; strategy based on multiple theories and there is little convincing empirical support for the theoretical predictions that board structure/composition based on governance theories alone can explain variances in board task performance. One explanation for this is that these studies fail to consider the mediating (or indirect) effects of board processes and diversity. There is an emerging stream of research in board processes and behaviours and this requires different theoretical approaches that are capable of explaining: “actual rather than stylised behaviours” (Van Ees et al, 2009, p. 307) and new research designs are called for (Zhou and Rosini, 2015).

Chapter 3 now examines definitions of team processes in business, how these apply to UK boards and whether any of them can mediate board task outcomes. This includes a detailed discussion on input demographic diversities and why this still may not fully explain variations in board task performance.

## **CHAPTER THREE**

### **THE INPUTS AND PROCESSES OF THE BOARD TEAM**

#### **Literature Review part 2**

### **3.1 Introduction**

The governance theories described in the previous chapter outline the key performance tasks of a board as identified in the extant literature. The present chapter is primarily concerned with the literature that attempts to define the key processes that can mediate between inputs and the tasks defined in Chapter 2, including the issue of what type of inputs cause variances in the processes and outputs. Prior research into board behaviour has sought to establish how teams perform and which demographic input variables may influence task performance (Hambrick and Mason, 1984; Ancona and Caldwell, 1992). These variances in demographic inputs have been used to attempt to explain variances in the task outputs (Pfeffer, 1983; Pettigrew, 1992; Hermalin and Weisbach, 2003; Rani et al., 2013; Bedard et al; 2014). To that end, a number of conceptual models have sought to explain the link between three broad constructs: inputs (size, composition, demographics, personality profiles); mediators (group processes and behaviours) and team task outcomes (financial control, managerial oversight, external services, strategy input and approvals). For example, Forbes and Milliken (1999) developed a widely cited theoretical model of board processes that has defined the argument and is reviewed in Section 3.2. below.

After describing the input-process-output model (Section 3.3) the relationship between board team structures and demographics, team processes and team performance are explored, referencing Hambrick and Mason's (1984) upper echelon theory. This approach focussed attention on demographic diversity at the top of companies, including the team of directors. The governance theories reviewed in Chapter 2 took no cognisance of the individual differences between directors. Upper echelons theory does this and is examined in detail below and its limitations regarding explaining variations in output are discussed. It is suggested that these

surface measures are in practice simply surrogate markers of deeper personality diversity as described later in Chapter 4.

### **3.2 Boards as Teams**

UK public companies are required by law (Companies Act, 2006) to establish a board of directors consisting of more than one person, i.e. to be a group<sup>15</sup>. Such multiple director boards are clearly business groups which may or may not function as a team. Mullins (2005, p. 1055) defines this type of business team as: “any number of people who interact with one another, are psychologically aware of one another and who perceive themselves as being in a group”, a conceptualisation which is derived from the work of Schein (1988, p. 153) who states that: “Groups are important in organisations because of their potential for fulfilling both critical organisational and psychological functions”.

It is commonly accepted (Buchanan and Huczynski, 2004; Mullins, 2005; Rollinson, 2005) that groups are an essential organisational phenomenon within companies and most business processes are operated through them. Schein (1988) describes the functions of groups in commercial organisations as including means of working on complex, interdependent tasks; generating new ideas or creative solutions; acting as a problem-solving mechanism; facilitating the implementation of complex decisions; fulfilling affiliation needs; enhancing and maintaining self esteem, and finally, reducing insecurity, anxiety and any sense of powerlessness.

There is a lack of clarity in the literature about how “teams” differ from other business groups and no generally accepted universal meanings of the terms have emerged (Rollinson, 2005).

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<sup>15</sup> Only such public and private companies with at least three directors are included in this research project, it being proposed that two or less directors fail to make a team and cannot be sufficiently diverse to test the hypotheses.



Adair (1986) describes a team as a type of group that is highly task-orientated. Cohen and Bailey (1997) in their review of “team research” published from 1990 to 1996, emphasise the increasing recognition of the importance of effective teams to the economic success of companies. Cohen and Bailey (1997, p. 241) specifically define a business team as:

“ a collection of individuals who are interdependent in their tasks, **who share responsibility for outcomes**, who see themselves and who are seen by others as an intact social entity embedded in one or more larger social systems”. (bold emphasis added)

Clutterbuck (2007) reviews the work of other scholars (Hackman, 1990; Katzenbach and Smith, 1993; Thompson, 2000) and offers a definition of team characteristics which is more specific than the (typically generic) group definition. Clutterbuck claims that a group becomes a team when it accepts mutual accountability and is committed to a common process. The team will also exhibit commitment to the same performance goals, i.e. the same measurement of outcomes.

Buchanan and Huczynski (2004, p. 880) define a team as:

“a psychological group whose members share a common goal which they pursue collaboratively. Members can only succeed or fail as a whole, and all share the benefits and costs of collective success or failure”.

A common aspect of the above definitions is that membership of groups and teams has strong psychological implications (Rollinson, 2005; Higgs 2006a; Abatecola et al., 2011) and their business utility analyses are based on using these psychological processes to facilitate the bringing of multiple viewpoints to an issue. However, the team needs to be able to engage in cognitive conflict (Forbes and Milliken, 1999) as defined below, requiring conformation with group behavioural norms (Rollinson, 2005). Cohen and Bailey (1997) suggest that group psychology such as adherence to such behavioural norms, directly influences outcomes through shaping internal processes. Druscat and Wolff (2001), in developing their argument for the value

of team emotional intelligence suggest that the benefits of such group norms enhance group effectiveness.

Although much of the relevant literature suggests that teams can outperform individuals, not all authorities share this view. For example, Higgs (2006a) questions whether the assertion of Katzenbach and Smith (1993) that it is obvious that teams will outperform individuals is borne out in the literature. Higgs asserts that the common assumption that the case for team-working is already proven is erroneous or: “at the best questionable” (Higgs, 2006a, p. 162) and quotes West and Slater (1995, p. 24) who comment that whilst such assumptions regarding the value of teams is plausible they are: “difficult to demonstrate”. Higgs argues that further work is needed to establish the benefits of team work. Katzenbach and Smith maintain that a group becomes a team when it holds itself accountable as a team rather than individually, although the phenomenon they describe as: “ingrained individualism” (Katzenbach and Smith, 1993, p. 60) can discourage team members from accepting responsibility for team performance. Geneen, the CEO who built ITT, believed that he ran the ITT management as a “team” (Geneen, 1985) although his use of the term “team” is remarkable since it consisted of an average of 120 top managers, including most of the subsidiary managing directors. This group met monthly, from 10 in the morning to midnight and he describes a process which, at least in his mind, encouraged cognitive conflict.

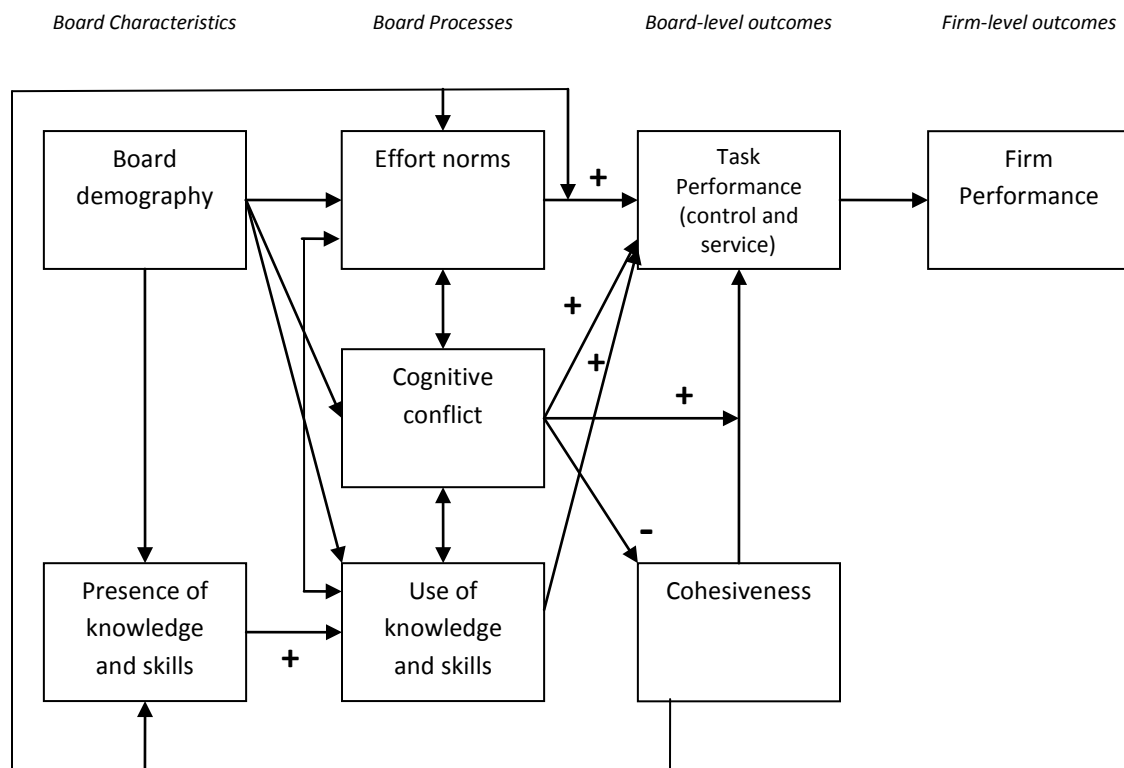
Katzenbach and Smith (1993, p. 12) suggest that teams can be first classified as being a group that either: (i) recommends things; (ii) makes or does things; (iii) manages things. Clearly the function of boards mainly fall in the third category since their role focuses on the stimulation, receipt and review of senior management recommendations (Mace, 1986). The key team factor that may apply to company boards in particular is the acceptance of shared responsibility for

outcomes (Mankin et al., 1996; Forbes and Milliken, 1999; Belbin, 2004; Monks and Minow, 2008). Forbes and Milliken (1999) were the first authors to formally make the argument that boards should be studied as teams. In this context the authors developed a theoretical model of US board processes shown in Figure 3.1 below that described two outcomes;

1. Ability to continue to work together, i.e. “cohesiveness” leading to improved:
2. Board task performance

These concepts are distinct from, although contribute to, the final outcome of firm performance

**Figure 3.1 Hypothetical Model of Board Processes and Their Impacts on Board Effectiveness** Forbes and Milliken, (1999 p. 498)



Note: this figure illustrates the model proposed by Forbes and Milliken to explain the relationship of board characteristics, processes and outcomes.

Forbes and Milliken propose that board demography and knowledge as well as skill inputs are mediated by board processes of effort norms, cognitive conflict and use of knowledge and skills.

Forbes and Milliken's (1999) paper emphasized the importance of cognitive processes to board function and inspired a new direction of research. They built on the work of Pettigrew (1992) and suggested that more research was needed on board processes since the more parsimonious approach suggested by Pfeffer (1983) of using demographic input variables to explain variations in output had failed. Their model emphasized the key role of cognitive conflict as a process. They defined board director demographic diversity in terms of different tenure, board size, educational, functional and industry background. Forbes and Milliken stress the need to research the causes of behaviour differences. They describe key processes which they suggest if studied should better explain variations in board task performance than surface demographic inputs alone.

Forbes and Milliken (1999) point out that boards differ from other top management teams (TMT) in that boards do not have to implement the strategies they approve, only monitor progress and hire, fire and remunerate the CEO and TMT (Fama and Jensen, 1983). According to Forbes and Milliken their output is mainly cognitive and also normally confined within the board meeting. The TMT term was first used by Cyert and March (1963) and later defined by Wiersema and Bantel (1992, p. 91) as the: "dominant coalition of individuals responsible for setting firm direction".

In some companies there may be a management TMT that vies for power with the board (see discussion of agency theory above (Section 2.3). Huse (2007) clearly differentiates the executive TMT as a separate team below the board, although executive directors may be in both teams

acting with different briefs and consequent contingent identities. Despite the rare occasions when they might recommend to, rather than direct management, boards are regarded by some authors (Hambrick and Mason, 1984; Wiersema and Bantel, 1992; Rindova, 1999) as the most senior company TMT. As noted above, there is some disagreement as to whether boards can be considered as TMTs (Clutterbuck, 2007), but they do at least overlap via executive directors and share common characteristics. So whilst the term TMT is capable of various interpretations, the TMT literature has some general application to boards.

The legal responsibility for the direction of a UK company resides with the whole board of directors including the TMT executive directors who take on this responsibility above their day to day management roles (Stiles and Taylor, 2002; Huse, 2007; Mallin 2007; Kakabadse and Kakabadse, 2008). It may often be that the board and TMT include the same team of people and the differentiation can be somewhat blurred. Katzenbach and Smith (1993) draw a number of conclusions about how TMTs should be managed to optimise results, the most important being the need to create a demanding performance challenge without which they assert such teams will fail. Given that their propositions are based on their observations of case study examples and that they readily admit have not been subjected to statistical analysis, they are nevertheless able to point at some preliminary understandings of team dynamics. These will need to be confirmed by more rigorous testing, but in summary they offer guidelines that the team should be small enough in number, should have adequate levels of complementary skills and should have a truly meaningful, challenging performance purpose with specific goals (Katzenbach and Smith, 1993, pp. 62-63).

This premise that the board is a team does depend upon the board working together in the board room with executive and non-executive directors sharing experience without fear or the effects

of patronage. A number of authors query whether this ideal is usually obtained (Mace, 1986; Westphal and Khanna, 2003; Wighton, 2009). Stiles and Taylor (2002, p. 113) somewhat sceptically state: “Given that the board meets infrequently, the likelihood of a team developing within the board is small”. However, it is commonly assumed (Cohen and Bailey, 1997; Forbes and Millken, 1999; Misangyi and Acharya, 2014) that boards function or try to function as a business team. Table 3.1 below summarises the defining characteristics of teams, as used in the extant literature reviewed above, and draws out their applicability and relevance to UK company boards.

**Table 3.1 Ten Team forming Characteristics and the relevance to UK Company Boards**

Team Characteristic	Author(s)	Application to a UK company board
1. Acceptance of mutual accountability and interdependence.	Cohen and Bailey (1997) Katzenbach and Smith (1993) Cadbury (1992) Hackman (1992)	Legally prescribed (Cadbury, 1992). “ <i>All members share responsibility for quality of the final output</i> ” (Cohen and Bailey, 1997, p241) which applies to UK Co. boards (ICSA, 2007).
2. Acceptance of a demanding performance challenge as a common goal.	Stiles and Taylor (2002) Thompson (2000) Katzenbach and Smith (1993) Hackman (1992)	Complex issue on board because of possible ingrained individualism of senior people, especially the CEO (Katzenbach and Smith, 1993). The board though, is generally held as responsible for accepting and challenging management’s business plans (Stiles and Taylor, 2002, Huse, 2007).
3. Disciplined action to shape a common purpose.	Clutterbuck (2007) Higgs (2006a) Stiles and Taylor (2002) Katzenbach and Smith (1993)	Boards are disciplined groups, with fiduciary responsibilities to the shareholders (Cadbury, 1992). The UK board functions are tightly regulated and the principles of the common purposes are legally defined in the 2006 UK Co. Act (ICSA, 2007).
4. Managing and exploiting conflict.	Runde and Flanagan (2008) Clutterbuck (2007) Forbes and Milliken (1999) Katzenbach and Smith (1993)	Boards need to minimise affective (relationship) conflict whilst encouraging cognitive (task) conflict (Forbes and Milliken, 1999; Stiles and Taylor, 2002; Zona and Zattoni, 2007; Minichilli et al., 2009).
5. Trust among members.	Druscat and Wolff (2001) Lewicki et al. (1998) Leavitt and Lipman-Bluman (1985)	Board needs intramember trust to manage cognitive conflict (Huse, 2007). There are dynamic tensions on board between trust and distrust (Stiles and Taylor, 2002).

<b>Team Characteristic</b>	<b>Author(s)</b>	<b>Application to a UK company board</b>
6. Sense of group identity.	Stiles and Taylor (2002) Cohen and Bailey (1997) Katzenbach and Smith (1993)	Relevant to board's external image including to shareholders in the financial community (Chitayat, 1984, Johnson et al., 1996; Zona and Zattoni, 2007).
7. Development of team skills through team learning.	Clutterbuck (2007) Higgs (2006b) Garratt (2006) Edmondson et al. (2001) Katzenbach and Smith (1993)	It adds to board cohesiveness to learn together (Forbes and Milliken) creating an "organisational memory" (Huse, 2007) and training for all directors is required by governance codes (UK Corporate Governance Code, 2014; Mallin, 2007).
8. Establishment of Team Emotional Intelligence .	Druscat and Wolff (2001)	Needed to facilitate decision making behaviour norms (Higgs and Dulewicz, 1997).
9. Establishment of group norms of behaviour.	Forbes and Milliken (1999) Cohen and Bailey (1997)	This includes group psychosocial traits (Cohen and Bailey, 1997) and a board cannot function properly without establishing them and consequent effort norms (Forbes and Milliken, 1999; Zona and Zattoni, 2007).
10. Heterogeneity/ homogeneity balance.	Porteous (1997) Hambrick and Mason (1984) Follett, House and Kerr (1976)	It is debated whether the multiplicity of skills offered by heterogeneity (Higgs, 2006a) is more advantageous for a board than the harmony produced by homogeneity (Stiles and Taylor, 2002; Abatecola et al., 2011).

Note: This table links key "team" characteristics in the literature with the literature describing the needs of such characteristics on company boards.

Characteristic No. 10, the heterogeneity / homogeneity balance is related to the key research question of this thesis which is further explored below (Section 3.3.2).

Having defined teams, and highlighted the relevance of team research to the study of boards, the following section will review research into team inputs, processes and task performance outputs.

### **3.3 Input, process and output**

Hermalin and Weisbach (2003, p. 12) conclude that the board characteristics (input) cannot be directly correlated with firm performance, but that an understanding of "board actions", which are equivalent to Lawrence's (1997) black box of mediating processes, are necessary to explain

the board's effect on outcomes. This more complex view contradicts the earlier view of Pfeffer (1983) who argued against researching processes since such work violated the rules of parsimony. Pfeffer maintained that analysing complex interactions of process variables added little to the variation in dependent variables that demographic factors could not explain; and that the latter had the virtues of predictive power, comprehensibility and testability. Hermalin and Weisbach (1991) though describe a number of possible spurious relationships between board composition and performance by showing that poor performance can lead to changes in board composition and replacement of executive directors with non-executive directors. As Hermalin and Weisbach (1991, p.103) point out a subsequent regression might erroneously: "find that outside directors caused poor firm performance" thus challenging the direct relationship of current demographic inputs to past board task output. Thus poor performance (of the CEO and firm) can lead to more independence of board action, without necessarily changing the demographics of the board team. In this way "company performance" can itself become an independent variable effecting board task output. This is the problem of endogeneity.

Pfeffer's view has been widely contested (Lawrence, 1997; Forbes and Milliken, 1999). Pettigrew (1992, p. 169) described the results of studies which try to correlate demographic inputs directly with outputs as: "fragmented and largely nonadditive". Also (Pettigrew, 1992, p. 171):

"Great inferential leaps are made from...board composition to... board performance, with no direct evidence on the processes and mechanisms which presumably link the inputs to the outputs"

Hermalin and Weisbach (1991, p. 111) conclude after rigorous statistical analysis: "there appears to be no relation between board composition and performance".



Pettigrew (1992, p.170) accepted that behavioural or interview studies were more difficult because of restricted access and that questionnaires generally had a low response rate, but despite the easier collection of demographic data he concluded that: “the assumed effects of board demographic characteristics on board effectiveness is very difficult indeed to establish” .

### 3.3.1 IPO models

The Input-Process-Output model was suggested by Gist et al. (1987) for business teams in general. Various models have built on this theme, as now described below.

Dulewicz, Macmillan and Herbert (1995) conducted a study commissioned by the Institute of Directors, questioning over 1,000 UK directors. It provides a useful framework for further research. They classified board work into;

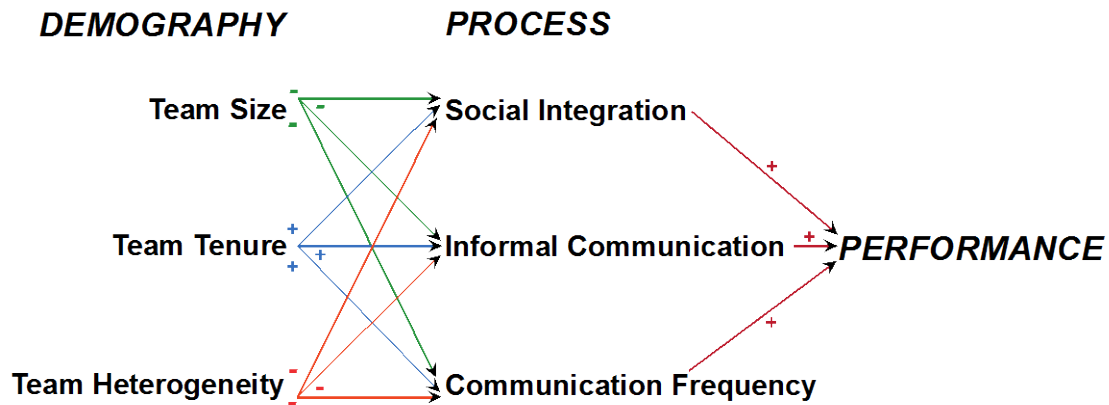
1. **Input** i.e. personal competencies and knowledge
2. **Process** i.e. organising and running the board
3. **Tasks** specifically;
  - a) establishing vision, mission and values
  - b) devising corporate strategy
  - c) supervising management
  - d) exercising responsibility to shareholders and other stakeholders.

Smith et al. (1994, p. 417) had attempted to model these factors as shown in Figure 3.2 into processes including conformity, consensus and conflict which they included under the heading of “social integration” and “communication” that is both degrees of informal communication and frequency of planned communication.

Figure 3.2

The Intervening Model

Smith et al., (1994)

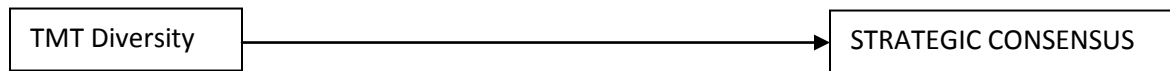


Note: this figure illustrates Smith's hypothesis that team size and heterogeneity have negative effects and tenure a positive effect on the board processes that have a positive effect on performance.

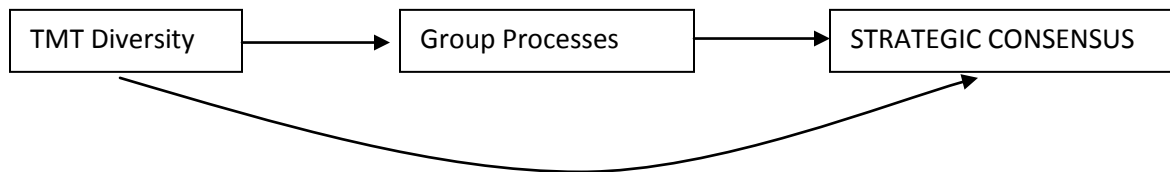
Knight et al. (1999) using strategic consensus as a typical output and building on the earlier work of McGrath (1984), constructs three models of TMT work with team diversity as the input, the direct effects model, the partially mediated and the fully mediated. Their findings are illustrated below in Figure 3.3. Both IPO models underline a useful way to analyse board functioning into three headings, input such as size and diversity, task outputs and the mediating group processes in between.

**Figure 3.3 Model of Mediation of diversity on Strategy Knight et al. (1999)**

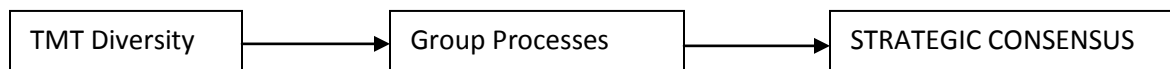
**1. Direct Effects Model**



**2. Partially Mediated Model**



**3. Fully Mediated Models**



Note: this figure illustrates the Knight et al. model that TMT diversity effects strategic consensus either directly or can be mediated through group processes.

In all these models we typically have three broad constructs - inputs (size, composition) (Hambrick and Mason, 1984; Norburn, 1986), mediators (group processes and behaviours) (Forbes and Milliken, 1999; Zona and Zattoni, 2007) and team outcomes (variously defined as “strategic consensus” (Knight et al., 1999); “board roles” (Zahra and Pearce, 1989); “board tasks” (Forbes and Milliken, 1999); “propensity for risk taking” (Guthrie and Datta, 1997) or “firm performance measures” (Hambrick and Mason, 1984; Hermalin and Weisbach, 1991; Guthrie and Gatta, 1997).

Smith et al. (1994) examined the assumptions on links between demography of TMTs and process. Smith et al. (1994, p. 412) defined demography in terms of heterogeneity, tenure and

size, whilst process: “concerns the team’s actions and behaviours, such as communication, and psychological dimensions, such as social integration.”

In contrast to Wan and Ong’s later study (2005), Smith et al. (1994) first concluded that demography could affect process; length of team tenure for example might be a proxy for cohesion. Wan and Ong (2005) were unable to demonstrate a relationship between board structure, process and output. In their study of 212 Singapore companies they concluded that board process does not mediate the relationship between board structure and performance. But their definition of structure was very limited and insufficiently defined. They confined it to two measures, the proportion of non-executive directors and CEO/chair duality. No other input demographics or personality factors were considered. Not all authors agree and the case for the mediating effects of processes is more generally accepted (Buchanan and Huczynski, 1997).

It is now necessary to provide a fuller discussion of demographic input, mediating processes and the factors that create variations in process separately to understand explanations of the variations in board task performance. This is now discussed this in more detail in Sections 3.3.2 (inputs) and 3.3.3 (mediating processes).

### **3.3.2 Specific board team inputs**

Forbes and Milliken (1999, p. 490), echoing Katzenbach and Smith (1993) point out that the first principle of the board organisation itself is: “rooted in the wise belief that effective oversight of an organisation exceeds the capabilities of any individual”.

Forbes and Milliken also maintain in their model that diversity of board demography is a significant predictor of board behaviour in process. It includes the following;

- a) Diversity, financial, industry and educational which can enhance knowledge and skills, but at the risk of lower cohesiveness and increased dysfunctional conflict because of weaker psychological ties.
- b) Proportion of outsiders (non-executives). As discussed above, inside (executive directors) may view board responsibility as merely an extension of their managerial roles, especially in the presence of a strong CEO. Forbes and Milliken assume more outsiders means more cognitive conflict from free thinking, but reduced firm knowledge and lower cohesiveness.
- c) Board Size. Larger boards could mean more knowledge and skills on the board, but more cognitive conflict and more difficulty in using knowledge and skills because directors must compete for attention.
- d) Board Tenure. Longer tenure could mean a higher level of firm knowledge and skills and higher cohesiveness, but lower cognitive conflict to bring multiple mind solutions to challenge.

An important stream of research has been stimulated by Hambrick and Mason's (1984) upper echelon theory which focussed attention on demographic diversity at the TMT level of companies. Hambrick and Mason (1984, p. 193), later endorsed by Wiersema and Bantel (1992), describe the top management team (TMT) as: "the dominant coalition of the organisation" in which they include the board. Upper echelon theory (Hambrick and Mason, 1984) attempts to analyse probable strategic company outcomes by the demographic profile of this senior team. They claim the demographics of input will define process and therefore output. Hambrick and Mason (1984, p. 196) use the demographic characteristics as observable surrogates for

psychological data because: “top executives probably are quite reluctant to participate in psychological batteries”.

These assumptions do though open their work to criticism since the dependent link between the demographic characteristics such as age and for example propensity to embrace innovation and risk are hypothesised, but not well demonstrated. Hambrick and Mason (1984) suggested that a TMT member’s cognitive base may limit their field of vision which will result in selective perception. Hambrick later (2007, p. 334) specifically includes the “personalities” of executives along with their “experiences and values” as potentially determining the basis for their interpretations of strategic issues.

The upper echelons theory thus argues that there is a causality between team member demographics and organisational outcomes. In particular, Hambrick and Mason hypothesise from reasoning and observation for example that;

**Age** of the team members will be inversely associated with risk taking and volatility of sales and earnings. They base this on their belief that older team members will be less able to grasp new ideas, learn new behaviours and will have a greater psychological commitment to the status quo. This belief in the psychological association with age remains relatively untested although Yamack and Uskdiken (2006) offer evidence from Turkey that younger executives in the sub-board TMT with shorter tenure were positively associated with superior adaptation to new export liberalisation (Yamack and Uskinden, 2006). There is also some evidence offered by Guthrie and Datta (1997, p. 540) when they re-visited 214 US CEO selection decisions and concluded that: “age can be viewed.... as a signal of a person’s propensity for risk-taking and change”.

They found a negative relationship in their data between sales growth and CEO age, but accept that this may reflect the views of the appointing boards and also maybe the career company preferences of candidates and is not a prospective proof of a causative association. In their review Milliken and Martin (1996, p. 408) conclude:

“research on the effects of age-related diversity on cognitive outcomes suggests that there are few, if any, significant affects of age heterogeneity in top management groups” .

Belbin (2010) reports, that in his experience of testing development candidates in industry with his team role questionnaire that experienced managers stand out as decisive, and young graduates tend to be indecisive and less confident.

Certainly the data are mixed and the proposition remains unproven.

**Functional Track**, i.e. the work experience of the team members as they rise to the TMT. Hambrick and Mason (1984) propose that marketeers and product researchers will cause the team effort to emphasise product innovation, firm diversification and forward integration more than say, plant automation, investment in capital equipment and backward integration. They also posit that top team members who rise through peripheral functions such as legal or finance will tend to create administrative complexity. Milliken and Martins (1996) suggest that functional diversity may facilitate better external links to access information, but may in consequence also suffer “process losses” which are less likely amongst less functionally diverse teams. They also note (Milliken and Martins, 1996, p. 410) that empirical research on this topic tends to: “focus only on the question of whether functional diversity provides any cognitive advantages”. Ancona and Caldwell (1992) claim that functional diversity has a negative effect on internal innovation within a team, but a countervailing positive effect on external innovation through increased

external communication. In contradiction though, Glick et al. (1993) found that functional diversity increased the frequency of communication in a team. Milliken and Martins (1996, p. 411) cite an unpublished paper presented by Korn et al. (1992) that more functional diversity was associated with a better return on assets in the furniture industry, but not in computer software:

“This finding suggests that functional diversity in management teams may add value in dealing with environmental complexity, but it may not add value in coping with environmental volatility”.

Haleblian and Finklestein (1993) found a marginally significant negative relationship between functional diversity and company performance for companies in the computer industry, but not in the natural gas industry. Cohen and Bailey (1997, p. 272) point out that Bantel (1994) and Lant (1992):

“both contend that functional diversity will influence strategy formulation through it’s effect on the diversity of perspectives..... resulting in a greater search for options to resolve disagreements and the generation of more novel ideas”.

Norburn (1986) investigated the characteristics of directors of large UK companies, and divided them into industries in growth, in turbulence and decline and looked for evidence of differences using the tenets of upper echelon theory. He found that the major functional director experience did vary according to these industry situations: growth being most closely associated with international experience, decline with a production career track and turbulence with marketing. This study is now somewhat dated and should not be extrapolated too far into the post IT industrial revolution, but gives an interesting insight to where British company directors’ career skills positioned them on boards in the past.

**Time within organisation.** Hambrick and Mason (1984) speculate that TMT members with longer inside careers will have a more restricted knowledge base and be less able to adapt to



change. This, they claim could have a negative effect on the profitability of companies facing severe environmental discontinuities. Guthrie and Datta propose tenure in a company as: “a proxy for cognitive rigidity in top managers” (Guthrie and Datta, 1997, p. 539). They found though that higher profitability was more likely to result in a propensity to appoint new CEOs with longer firm tenure, the directors preserving the status quo. The opposite was also observed with low profitability tending to create change. Wiersema and Bantel linked the initiation of strategic change with TMTs characterised by lower average age, shorter firm tenure, higher team tenure and higher academic training (Wiersema and Bantel, 1992). Wiersema and Bantel, (1992, p. 96) though refer to Hambrick and Mason (1984) as evidence in turn that: “demographic heterogeneity represents diversity in a team’s cognitive bases”. They were able to demonstrate a statistically significant regression between age, shortness of organisational tenure, length of team tenure and higher science training with their model of strategic change which suggests that there might be a correlation of these specific measurable demographics with their chosen studied output.

**Education.** Hambrick and Mason (1984) suggest that the educational history will be a surrogate marker of a person’s values and cognitive preferences. They propose that the amount (but not the type) of formal education in a TMT will be positively associated with innovation, even though they (Hambrick and Mason, 1984, p. 201) later argue that MBA graduates are likely to be less innovative than less well educated “self made” executives. Mintzberg (2004) doubts whether the MBA degree, which he traces back to 1908, has equipped managers with the necessary business skills to manage risk rather than analyse and reduce it. The empirical evidence for Hambrick and Mason’s proposition is scarce, but Norburn (1986, p. 111) found at that time that: “no particular flavour of secondary

education appears to relate to industry economic performance”. He found no evidence of MBA qualifications clustering in the boardrooms of companies in growing or turbulent industries, but concedes that in 1986 the first UK graduates from 1967 may not have had time to “make their mark”, given the average tenure of the directors in his study (19 years). Wilson and Harris (2006) in their survey of the UK Institute of Directors found that 61% of IoD members believed that education to degree level and management qualifications help to make an individual a better director.

**Socioeconomic Background** Hambrick and Mason (1984) argue that the paucity of studies linking socioeconomic background with senior management outcomes is due to the apparent high degree of homogeneity among the socioeconomic background of directors. They quote Burck (1976) who found then that almost all executives of major US firms were male, white, protestant and supporters of the Republican political party. In contrast Channon (1979) found UK successful entrepreneurs to be likely to have humble origins, moderate education and unconnected to prestigious London clubs. He found large professionally run firms to have the opposite demographic executive profile.

These studies though too are dated and as noted above the UK world of business has changed a great deal in the 21<sup>st</sup> century. This did not prevent Hambrick and Mason proposing at the time that firms whose top managers came from lower socioeconomic groups would tend to pursue strategies of acquisition and achieve greater growth. The empirical evidence for this proposition is sparse.

**Financial position** Hambrick and Mason (1984) postulated that despite agency theory, non-owner executives will work just as hard for the success of the enterprise as owner-managers,

pointing out the increased risk of losing employment for poor performance in the former group. They (Hambrick and Mason, 1984, p. 202) quote Masson (1971):

“that managerial aspirations are due less to the proportion of a company’s shares owned by management than to the proportion of the manager’s income that is derived from the firm”

and make this their proposition. Empirical evidence for this seems to be scarce and Dalton and Dalton (2005) found no correlation between corporate governance “best practices” and firm financial performance including specifically (Dalton and Dalton, 2005, p. S93): “no evidence of a relationship between CEO, executive or board member equity holdings and firm financial performance”.

Brossy (1986, p.40) found that in the US, at that time, many directors they surveyed did not believe that owning stock options were an important influence on CEOs and Brossy concludes that: “stock option compensation plans do not have clear objectives and are probably ineffective in achieving any one purpose”.

A recent governance code in the UK (UK Corporate Governance Code, 2014) requires the board to state its reasons for considering a director as independent if that director participates in the company’s share option scheme since participation would normally be held to compromise that position and non-executive directors should not be remunerated with share options. Conversely it states that executive directors’ performance related remuneration, including options should be a significant proportion of the total to align their interests with those of the shareholders, which accords well with agency theory.

**Heterogeneity** Hambrick and Mason (1984) proposed that heterogeneity of many of the above factors was more likely to be positively associated with profitability in turbulent, discontinuous environments when conflict on the board, say caused by differences in tenure,

will be of benefit. At other times homogenous top management will favour speed of decision making and therefore profitability. Wiersema and Bantel (2000) claim that demographic homogeneity will enhance communication and improve task outcomes. This fundamental issue of whether personality homogeneity is positive to outcomes will be further explored below (Section 4.3).

Knight et al. (1999) researched by interview and questionnaire the CEOs and another TMT member of 76 high technology firms in the US and Ireland to investigate the effects of demographic heterogenic diversity on group process and strategic consensus, as surrogates for successful TMT task outcomes. They concluded that whilst the literature indicates that diversity can lead to increased conflict (Wagner et al., 1984), loss of cohesion (Katz, 1982) and quality of communication (Smith et al., 1994) and that whilst their results confirm that the effects of demographic diversity on consensus are negative, overall the effects were not strong. Only when they factored in the two mediating process variables of interpersonal conflict and agreement seeking were strong correlations with strategic consensus found.

Such heterogeneity was found by Ancona and Caldwell (1992) to have negative effects on performance, possibly because disparate individuals are difficult to coordinate and control in a TMT and that team size was negatively correlated with performance because of the increased difficulties in achieving consensus with increasing group size. This is despite the presumption that a larger team will have more cognitive resources available (Peteraf, 1993; Daily and Schwenk, 1996; Daily and Schwenk, 1996; Barney, 2001). Smith et al. (1994) predicted that heterogeneity would slow decision making, but were unable to demonstrate this in their studies. Zahra and Pearce (1989, p. 311) review the previous studies that predicted size of the board was positively related to financial performance, and speculated that this could be due to: “diverse

educational and industrial backgrounds.....with multiple perspectives that improved the quality of actions”.

In addition, larger boards would under the tenets of resource dependence theory have more external relationships. A larger board, it was assumed would also usefully dilute the dominance of the CEO. Zahra and Pearce accept though the probability of a “U” shaped non-linear relationship between size and task performance. Hermalin and Weisbach (2003) refer to the work of both Lipton and Lorsch (1992) and Jensen (1993) and suggest that large boards will be less effective because of free-riding, tending to make large boards more symbolic than active. There seems to be no common agreement on what the (smaller) optimal size might be. In the review of their meta-analysis of 131 studies over 40 years, Dalton and Dalton (2005, p. S95) concurred that larger boards offer: “more resources and networking opportunities” and found in contrast that: “larger boards are in fact associated with higher firm performance”. They conclude that an effective board represents an appropriate skill balance and discount the trend towards correlating this with “independence”. Thus size may be less important than constructing a team of contributing directors who have sufficient surface heterogeneity to bring multiple viewpoints to an issue and enjoy a process that allows them to do it.

Hambrick and Mason (1984, p. 203) refer to all these propositions as a “preliminary statement”, and however intuitive for the time, they agreed that empirical research was needed to confirm them. These propositions based on demographic diversity were useful in highlighting that the processes and output performance of a TMT are likely to be constrained by personality factors, but all suffer in being unproven surrogates for assumed various personality traits. Pettigrew (1992, p. 175) cites Lawrence (1991, p. 21) that focussing on such demographic analyses:

“move (s) researchers further and further away, both empirically and theoretically, from the actual mechanisms underlying observed relationships”.

Murray (1989) examined top management group homogeneity and heterogeneity, looking for enhanced performance for homogenous management in a stable environment and less in an unstable. His hypothesis was that homogenous groups would enjoy enhanced interactive communication. The hypotheses were only partially supported, but the diversity parameters of age, tenure and educational background were superficial. Indeed, more recently when comparing Italian and Norwegian boards, Minichilli et al. (2012) found that differences in the usual board demographics had limited measurable impact on board task performance. These conclusions were reached after extensive surveys and multiple regression analyses. They concluded that the key processes of effort norms, use of knowledge and skills and cognitive conflict (Forbes and Milliken, 1999) were much more important predictors of outcomes. This discussion of heterogeneity v.s. homogeneity is concluded in Chapter 4 after the review of the literature on deep personality diversity.

Lawrence (1991) argued for research into the “black box” between input and output variables which will be replete in social psychological processes, albeit more difficult to investigate. She (Lawrence, 1997) challenged the “assumption of congruence” that link demographic characteristics with behaviour traits.

### **3.3.3 Specific board team processes**

Smith et al. (1994, p. 428) tested the hypotheses of their model (Figure 3.2) by questionnaire generated data from 53 US high-technology firms and concluded that: “team demography does not add explanatory power to the sales growth model, but that team process does”. Thus, at least

in the US companies they studied and using sales growth for example as a performance parameter, they demonstrated the importance of examining TMT process rather than demographics to understand the difference in outcomes of teams. In their model team heterogeneity has negative effects on social integration, informal communication and communication frequency and through these mediators a negative effect on performance.

The model developed by Forbes and Milliken (1999) defined key processes as effort norms, cognitive conflict and the use of knowledge and skills. Smiths et al.'s model of social integration would seem to be analogous to Forbes and Milliken's cohesiveness, which they choose to describe as an outcome. In the Forbes and Milliken model cohesiveness is negatively affected by cognitive conflict, but does not itself feedback to influence that conflict. It may be however, that a degree of cohesiveness is needed to facilitate cognitive conflict and prevent it becoming affective conflict (O'Reilly and Caldwell, 1985; Mooney et al., 2007; Runde and Flanagan, 2008).

Katzenbach and Smith (1993) argue that it is normal for all teams to struggle to become high performance teams. This implies that it is normal for teams such as boards to fail to achieve optimum effectiveness and not to use the full potential of the combination the team offers. If this is normal, it raises the question why and what factors prevent optimal processes and therefore optimal outputs. Simon (1957, p. 241) offers two potential mechanisms which interfere with that potential ideal. In his discussion of the administrative decision making processes he introduces the concept of bounded rationality: "behaviour is determined by the rational and irrational elements that bound the area of rationality".

Directors are charged with selecting strategies which evolved in early economic theory from an examination of all feasible alternatives. In practice, the board will base its decisions on fragmentary knowledge. Simon (1957, p. xxiv) claims this is acceptable only because: “human beings satisfice because they have not the wits to maximise”. Mullins (2005) describes this as the normal acceptance of satisfactory rather than optimal results and contrasts this with the economist’s model of rational behaviour based on unbounded rationality. Huse (2007, p. 138) goes as far as to argue that satisficing is: “used as the guiding principle for decision-making”. Hendry (2002; 2005) raises the issue as “honest incompetence” which he argues is the real genesis of agency theory and occurs because the world of business is actually confused, uncertain and unpredictable. As he states (Hendry, 2005, p. S58):

“Nobody with any knowledge of business would suggest that all managers are equally competent or that any managers can infallibly achieve their objectives.....managers have to operate in complex situations with limited knowledge and foresight and within irreducible limitations of rational understanding”.

Thus it should not be assumed that boards will spend time searching for optimal business solutions, but will tend to accept a satisfactory result and move on. This will be seen as “practical” within the resource limits, including time, of a board meeting.

Huse (2007, p. 210) opines that:

“Board effectiveness is likely to depend on socio-psychological processes, in particular those processes leading to group participation, the exchange of information, and critical discussions”.

In contrast Mace (1986) had described US directors of earlier decades as tending to be less proactive than they should be and often no more than a symbolic token of authority used by the US CEO to legitimise his/her decisions. There are clearly mixed observations of board processes.



A number of authors describe the TMT and board processes from observational studies and/or reasoned hypotheses (Mace, 1986; Hambrick and Finkelstein, 1987; Katzenbach and Smith, 1993; Hambrick, Goffe and Jones, 2000; Finkelstein and Mooney, 2005; Hambrick, 2007). There seems to be little statistical analysis of UK director team performance dynamics to date other than the Dulewicz, Macmillan and Herbert's (1995) IoD study and the later re-analysis of these data for emotional intelligence factors (Dulewicz and Higgs, 2003).

### **The Three Key Cognitive Board Processes of Forbes and Milliken (Effort Norms, Cognitive Conflict and Use of Knowledge and Skills)**

#### **3.3.3.1 Effort norms**

According to Scarborough, effort norms are the (2003, p. 81): “shared beliefs about the level of effort directors should expend on board work” (effort norms in the context of this project measure individual director effort to norms that are both expected by the board group and delivered to it (Forbes and Milliken, 1999). Feldman suggests (1984, p. 47) that: “group norms are the informal rules that groups adopt to regulate group members’ behaviour”.

Such norms facilitate group behaviour since the members have a tool for anticipating the behaviour of others including the amount of effort exerted on a task (Wageman, 1995). How such group norms develop are discussed by Feldman (1984). He suggests that groups will enforce norms that a) facilitate its survival and b) makes members’ behaviours more predictable.

Salmon (1993) argued that directors should be equipped with key business information before meetings such as financial statements, management’s explanation of variances, market shares, committee minutes and reports. The issue is how much effort is expended to understand this information before and during the board meeting. It is probable that there will be an acceptable

norm for any specific board (Forbes and Milliken, 1999). The actual time devoted to represent shareholders' interests will differ across different boards (Pound, 1995). Forbes and Milliken (1999) also note though that even with the same dedicated time mental engagement during the board meeting can still be an issue. Pound (1995) recommends a substantial time needs to be devoted by directors to a corporation, actually suggesting at least 25 days p.a. for all directors.

Minichilli et al. (2009) examined Italian companies via questionnaires returned by the CEOs. They found that the board members' commitment, defined as preparation before meetings and involvement during meetings exceeded the effect of board demographics on outcomes. This is perhaps not a surprising view of the CEOs and underlines the importance of board processes.

In practice the effort norm construct tends to be made up of such items as "directors on this board have usually researched the key issues before the board meeting" (Forbes and Milliken, 1999); "directors on this board take notes during meetings", "directors carefully scrutinize the information provided by the company before the board meeting" (Minichilli et al, 2009). These items try to capture director work effort before and during the board meeting.

The question is whether effort norms are a predictor variable. Wageman (1995) researched effort norms in technician groups. She found that such norms measured by variables such as improving response time, taking responsible breaks and working after hours, correlated positively with group performance. More specifically for directors Scarborough (2003) investigated the empirical relationship between effort norms and the activity levels on US boards. He found that directors' effort norms have a significant relationship with board activism. He suggests re-establishing such norms whenever a new director is appointed to the board.

Effort norms are included as a key board process in this research.

### **3.3.3.2 Conflict**

Forbes and Milliken (1999) stress the positive and potential negative effects of board affective and cognitive conflict on team process, a view partially re-inforced by Stone and Bailey (2007, p. 258): “One of the many teamwork skills is the ability to resolve conflict within a team”, although Stone and Bailey still assumed all conflict was negative.

Conflict is a mediating variable in the Forbes and Milliken (1999) model. Affective conflict which is also described as relationship conflict, is the negative process associated with the search for someone to blame for a problem rather than searching for a solution. It is typified by (Runde and Flanagan, 2008, p. 22), “heightened, negative emotions ...and... has been widely shown to be associated with poor team productivity and decision making”.

Cognitive conflict (Guetzkow and Gyr, 1954; Roberto, 2005) on the other hand is a positive team phenomenon. It can also be labelled and maybe better understood as “task conflict”. Runde and Flanagan (2008, p. 23) describe it thus:

“In teams it is associated with robust debate of issues, heightened creativity that comes from exploring and vetting options, and improved decision making”.

Cognitive conflict is also defined by Jehn (1995, p. 258) as: “disagreements about the tasks being performed including differences in viewpoints, ideas and opinions” and by Amason, (1996, p. 124) as using: “critical and investigative interaction processes”. Roberts et al. (2005, p. S9) describe cognitive conflict as: “task-orientated disagreement”. This process can improve the strategic output by ensuring that alternatives are fully explored and the CEO management position is properly challenged. Mace (1986) observed though that too high conflict levels can

discourage active director participation in debate. Amason and Sapienza (1997, p. 496) point out that:

“the crux of the dilemma is that these two types of conflict can be aroused by similar conditions. Thus, as teams stimulate cognitive conflict, they may inadvertently trigger affective conflict”.

Minichilli et al. (2009, p. 61) use the term “critical debate” rather than cognitive conflict. They point out that Jehn (1995, p. 257) defines the word conflict as: “perceptions by the parties involved that they have discrepant views or have interpersonal incompatibilities”.

Scholars recognise that without cognitive conflict there is no benefit in diversity (Bantel and Jackson, 1989; Amason and Sapienza, 1997; Eisenhardt et al., 1997; Forbes and Milliken, 1999; Mooney et al., 2007), and that optimum board decisions need disagreement and debate on issues (Milliken and Martins, 1996; Simons et al., 1999). The term “critical debate” can be an easier concept for directors to understand outwith academia. Thus this term was preferentially used in the external research feedback, but the results will still use the term cognitive conflict as this is more commonly cited in the academic literature.

Simons et al. (1999, p. 664) point out that it is particularly relevant for teams with demographic diversity to use a debate process, since diversity can tend to inhibit communication and: “without debate, a teams’ diversity may remain an untapped resource, existing but never used”.

They relate “debate” to “task conflict” as defined by Jehn (1995) although do not equate them as completely identical constructs because the questions they use to measure “debate” are more specific than the general questions on “conflict”. Pearson et al. redefined Jehn’s Intragroup conflict scale (ICS) which described relationship and task conflict using a nine point scale and concluded that a six point scale better captured the factors as a research tool (Pearson et al.,

2002). To illustrate the difference it is useful to study the alternative emphasis in the questions.

These are:

Relationship (Affective) Conflict;

- 1) How much anger was there amongst members of the group?
- 2) How much personal friction was there in the group during discussions?
- 3) How much tension was there in the group during discussions?

Task (Cognitive) Conflict;

- 1) How many disagreements over different ideas were there?
- 2) How many differences about the content of decisions did the group have to work through?
- 3) How many differences of opinion were there within the group?

Pearson et al. used a five point Likert scale analysed using chi-square statistics to demonstrate that whilst this method of discriminating affective from cognitive conflict may not be as parsimonious as possible it was able to represent the conflict factors within a best-fit model well enough to define conflict within (US) TMTs. Questions from this scale were used in the questionnaire design of this research.

Mooney et al. (2007) point out that top decision makers operating under conditions of bounded rationality may base their decision making on quasi-rational cognitive shortcuts such as imitation or experience. This will make explanation of the steps in making the decision more difficult and challenges can turn into affective conflict (Mooney et al., 2007, p. 736): “As a result, by trying to encourage cognitive conflict, teams may inadvertently trigger affective conflict”. Mooney et al.

(2007) tested this hypothesis by gathering data by survey from 94 project teams and found that cognitive conflict and affective conflict were positively correlated ( $r = 0.60$ ). They concluded that cognitive conflict can trigger affective conflict as a result of the attribution process, by which players in the team rationalise the views of others (not explained by cognitive logic) to other causes such as promoting a political self interest. Simon et al. (2004) studied 141 managerial employees and found that under high role ambiguity, defined (Simon et al., 2004, p. 364) as ambiguity in his or her work role: “individuals are less likely to attribute an ulterior motive to those engaging in task conflict”. They ascribe this to task (cognitive) conflict being able to draw attention to and resolve job uncertainty since cognitive conflict will create a discussion of differences which could be seen as helpful. This could be seen as applicable to non-executive directors whose role is generally undefined. On the other hand Simon et al. surmise that role certainty can create a defensive reaction, perhaps applicable to executive directors who normally have a clear functional responsibility.<sup>16</sup>

Gamero et al. (2008) posit that cognitive conflict can become affective conflict through misinterpretation over time. There are (untested) implications that board leaders could address conflict resolution more successfully by directly addressing the issue and thus improving board task performance. Experience of resolving affective conflict and exploiting cognitive task conflict on other boards through interlocking directorships (Useem, 1984) could be beneficial.

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<sup>16</sup> Simons and Peterson (2000) report a similar correlation of  $r=0.47$  across the 11 studies they reviewed, De Drue and Weingart (2003) a correlation of  $r=0.54$  across 30 studies. Any model of these conflict processes must acknowledge this correlation and note that promotion of cognitive conflict carries this danger.

A high performing board chair person will understand the need for cognitive conflict, whilst attempting to minimise affective conflict, balancing these processes (Kakabadse and Kakabadse, 2008). According to Mooney et al. (2007) the chair person can do that by increasing behavioural integration (cohesiveness).

In conclusion both cognitive and affective conflict have been included as important board processes for this project.

### **3.3.3.3 Use of knowledge and skills**

Forbes and Milliken (1999) define this process construct as the board's ability to access knowledge and skills and to apply them to the board tasks. This construct follows, but is distinct from the presence of knowledge and skills. Forbes and Milliken (1999) reference Hackman and Morris (1975) whom they credit with the first identification of this construct. In the Forbes and Milliken (1999) model board processes and task outcomes are more positive if the use of knowledge and skills result in "cross training" and "collective learning" amongst directors. The directors thus need to cooperate (Cohen and Bailey, 1997) for them to benefit from the latent knowledge and skills present in the team. The construct is described by Forbes and Milliken (1999) as related to social integration. The relevant knowledge or skill may be functional e.g. accounting, legal or marketing or firm specific e.g. company operations and management. Tashakori and Bolton (1983) emphasise the importance of information flow to the board from the CEO. Without such a flow the process of board task performance described by Forbes and Milliken (1999) is unworkable and indeed this is one of the principal criticisms of Mace (1971;1986) who as noted above, described (US) boards as often non-functional, even passive and normally under the control of the CEO.

Zona and Zattoni (2007) found that in the Italian manufacturing boards that they studied the use of knowledge and skills was positively associated with service task performance. The use of knowledge and skills was positively associated with board monitoring performance and had a positive impact on board networking. By analogy Forbes and Milliken (1999) cite the study by Weick and Roberts (1993). This study of flight deck crews emphasises the collective mind which may also explain the board phenomena using knowledge and skills in a team. The proposition of Weick and Roberts (1993) is that the actors in a system learn to accept that the connected actions of themselves and others interrelate. The more effectively this subordination of individual idiosyncrasies are subordinated to the group function, the less operating errors occur.

The items to measure the construct may include: “people on this board are aware of each other’s areas of expertise (Forbes and Milliken, 1999), “when an issue is discussed, the most knowledgeable people generally have the most influence” (Forbes and Milliken, 1999), “information flows quickly among board members (Forbes and Milliken, 1999) and “important information often gets withheld on this board (reverse coded) (Forbes and Milliken, 1999; McGrath, 1995). Thus it measures the respect that board members have for each other’s expertise. This is distinct from cognitive conflict by which alternative propositions are argued through, but it could be a necessary pre-cursor.

The use of knowledge and skills is included as a key board process.

## **Other Board Processes in the Literature**

### **3.3.3.4. Trust**

This process was not specifically recognised in the Forbes and Milliken (1999) model. It can be argued though that trust of each other’s judgement and expertise is crucial for directors to work



as an effective team (Blair and Stout, 2001; Zattoni and Cuomo, 2010). Hosmer, (1995, p. 393) describes trust as :

“Trust is the reliance by one person, group or firm upon a commonly accepted duty on the part of another person, group or firm to recognise and protect the rights and interests of all others engaged in a joint endeavour or economic exchange”.

This defines trust as a process although it can also be described as a relationship or as an emotional skill (Solomon and Flores, 2001). Mayer, et al. (1995, p. 712) defined trust as: “the willingness to be vulnerable to another party when that party cannot be controlled or monitored”.

Rousseau et al. (1998, p. 395) concur that trust is based on the acceptance of vulnerability in return for a positive return, thus trust is:

“a psychological state comprising the intention to accept vulnerability based upon positive expectations of the intentions or behaviour of another”.

Lewicki et al. (2006) point out that trust can only be said to exist if there is risk associated with it. Solomon and Flores (2001, p. 6) draw attention to the fact that distrust is an essential alternative and that trust must always: “entail the possibility of betrayal”.

Trust between parties depends upon the evidence that accumulates to recalibrate the original assumption if and when necessary (Mayer et al., 1995). Dietz et al. (2010) usefully distinguish trust itself from the components that create it. They describe three such. These are firstly trustworthy beliefs, which inform the decision to trust or not to trust. These include perceptions of mutual integrity. Secondly, propensity to trust, described by them as an enduring facet of personality. And the final component is trusting behaviour. They refer to Gillespie’s (2003) description of both reliance on another party’s skills, knowledge and actions and to the separate behaviour involving the disclosure of private information in the expectation it will not be

broadcast. Schoorman et al. (2007) accept that propensity to trust can be described both as a trait construct and a process based on relationships.

Lewicki et al. (2006) discuss the unidimensional model of trust which treats trust and distrust as opposite ends of a bipolar spectrum and contrast this with the two-dimensional model which argues that these constructs are independent and can vary independently, each ranging from low to high. In the two-dimensional model Lewicki et al. (2006, p. 1002) contrast trust as: “confident positive expectations regarding another’s conduct” with distrust as: “confident negative expectations regarding another’s conduct”. Thus low trust may not be equivalent to high distrust and the two different situations can be managed appropriately. A director may simultaneously have high trust that a director peer may perform one beneficial task, but high distrust that the same director may by omission or action deliberately cause some harm. Thus Lewicki et al. (2006) argue it can be situation specific. Schoorman et al. (2007) point out that the willingness (of a board for example) to take risk can be based on either trust or alternative control systems. Boards do not easily lend themselves to process control systems since the transactions are mainly limited to cognitive interchange in a limited series of time-limited, self controlled meetings whose objective is to draw out contributions from the team members (Forbes and Milliken, 1999). It may be though as Luhmann (1980) observes that trust is essential to handle complexity and that the board are forced to satisfice. It will require board members to trust each other’s knowledge and contribution to manage that complexity. Solomon and Flores (2001, p. 22) point out that trust: “by easing the reins of control improves efficiency, effectiveness....and chances for success”.

Lewicki et al. (2006) review the published trust literature and conclude that the common approach has been to view trust either as an independent or mediating process variable without

studying how it develops within interpersonal relationships over time. They suggest this would also be a useful area for future research.

Gillespie and Man (2004) studied trust amongst research and development teams in Australia, but some of their conclusions might also be extrapolated to UK company boards. They point out that studies of trust do show inconsistent findings and concede that the results may be largely specific to the setting. For example, there have been differences found between salesforces, managers and soldiers (Podsakoff et al., 1990; Shamir et al. 1998; Butler et al., 1999) in the factors that induce trust in a leader. Gillespie and Man (2004) studied trust in R and D situations. However, this is useful to boards in that access to expert opinions and knowledge requires high levels of trust on the team. They suggest that trust (like conflict) has cognitive and affective bases. Gillespie and Man (2004, p. 602) emphasise that as values are believed to guide behaviour, sharing common values helps team members to predict the leader's actions and: "gives them the assurance that the leader is unlikely to act contrary to the shared values".

Interestingly the correlation between intellectual stimulation and trust in the leader was weak and passive corrective leadership (Bass and Avolio, 1997), (defined as leading by monitoring and focussing on mistakes, or waiting for things to go wrong before intervening) and laissez-faire leadership (defined as avoiding getting involved when things go wrong) all had negative relationships with trust.

In conclusion this thesis accepts trust as an important board process for the research model.

### **3.3.3.5 Competitiveness**

This thesis postulates that successful CEOs and their boards might be driven by another process: "individual competitiveness". As yet, this construct is relatively un-researched as a personality

dependent process in business, but is described well in sport psychology (Jones, 1997). This characteristic includes the need to beat the competition as an end in itself. It may derive from an evolutionary need for victory (Workman and Reader, 2008; Wilson, 2015). Dunbar et al. (2005) in describing the evolutionary process of the human species point out that a necessary condition was both competition between individuals grouped into functional teams and between individuals in the same group. Sober and Wilson (1998) named this the multi-level selection theory (MST) which defined groups as individuals sharing a particular trait. Thus say, an altruistic trait among certain individuals in the group could increase the competitive ability of that group v.s. another group comprising entirely of selfish individuals concerned with direct competition with each other. This idea has been further developed by Wilson (2015) who suggests that humans are the only primates to have evolved from individual natural selection to group selection, like eusocial insects. Thus altruism within an evolutionary survival group is adaptive and will tend to produce more descendants if it makes that group more successful than less intra-altruistic groups (Wilson, 2015). As Wilson (2015, p. 49) describes:

“Our ancestors managed to suppress disruptive forms of within-group competition, making benign forms of within-group selection and between-group selection the primary evolutionary forces”.

Whilst rogue individuals may sometimes exploit this intra-group opportunity, Wilson (2015) argues that the propensity to be altruistic within the group and be less intra-competitive has been rewarded by more successful inter-group competition. Thus inter-group competition may be part of the normal human genome. If this is reflected on boards of directors then we might expect low intra-group competitiveness to contrast with high inter-group competitiveness. Commercial competition may have a genetic basis. As with conflict constructs, it may be difficult to separate these competitive processes into separate factors and only one “competitiveness” factor has been

constructed for this project. It is assumed that team competitiveness behaviours may be inbuilt and necessary for evolutionary victory and therefore could be a key mediator behaviour in the success of company boards.

Competitiveness has been observed affecting the behaviour of a team or group (Allport, 1954; Tajfel, 1978; Tajfel and Turner, 1986; Williams and O'Reilly, 1998). Allport claims that membership of a team that devalues a competitor automatically increases the self esteem of the members, giving performance motivation based on;

- A positive value to the distinctions between the team and the competitors
- A feeling of superiority to each team member which regard the other team(s) as inferior
- Self re-inforcement of these views within the team

Schein (1988) listed the effects of competition within and between competing groups. His analysis whilst in concordance with intuitive observation was based on the early work of Blake and Mouton (1961) getting managers to score their perceptions in a laboratory setting, but a caution should be noted that as Blake and Mouton state: “These findings will not be encumbered with statistical tests and statements of probabilities” (Blake and Mouton, 1961, p. 420).

The conclusion as shown in Table 3.2 then is :

**Table 3.2    Extra Group Competition creates: adapted from Schein, (1988)**

<b>Within the Group:</b> greater internal loyalty, individual differences are minimised, concerns for task accomplishment increases at cost of attention to individual psychological needs, more structure facilitating autocratic leadership.
<b>Between Groups :</b> the other group becomes the enemy which distorts perception by denying own group weaknesses and other group's strengths, leading to increase in hostility and creation of a negative stereotype.

Note: this table illustrates Schein's description of competition within and between groups.

Schein argues that the consequences of winning or losing exaggerate these effects even further and make the winning team more cohesive, but sometimes more complacent. Since the favourable team stereotype has been confirmed there is little need for urgent change or challenge. Losing can create either psychological denial or increase internal affective conflict, showing low concern for individual members' needs. The stereotypes have been disconfirmed encouraging a re-evaluation and reorganisation into a more cohesive group.

The following section will review the competitiveness concept described in sport literature. Jones's (1997) study of successful athletes found that the pressure to perform in an actual competition will improve performance by at least 10% v.s. that in training. He describes "competition" as a potential stressor. Such a stressor can become a performance stimulus. Jones refers to Marten's Sport Competitive Anxiety Test (SCAT) (Martens, 1977) which attempts to measure whether such stressors are debilitating or facilitative, in order that coaches can modify appropriate guidance. It could be posited that competitive stressors could be facilitative in

business, especially amongst certain aggressive personality types (Leith, 1997) with high perceptions of their own ability (Biddle, 1997). This research looked for such indications in the board room as an independent process variable.

#### **3.3.3.6 Cohesiveness (and reciprocity)**

Hogg and Vaughan (2010) posit that cohesiveness in a group is due to bonds of mutual liking. And so factors that increase mutual liking such as similarity (Byrne, 1971) should therefore increase the creation of solidarity within a group. This cohesion leads to improved intragroup communication (Lott and Lott, 1965). Cialdini (1984) introduces the principle of “reciprocation”, developed by Dunbar et al. (2005), which he observes in human behaviour and believes it is a deep rooted evolutionary trait giving humans a group advantage. This is in step with the discussion on group competitiveness (Wilson, 2015) in Section 3.3.3.5 above. Cialdini asserts it came from our ancestors learning to share food and tasks in return for a future reciprocal payment thus increasing the effectiveness of the group. He believes it survives as a strong influencing behaviour and he explains (Cialdini, 1984, p. 18) that: “for the first time in evolutionary history, one individual could give away a variety of resources without actually giving them away”. Cialdini found through primate observation and experiment that an uninvited first favour will create an obligation and there seems to be a strong psychological and social pressure to relieve that obligation. Board directors can use this to coerce colleagues into supporting their propositions even when intellectually the case maybe unproven. Cialdini (1984) reports this to be a manoeuvre often also used by ambitious politicians.

As with cognitive conflict, too high levels of cohesiveness can result in “groupthink” which Forbes and Milliken (1999, p. 496), define as: “a dysfunctional mode of group decision making

characterised by a reduction in independent critical thinking and a relentless striving for unanimity amongst members” which Janis first described as a specific pattern of concurrence-seeking behaviour (Janis, 1972). Janis listed six major defects in decision making that expose boards who succumb to “groupthink” (Janis, 1972, p.10):

1. Discussions can be limited to few alternatives (often only two). As per the satisficing behaviour described above (Simon, 1957).
2. Failure to re-examine the course initially preferred by the majority for non-obvious risks.
3. Not looking for non-obvious gains in original rejected proposals.
4. Little attempt to gain advice from experts on potential risks.
5. Selective bias in reaction to factual information.
6. Bureaucratic inertia, sabotage or opposition not considered and therefore failure to make adequate contingency plans.

Note the congruence and differences with pluralistic ignorance (Westphal and Bednar, 2005) discussed below (Section 3.4). Janis (1972) introduces the concept of “mindguards” who are members of the cohesive board who will personally take action to exert social pressure on a member whose views deviate from the consensus of the group. Such group members may also protect the leader and other members from unwelcome ideas so that meetings can take place: “ in a curious atmosphere of assumed consensus” (Janis, 1972, p. 39).

Overall though, as Hogg and Vaughan (2010) point out, cohesiveness can increase the effectiveness of a group, through this process of social attraction based on shared group membership. They describe membership of the group causing members (directors) to self-evaluate by comparison with the groups prototypical attributes. That is each member will decide



how close they are to the personality norm and conform to the apparent norms so increasing cohesion.

### **3.4 Conclusion**

The Input-Process-Output model is adopted for this research. The inputs can be measures of demographic variety as described above or personality variety as described in the next chapter. Investigators have also attempted to describe the processes in this model that can be observed on boards. To date much of this work has been based on US companies which typically have a different board structure to the UK and other European models. The US boards are dominated by outside (non-executive) directors with much executive power delegated to the chair/CEO (often in a combined role i.e. duality). Forbes and Milliken (1999, p. 493) describe modern US boards as: “large, elite and episodic decision-making groups that face complex tasks pertaining to strategic-issue processing”. They recognise that this board performance: “is likely to be influenced by social-psychological factors”.

Dalton and Dalton (2005) concluded that structure was much less important than process. In particular they noted three impediments to effective board performance;

1. An environment that encourages constructive debate is impeded by “learned passivity” to avoid the risk of being labelled “obstructionist”.
2. The incorrect assumption that the board operates as a team. Unlikely unless specific team forming exercises are engaged.
3. Lack of adequate preparation and lack of: “an honest desire to discharge one’s duties responsibly and effectively” (Dalton and Dalton, 2005, p. S96).

Indeed Kakabadse and Kakabadse (2008) referencing their interview research of 400 directors, refer to a conspiracy of silence in US boardrooms. Westphal and Bednar studied a psychological bias they described as “pluralistic ignorance” which they described (Westphal and Bednar, 2005, pp. 266-268) as a:

“systematic tendency for outside (non- executive) directors to underestimate the extent to which fellow directors share their concerns” (about the viability of a firm’s corporate strategy).

They claim that there is much evidence that directors avoid new information that challenges the current strategy (Schwenk, 1984; McDonald and Westphal, 2003) and over attribute low performance to uncontrollable external conditions (Barker and Duhaime, 1997). Pluralistic ignorance occurs because of the social risks associated with expressing a minority opinion. This risk was separately described by Westphal and Khanna (2003) who reported on the social distancing experienced by directors who participate in governance changes to increase control over managers against the social norm of other boards they sit on. Such “social distancing” (Westphal and Kanna, 2003, p. 361) manifests as specific acts of snubbing, not being asked for advice or opinion, not acknowledging contributions and being excluded from gossip (Zippelius, 1986; Westphal and Khanna, 2003), a process of informal exclusion. Westphal and Khanna claim (2006, p. 169) that social exclusion results in a variety of negative outcomes for individuals including emotional distress and anxiety and directors boards can be controlled by withdrawing or re-instating social inclusion: “Conversely, social inclusion has been shown to enhance self-esteem”.

In a similar US study, Westphal and Stern studied the effect of ingratiation behaviour. Westphal and Stern, (2006, p. 169) concluded that:

“top managers who engage in ingratiation behaviour toward their CEO, with ingratiation comprising flattery, opinion conformity, and favour-rendering, will be more likely to receive board appointments at other firms where their CEO serves as a director”.

This will tend to select directors who are deferential or submissive towards CEOs. These authors followed up the 2006 study (Stern and Westphal, 2010) with qualitative reports on 42 interviews of directors of large US industrial and service firms, and a rigorous quantitative analysis of two samples<sup>17</sup> from TMT managers, directors and CEOs of US Forbes 500 companies. This study confirmed the earlier conclusions that subtle forms of flattery and opinion conformity enhanced the chances of appointment to other boards when the recipient of the behaviour could influence this event. They also found statistically significant evidence that the previous background of the director in politics, law or sales or upper class background, had a significant effect on their ability to engage in such advantageous behaviour without obvious detection. These results suggest that self advancement may mediate board behaviours and reduce the propensity for cognitive conflict if it exposes non-conformity with influential players on the board such as the incumbent CEO. It could also facilitate groupthink (Janis, 1972) by creating artificial self serving cohesion.

Westphal and Stern quote literature on ingratiation suggesting three distinct behaviours:

1. Opinion conformity or validation
2. Other enhancement or flattery
3. Favour rendering

(Tedeschi and Melburg, 1984; Gordon, 1996; Stern and Westphal, 2010)

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<sup>17</sup> (n=2466 and n=3386)

What might be considered the dangerous (but potentially personally advantageous) practice of opinion conformity is described by Stern and Westphal (2010) as only being successful if it is disguised sufficiently to be unrecognised. Their data suggest that it is least successful following an artificial disagreement and most successful if ingratiation commences by establishing unrelated value conformity such as commitment to another cause or institution. The qualitative data suggest this is due to an increase of trust between the actors. Stereotypes are established with predictable behavioural responses.

It is generally accepted (Stiles and Taylor, 2002; Garratt, 2006; Huse, 2007) that the theoretical role of directors includes challenging the CEOs proposals but, as Forbes and Milliken (1999, p. 494) describe, cognitive conflict, a normal board process can cause CEOs difficulties:

“The presence of disagreement and critical investigation on the board may require CEOs to explain, justify and possibly modify their positions on important strategic issues and to entertain alternative perspectives and courses of action”.

Directors appointed during the tenure of current CEOs may find it more difficult to challenge the CEO (Mace, 1986; Monks and Minow, 1991). From his early US (late 1960s) qualitative research described in his 1979 review Mace (1986, p. 84) concluded that:

“Presidents of these (large US) companies have assumed and do exercise de facto powers of control.....to them the stockholders constitute what is in effect an anonymous mass of paper faces”.

At the other end of the size spectrum Mace (1986, p. 1) described the typical small US company board at that time as: “largely a vestigial legal organ which included merely subservient and docile appointees of the owner manager”.

Chitayat (1984) researched the Chairmen and CEO's of 35 companies in Israel and reached conclusions based on those interviews which are similar to those of Mace (1986) in that he

reported (Chitayat, 1984, p. 74) that many boards were seen as: “completely passive. The approval process of the board is largely a formality and automatically provided”.

These conclusions have been reinforced by Tashakori and Bolton (2001) who assumed (US) directors would be concerned with the strategic planning process, through formulation, implementation and evaluation. But their results failed to support this.

Not all observers (Davis et al., 1997; Forbes and Milliken, 1999) agree with Westphal’s implied view (Westphal and Kanna, 2003; Westphal and Bednar, 2005; Westphal and Stern, 2006) that observed behaviour of directors is necessarily totally or mostly motivated by the directors’ needs for self seeking psychological social comfort and /or advancement. The explanatory arguments of stewardship theory (Section 2.5) suggest that there are circumstances where directors behave in concordance with the owners’ interests because of their inherent belief in cooperative outcomes. Baysinger and Hoskisson (1990) also found that executives were concerned with their reputation and this influenced them to maximise shareholder returns. Thus possibly their own careers were enhanced by perceptions of “good stewardship” which could motivate directors to modify their apparent self-interests. As noted above Katzenbach and Smith (1993) argued that ingrained individualism could negatively affect team performance. This implies that harmony is a key objective (discussed below in Section 4.3). Katzenbach and Smith (1993, p. 3) caution that effective TMTs are difficult to create because of: “the complexities of long-term challenges.....and ingrained individualism of senior people”. They report that resistance to such team working can be expected, especially near the top of an organisation because of disbelief in teams, because of personal discomfort in working with and accommodating other points of view and because of the fear of suffering individually from other peoples’ mistakes. But they and other authors (Forbes and Milliken, 1999; Rindova, 1999; Stiles and Taylor, 2002) see the board

team structure itself as offering benefits which help to overcome this potential tendency of individual directors. The TMT should:

“bring together complementary skills and experiences that by definition, exceed those of any individual on the team” (Katzenbach and Smith, 1993, p. 18) and will:

“surpass individuals as the primary performance unit in the company” (Katzenbach and Smith, 1993, p. 19).

Chapter 4 now goes onto explore in more depth a discussion of personality traits. The working of board teams may be subject to the variations of personality trait diversity described below (Garratt, 1997; Dulewicz and Higgs, 2003; Belbin, 2004). In their review van Ees et al. (2009) suggest that future research should be based on a behavioural framework and that instead of looking at boards as: “primarily a deterrent to managerial self-interest” (van Ees et al., 2009, p. 308) that they should be studied as teams working within the constraints of bounded rationality, satisficing behaviour, routinisation of decision making and political bargaining. These authors acknowledge that future research should also address the variations in: “beliefs and perceptions” (van Ees et al., 2009, p. 315) on the board. Finally, in chapter 4 the extant literature on the nature of personality diversity on the board is reviewed in depth.

## **CHAPTER FOUR**

### **DIVERSITY OF DIRECTOR PERSONALITY TRAITS**

#### **Literature Review part 3**

## 4.1 Introduction

This chapter explores the notion of personality and the ways in which it can be measured. Hambrick et al. (2005) cite evidence (Miller and Droge, 1986) that executive personalities can affect organisational outcomes. Whilst the impact of diverse personalities is recognised there is a lack of convincing evidence in the literature on the exact role that heterogeneity or homogeneity in personality traits play in board<sup>18</sup> effectiveness (see Table 4.5). According to Peterson et al. (2003, p. 803): “Questions of how team member personalities interact to determine team effectiveness is a relatively understudied area”. Since the degree of director personality diversity may explain variances in board room behaviour and influence board processes and task outcomes it is clearly important to define personality precisely, on the basis of data that are reliable and validated.

The classical governance theories reviewed in Chapter 2 are based upon a paradigm of director behaviour which is assumed to be entirely cognitive and rational. This model of behaviour depends upon interaction between fully developed adults who understand and accept the concept that other persons on the board will have their own (equally valid) interpretation of reality tempered by their own experiences and learnings. The acceptance and use of other peoples’ mind models is termed “theory of mind” (Al-chalabi et al., 2006, p. 72) a notion which the authors describe as:

“a corner stone of research into social skills” “ without it we could not empathise with another human being.....also pivotal in any discussion of self-awareness”.

Elegantly described by Lane (2000, p. 184) as: “the capacity for accurate empathy” theory of mind implies that a director on a board should be able to predict other directors’ behaviour and

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<sup>18</sup> and top management team (TMT)



mental states. Indeed, this projective thought process is necessary if adults are to join in meaningful dialogues that explore different points of view on the same issue (Lane, 2000). Thus a board of directors should, according to this theory, be able to share different perspectives on a business issue (cognitive conflict) and arrive at an optimal solution without emotional interference (affective conflict) (Forbes and Milliken, 1999). Some earlier explanations of variances in board outcomes were based on the assumption that these rational cognitive processes accurately explain director behaviour on boards (Jensen and Meckling 1976; Eisenhart, 1989). However, others now suggest that other psychological team processes are at work in recognising individual differences (Peterson et al, 2003; Nielsen, 2010; Hillman, 2015; Veltrop et al, 2015) in behaviour bias (i.e. personality); these in turn introduce personal variabilities into rational models. According to van Ees et al. (2009) there is a need to investigate the deeper psychological processes that are happening on a board.

Drawing on social identity theory (Tajfel and Turner, 1986), Hillman et al. (2008) proposed that directors employ multiple identities when engaging in board processes. Their thesis in this context is that to some degree directors are de-personalised on the board; as Hillman et al. (2008, p. 442) state, directors: “attempt to align their actions with the normative behaviours of an identity”.

Hillman et al. (2008) thus propose that there are five particularly relevant identities that directors may employ: professional director, CEO, shareholder, organisational (alignment with company) and stakeholder (customer or supplier). These identities may be congruent with the key elements of agency theory, stakeholder or resource dependency theory. However, the authors argue that experience elsewhere as a CEO will alter the influence of identity on behaviour, thereby reducing the CEO monitoring role via emotional empathy with the incumbent.

The question then for the board scholar is what tools can be used to investigate the psychological processes on a board. It is argued in this chapter that a director's personality is a key measure of potential input to a board. Section 4.2 next explores the theories of personality trait measurement. Then in section 4.3 the literature on board diversity, especially as it applies to personality traits is explored and critiqued. This chapter concludes the literature review before creating research hypotheses in the next chapter.

## **4.2 Director personality**

For this research the question of what is meant by "personality" needs to be defined. The word itself is derived from the Latin *persona*, the theatrical mask worn by Roman actors (Feist and Feist, 2009). There is no common agreement on a universal definition, but it is described within the discipline of cognitive psychology as a person's characteristic pattern of behaviour, of thinking and feeling, which distinguishes him/her and, most importantly, is predictive of future interactive behaviour (McClelland, 1951; Cattell, 1957; Guilford, 1959; Allport 1961; Hunt, 2007; Cooper, 2010). Furnham (2008, p. 23) defined personality as: "stylistic consistencies in social behaviour, which are a reflection of an inner structure and process".

The practical implication of this definition is that personality can be quantified into traits. A trait is a long lasting and predictive personality factor of a dimension in which individuals differ (Cattell, 1957). A number of authors contend that personality is a consistent and strong predictor of job performance (Hurtz and Donovan, 2000; Kroeck and Brown, 2004; Warr et al., 2005) and so it is relevant to director team performance.

#### **4.2.1 Precursor classifications of personality by types**

It is useful to trace the evolution of personality trait analysis from earlier theories. Freud introduced the idea of the dynamic unconscious (Hunt, 2007) and his psychoanalytic approach defined personality as the outcome of the three structures of the mind, the id, the ego and the superego (Freud, 1933). Whilst Freud's theories have been superseded by empirical research, he can be regarded as the originator of the modern theory of personality (Mischel, 1999). He describes the fundamental source of personality as the id, being all the inherited characteristics especially the instincts. The id as described by Freud functions in an irrational impulsive way and demands instant gratification with no regard for social restrictions. The ego operates independently and interfaces with the real world and regulates the id's irrational drives. Freud's hypothesis was that the ego has defence mechanisms to resolve any contradictions between the demands of the id and the interactions possible in the real world. Finally in Freud's theory (Freud, 1933; Hunt, 2007) the superego develops from the ego and represents the ethical values learned from parents and the rest of society, setting maybe unrealistic high standards, but possibly relevant to directors' governance functions. The weakness for research purposes of Freud's theories is that he failed to develop any quantitative assessment techniques. Breakwell and Rose (2000) while discussing the construction of testable psychological theories, describe Freud's as "overdetermined" because there are so many determiners of outcomes that no single one can be proven to be relevant. However, Howitt and Cramer (2008) point out that the current dominance of measurable variables has itself been criticised since it de-emphasises psychological concepts such as the ego in Freud's theory. From these early beginnings personality trait constructs that can be quantified were developed over time (Allport, 1937; Eysenk, 1955; Cattell, 1957; Costa and McCrae, 1991).

Behaviourists, perhaps reacting to Freud's un-provable internal analyses of his own mind, insisted on basing personality theory exclusively on observations and measurements of external behaviours (Dollard and Miller, 1950; Skinner, 1953; Rotter, 1954; Bandura, 1971). Skinner (1953), a leading behaviourist, accepted that internal cognitive factors exist, but argued that they were beyond scientific enquiry. He searched for explanations of observable behaviour based on conditioned responses to stimuli without the mediation of free will. Such conditioning is described as classical or operant (Skinner, 1953; Feist and Feist, 2009). Classical conditioning occurs when a neutral unconditional stimulus precedes a conditional stimulus repeatedly until the response is conditioned. Skinner though claimed that most human learning occurs through operant conditioning, the term used to describe learning behaviours when a behaviour is immediately reinforced. This increases the probability of that behaviour repeating. Operant conditioning is shaped by the environment as the reinforcement occurs only as the behaviour approaches the final complex set i.e. is learned. It could be that the norms of director behaviour described by Westfall and Khanna (2003) are so achieved. Thus the behaviourists argued that our observable behaviours (personalities) were the result of conditioning, not inherited or developed through life experience.

Despite Skinner's argument there is a working presumption by most cognitive psychologists now that personality is an entity, that is that it really exists in the psyche and that the core is enduring, remaining relatively permanent and can be measured (Cattell, 1965; Furnham, 2008; Cooper, 2010). There is though a counter argument that the measurement of personality traits must be treated with caution and Mischel (1999) claimed that trait theories can divert attention from the environmental influences on the particular situation being observed, which he believed had a greater influence on behaviour than these inbuilt personality traits. Mischel and Shoda (1995,

1998) formulated the Cognitive-Affective Personality System (CAPS) theory. This defines personality by the social and cognitive context and with the inclusion of the effects of emotion. Cognition has a central role in this theory. Thus in CAPS theory a director may exhibit a different personality behaviour profile in the boardroom than in other situations, which aligns with Hillman's (2008) theory (Section 4.1). Bandura (1969) had long before pointed out that a weakness of strict behaviourism was that an awareness of consequences and therefore of expectations will speed up learning. This can happen by verbal or written communication and does not need direct experience of a stimulus. Information and cognition can counter behavioural conditioning (Mischel, 1999). Mischel goes on to argue a multiplicity of factors that will create a personality profile i.e. behaviour (Mischel and Shoda, 1995);

1. Encodings, how events are interpreted by the individual e.g. as a hostile remark by another director at a board meeting, or a financial threat to the company. Different directors may encode the events in different ways and this may influence their behaviours.
2. Expectancies and beliefs, e.g. a director's self-view of their own intellectual ability or other past experience of outcomes based on previous behaviour. Bandura (1969) argues that behaviour is not created in a vacuum, but is modified by cognition.
3. Affects, e.g. the emotional state of a director will: "impact on the person's efforts at self-regulation and the pursuit of goals" (Mischel, 1999, p. 420).
4. Goals and values, e.g. selection to a board is not random and the director is likely to have personal goals which are consistent with this role. This may influence behaviour and therefore the personality seen on the board.

5. Self regulation: Overcoming stimulus control, Mischel (1999) claims that persons regulate their behaviour by self-imposed goals which will also go towards defining observed behaviour under particular conditions.

Mischel, (1999, p. 424) states: “In CAPS theory, the personality system interacts continuously and dynamically with the social world in which it functions”. Logically he would probably argue the director’s behaviour will be governed by these factors and produce a norm tending towards acceptability in the boardroom. Thus a board room norm “director personality” would be partially created. CAPS theory attempts to resolve or at least describe the paradox of alternative behaviour personality profiles in different situations. It offers no method of quantifying observations of the personality differences. The CAPS theory does underline the necessity of stressing to the research respondents that they should answer research questionnaires in context as “company directors” (Appendix 6.2).

Rotter based his social learning theory (Rotter, 1982) of behaviour prediction on the premise that the individual reacts with the environment in ways determined by past experience and expectations of the future<sup>19</sup>. So the re-inforcements are more complex than those described by Skinner.

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<sup>19</sup> Rotter suggested (Rotter, et al., 1972) that behaviour can be predicted by analysing the;

Need Potential (NP) i.e. the possible occurrence of a set of behaviours which satisfy similar goals. Measured by observation of behaviour.

Freedom of Movement (FM) which is a measure of expectancies that a behaviour will produce a satisfying reinforcement

Need Value (NV) The preference of one reinforcement over another

Rotter defined the relationship of these factors as,  $NP = f(FM + NV)$

As Feist and Feist point out Rotter’s general prediction formula of behaviour is completely hypothetical and “cannot be accurately tested” (Feist and Feist, 2009, p. 543).

Rotter classified “needs” that drive behaviour into the following categories, all of which might be seen as relevant to director behaviour;

- Recognition-status The need to be recognised by others and achieve status.
- Dominance The need to control the behaviour of others.
- Independence The need to be free to take decisions without being dominated by others.
- Protection-dependency The need to be cared for and protected by others.
- Love and affection The need for warm positive feelings from others securing interest and devotion. Also see altruistic reciprocation Section 3.3.3.5 above.
- Physical comfort behaviours aimed at securing food and physical security i.e. including director compensation.

Rotter and Hochreich, 1975

Leblanc and Gillies (2005) published a classification based on observational research of “director team typeology”, shown below in Table 4.1, differentiating between “functional” and “dysfunctional” types which moves a step forward from the simpler demographic classifications described above;

Table 4.1

## Director Team Types

LeBlanc and Gillies (2005)

Functional Director Types	Dysfunctional Director Types
<b>Conductor Chair</b> , interested in good governance, remarkable leadership skills	<b>Caretaker Chair</b> , lack effective relationship skills, do not manage conflict
<b>Change agents</b> , catalysts for fundamental change, often ex CEOs	<b>Controllers</b> , dominate board through skill, humour or anger.
<b>Consensus Builders</b> , conciliators, resolving conflicts through interpersonal skills	<b>Conformists</b> , non-performing co-operators who support status quo and seek popularity
<b>Counsellors</b> , strong persuaders, high credibility, coaches and negotiators	<b>Cheerleaders</b> , enthusiastic amateurs who use mutual praise to cover lack of preparation
<b>Challengers</b> , ask the tough questions, cause managers to rethink, maybe lawyers/academics	<b>Critics</b> , abrasive manipulators who lack ability for constructive dissent

Note: this table lists the functional and dysfunction identity types according to LeBlanc and Gillies

Other investigators (Eysenk, 1955; Allport, 1961; Cattell, 1965) have been confident to describe personality based on theories of internal mental processes (cognition) which have some biological rationale and can be measured. Specific trait theory can be traced from Jung's proposal that the personality dynamics of individuals have two basic attitude orientations which he termed extraversion, an orientation to the outer world and introversion, an orientation to the inner world (Jung, 1944). These two fundamental attitudes operate with four main functions enabling personalities to be classified. These Jungian psychological functions are:

1. Sensing, a reality function yielding only factual representations of the world
2. Intuition, an unconscious perceptual process
3. Thinking, an intellectual observation of self and the world in terms of fact
4. Feeling, an evaluative observation of the world in terms of emotion

Eysenck (1955) following up on Jung's initiative, later proposed the grouping of personality types into two dimensions that he asserted could have a biological basis;



- a) Extravert-Introvert dimension (called E). The hypothesis is that human beings seek to maintain a comfortable level of arousal and the stimulation required will vary. Eysenck claimed the level of arousal is regulated by the ascending reticular activating system (ARAS) in the brain. Incoming sense messages to the brain go directly to the appropriate part of the cortex, but in addition collaterals go to the ARAS which keeps the brain in a receptive state of arousal. The higher the arousal the more the reactions to the sense messages. Eysenck proposed that introverts have higher habitual levels of arousal already and hence may be better at learning and remembering, whereas extraverts seek more external stimulation to compensate for lower levels of RAS stimulation.
- b) Stable-Neurotic dimension (called N). The hypothesis here is that the emotional reflexes are controlled by the autonomic nervous system (ANS), from the base of the brain. The ANS comprises of the sympathetic system and the parasympathetic system which are both found all over the body controlling stimulation of the endocrine glands, heart rate, digestive system and many other variable organ responses. The sympathetic system will up regulate the emotions such as fear and anger with the appropriate physiological responses, the parasympathetic will down regulate. Eysenck argued that the biological pre-disposition as illustrated in Table 4.2, of the ANS will pre-dispose personality on this dimension.

**Table 4.2 The biological basis and characteristics of Eysenck's extravert-introvert and stable-neurotic dimensions of personality adapted from Woods (1998)**

<b>Personality Dimension</b>	<b>Extrovert</b>	<b>Introvert</b>
Biological Basis	RAS dampens down incoming information so that the individual seeks additional stimulation in order to maintain a comfortable level of activation	RAS amplifies incoming information so that the individual prefers low levels of stimulation in order to maintain a comfortable level of activation
Characteristics	<ul style="list-style-type: none"> <li>• Becomes bored more quickly</li> <li>• Is less responsive to pain</li> <li>• Seeks change and excitement</li> <li>• Is poor at tasks requiring concentration</li> </ul>	<ul style="list-style-type: none"> <li>• Does not seek excitement, prefers low levels of stimulation in order to maintain a comfortable level of activation</li> <li>• Dislikes the unexpected, prefers order</li> <li>• Is good at tasks requiring concentration</li> </ul>
<b>Personality Dimension</b>	<b>Stable</b>	<b>Neurotic</b>
Biological Basis	ANS is fairly slow to respond to stressful situations and is not very vigorous	ANS responds rapidly and strongly to stressful situations
Characteristics	<ul style="list-style-type: none"> <li>• Even-tempered</li> <li>• Emotionally stable</li> <li>• Easy going</li> </ul>	<ul style="list-style-type: none"> <li>• Restless</li> <li>• Excitable</li> <li>• Anxious</li> </ul>

Note: this table illustrates the possible biological basis of two personality traits.

Zuckerman (2005) challenges Eysenck's biological model. He believes that current evidence points more towards genetic differences in sensitivity at the synapse level to neurotransmitters. Some of these synaptic systems rely on enzyme systems to produce and degrade the transmitter molecules. Additionally, individuals will have varying amounts of excitatory and inhibitory synaptic receptors. Variations of the dopamine system in particular seem a likely candidate to explain variations of extraversion and possibly adrenaline the neuroticism construct. These are genetic differences and hence difficult to modify. The important point is that personality will therefore have temporal stability.

However, the basic premise that individuals will vary in their propensity for cortical arousal remains generally accepted (Cooper, 2010) and the theories above still offer a biological basis for the variations in personality types, i.e. they are based on biological individual differences. The experimental evidence (Cattell, 1965; Eysenck and Eysenck, 1969; Costa and McCrae, 1991) is that these personality dimensions are concrete phenomena. These variations allowed psychologists to type (v.s. more detailed trait) personalities, but type classification is not normed and is a relatively crude way to classify business behaviours especially within a team context.

Despite this reservation the Myers-Briggs Type Indicator has been used in some studies (Tan and Tiong, 1999; Gentry et al., 2007; Brown and Reilly, 2009; Kuipers et al., 2009). Wheeler et al. (2004) point out a number of limitations of the MBTI which include doubts that the types are innate and invariant and that it may not provide sufficiently measurable personality differences. A more detailed construct with a stronger empirical base might be more informative (Dawes, 2004). Kakabadse and Kakabadse (2008) introduced a visioning map based on Myers Brigg's raw scores to be able to present director type personalities in a graphic form that facilitates discussion and board team development (Kakabadse, 2009). Myers Briggs personality typing groups respondents into one of four letter types (E/I)(S/N)(T/F)(J/P) see Table 4.3 below. Thus according to the Myers Briggs classification all personalities fall into one of 16 types, although often secondary sub-types are described (Myers, 1962). Kakabadse (2009) suggests directors can even have four sub-types to call on as different business environments require. So Kakabadse and Kakabadse (2008) have partially overcome typing limitations by re-plotting the raw scores onto a star of four axes, a "visioning map" (Figure 4.1) so that each end of the Myers Brigg's polarity is included. They argue it is incorrect to impose a single type to define likely behaviour without defining the context.

**Table 4.3**                      **Creation of Visioning Map**                      **Kakabadse and Kakabadse, (2008)**

<b>Kakabadse and Kakabadse Axis Title</b>	<b>Kakabadse and Kakabadse Dimensions</b>	<b>Myers Briggs Type Factor</b>
Centeredness	Extrovert/Introvert	Extrovert/Introvert (E/I)
Cognition	Pragmatic/Creative	Sensing/Intuiting (S/N)
Interfacing	Rationality/Sensitivity	Thinking/Feeling (T/F)
Behavioural Orientation	Directive/ Consultative	Judging/Perceiving (J/P)

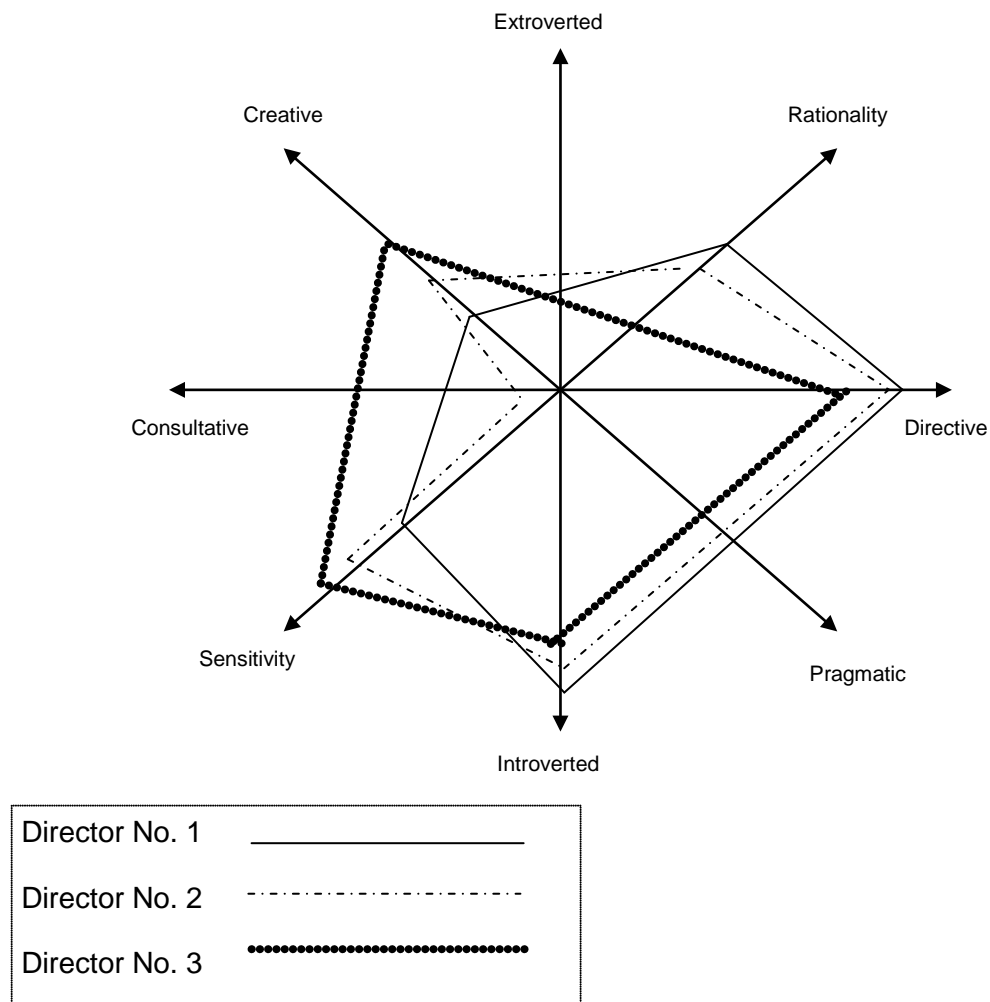
Note: this table shows how Kakabadse and Kakabadse derive dimensions from MBTI types

For example the introvert raw score is plotted as well as the extrovert giving two dimensions to the EI axis. Kakabadse (2009) argues that an individual's personality type response on a board will be context specific (Mischel, 1999), the director unconsciously selecting personality type factors as innately judged appropriate to that board environment. This will vary by board, so for Kakabadse the context of the board will determine which personality type characteristics will be utilised. He uses the term "role discretion" to describe the variation of personality type responses of an individual. It is an underlying assumption of the Kakabadse and Kakabadse model that it is possible for a respondent to vary their personality types to meet different environmental demands. The limitations of the formal Myers-Briggs four letter archetype become irrelevant because the director is able to choose from a larger response repertoire.

The individual visioning map graphic plot will show what personality type resources are available. Often these will be insufficient for the business context. The individual director's visioning map will show the gaps in the available type characteristics. If key ones are missing for that context the director will be unable to perform adequately on that board. They might well perform adequately on another board where a different set of personality type characteristics are needed and are available. Kakabadse (2009) gives the example of a chairperson who might need J (directive) characteristics on one board, but P (consultative) on another, so will only succeed on

both if he (she) can call on both characteristics. An example taken from real life of this technique is shown here in Figure 4.1.

**Figure 4.1 Example: Three Director Personality Type Profiles Kakabadse and Kakabadse (2008)**



Note: this figure illustrates from real life the type profiles of three directors and how they differ.

These three non-executives seemed quiet and cooperative (note the introversion and sensitivity scores), but at interview all three expressed major dissatisfaction with the board process in the

subsequent discussion. The first two directors seemed uninterested in their potential contributions. They had become used to sitting in sullen silence or asked only to clarify points of detail. When presented with these maps the board agreed it was dysfunctional and one of the three “silent” directors then resigned. The CEO/chairman became aware of the wastage of non-contributors and lack of full examination of the strategic issues. Kakabadse and Kakabadse (2008) get to these conclusions by facilitating post hoc qualitative debate. The system is designed to correct errant board design and function. It is not designed to facilitate research enquiry and publication.

#### **4.2.2 Classifications of personality by traits**

Spearman (1907) developed factor analysis as a statistical technique which enables psychologists to measure simultaneously correlations among a large group of variables (Cooper, 2010). This facilitated the more sophisticated technique of trait analysis. Allport developed a questionnaire which he believed established the reality of personality traits which he described as predispositions to respond, specifically (Allport, 1937, p. 295) he defined a trait as:

“ a neuropsychic structure (peculiar to the individual) having the capacity to render many stimuli functionally equivalent, and to initiate and guide equivalent (meaningfully consistent) forms of adaptive and expressive behaviour ”.

Allport believed they were general and enduring personal aspects of behaviour in which individuals differ and that could therefore be used to differentiate between individuals. Cattell (1965, p. 28), a student of Spearman, defined a trait as: "some relatively permanent and broad reaction tendency". Allport originally devised the traits by analysing language which Cattell (1945, p. 69) referred to as "verbally defined". Cattell used factor analysis to isolate such traits from questionnaire data. Each trait varies along an axis. He found it possible to create large numbers of potential traits although focussed on between twelve and twenty. He differentiated

between source traits and surface traits. The former were described as an underlying source of observed behaviour identified by statistical factor analysis as standing alone. Surface traits were described as the creation of several influences on observed correlations. The identification of the source traits as a "cause" of surface traits offended the premises of behaviourism. Cattell also recognised that the context of the role could disturb the measurement of the trait. His results indicated that the range of attributions along the source trait axis were normally distributed in the population.

Early on Cattell ran into critical opposition and his suggestions were not universally accepted. Thompson (1947, p. 273) describes one of his first works as: "almost simultaneously extorts admiration and provokes condemnation". Specifically, Thomson criticised the mathematical uncertainties by which the classified Allport catalogue of 4,500 traits is reduced by correlation coefficients into "clusters", "nuclear clusters" and then individual traits. However, Thomson's comments appear to be primarily an attack on the mathematics and writing ability of Cattell rather than the underlying psychological premise. Cattell's answer (Cattell, 1948) was to firstly blame his publishers for the copy and editing errors, but more importantly when discussing why he had been able to find twelve independent personality factors explained this as (Cattell 1948, p. 229): "the number of factors that can be reliably extracted for a given population sample and number of variables is anybody's guess".

Cattell's (1965) later proposal that personality consists of a number of specific and measurable traits led him to develop the 16 Personality Factor questionnaire (known as the 16PF) originally devised in 1945 as 12 factors originally derived by exploratory factor analysis from live observation (Cattell, 1945) to which he later added the four Q (derived from questionnaire data)

factors, on which individuals are placed on a normed stanine<sup>20</sup> for each of these 16 trait factors. The 16PF was updated, eventually reaching a fifth edition (Cattell and Cattell, 1995). Eysenck and Eysenck (1969) examined a matrix of 99 items submitted by Cattell and concluded that the items were not objective, but were based on subjective judgements. Recently Matthews et al. (2003) continued this criticism. Whilst conceding that Cattell's (1965) 16PF has been extensively used in research even to the point of becoming a standard, Eysenck and Eysenck (1969) question the construct validity of the scales. However, Matthews et al. (2003) concede it has been found to have good behaviour predictability even if the psychological nature of the constructs "remain obscure" (Matthews et al., 2003, p. 20). Although responses will vary by the emotional state, situation and motivation of the person being examined, it is generally accepted and widely used in occupational psychology today as a useful workable approximation of a personality descriptor (Furnham, 2008; Cooper 2010) and an improved adaptation of this methodology is used in this research project.

In fact, there has been a large stream of research literature based on using Cattell's trait theory. For example, Henney (1975) described the personality characteristics of industrial managers at British Leyland, whose Longbridge factory had adopted Cattell's 16PF (edition A) for selection procedures. He found that the superintendents tended to appear more stable and socially outgoing than the norms. Musson later (1998) analysed the personality profile of Anglican clergy in England using the 16PF<sup>21</sup>. Musson refers to Cattell's claim that on a sten score (mean 5.5) scale scores below 4.9 and above 6.1 are interpretable. Musson also applies a t-test to the results and claims for example that the clergy differed from the male English norm in being significantly

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<sup>20</sup> range of 1-10 with a mean of 5.5 ( normed to a standard deviation of 2)

<sup>21</sup> (edition unspecified).



more intelligent, more conscientious, more tender minded and more outgoing. Using this technique he is able to contrast his findings with a similar US study (Childers and White, 1966) thus adding to the comparative literature. This underlines the utility of the Cattell trait analysis system. Bartram (1995) investigated the predictive validity of the 16PF (editions A and B) for military flying training<sup>22</sup>. This wide use of the 16PF continues. Garcia-Sedeno et al. (2009) investigated the relationship between personality traits and vocational choice amongst 735 students in Cadiz and found, using the 16PF (edition 5) a strong congruency between personality profiles and vocational interests. When reviewing the eventual contribution of Cattell, Revelle (2009) states that his influence would be hard to overstate and confirms that in time his trait theory gained general acceptance so that today it is a widely recognised standard system with appropriate reliability and validity measures.

One criticism of the 16PF is that factor B attempts to measure “intelligence”. Salovey and Mayer (1990) argue that it is invalid to assume it is reasonable to forecast effective and constructive behaviour solely from high results in IQ tests which attempt to measure cognitive abilities (only). The predictive value of IQ testing on performance was put in doubt by the discovery that successive generations from 1947 to 2002 in almost 30 countries including the US and UK were achieving progressive increases in IQ test scores, the “Flynn effect” which as Flynn writes either means that (Flynn, 2007, p. 3): “the children of today were far brighter than their parents or, at least in some circumstances, IQ tests were not good measures of intelligence”.

Flynn concludes that g (IQ) being a compilation of ten or more subtests will not sufficiently test the differences in the variety of cognitive sub-tasks that may not in fact be strongly correlated. In

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<sup>22</sup> Bartram was able to confirm results found previously for US airline pilots that the applicants who were more extravert, less anxious, more tough minded and more independent. This increased the prediction of pass/fail training from  $r=0.359$  to  $r=0.425$ .

particular, the change in educational and social priorities over time, have altered the ability to answer questions in the test sub-group titled “similarities” and he concludes (Flynn, 2007, p. 22), that: “today’s youth are much better at on-the-spot problem solving without a previously learned method”. He states that the increased ability caused by these environmental developments does in his view, better equip the latest generation to free logic from concrete referents and so meet the challenges of say running fast evolving businesses as paradigms shift. He concedes that at any one time when social change is in effect “frozen” the general IQ (g) will have comparative value.

Gardner (1999, p. 33) defines intelligence as:

“a biophysical potential to process information that can be activated in a cultural setting to solve problems or create products that are of value in a culture.....that is ours by virtue of our species membership”.

Gardner (1999, p. 82) maintains that the potential is only realised to a greater or lesser extent in response to events that happen in a person’s development: “as a consequence of the experiential, cultural and motivational factors”. Earlier Gardner (1983) had proposed the idea that intelligence should be considered a multiple concept with different potentials<sup>23</sup>. The evidence was gained from patients who suffered brain damage and so isolated different intellectual abilities, a view described as modularity. This was reinforced by the factor analysis referred to by Flynn showing poor correlation between different intellectual abilities, arguing away from the traditional idea of a general intelligence “g” distributed normally throughout the population, as postulated earlier (Herrnstein and Murray, 1996).

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<sup>23</sup> he suggested seven in 1983, nine in 1999

Gardner's (1983) original seven intelligences included linguistic, logical-mathematical, musical, bodily-kinesthetic and spatial, all of which can be tested, albeit some by less conventional means than traditional pen-paper tests. The last two he defined as interpersonal intelligence which denoted a person's capacity to understand the other person's: "intentions, motivations and desires" (Gardner, 1999, p. 43) and intrapersonal intelligence (Gardner, 1999, p. 43) which:

"involves the capacity to understand oneself, to have an effective working model of oneself.....and to use such information effectively in regulating one's own life".

These latter intelligences are very similar to the "emotional intelligences" described by Goleman. Goleman asserts: "intellect cannot work at its best without emotional intelligence" (Goleman, 2004, p. 28). This proposition is supported by some other authors (Damasio, 1994; Higgs and Dulewicz 2002; Gardner, 2004; Wilding, 2007).

Given these reservations about Factor B "intelligence", personality traits for this study have been measured using the 15FQ+ (Psytech, 2003). This questionnaire is based on Cattell's (1965) 16PF personality trait factors described above and as first devised by Raymond Cattell Associates in 1954. Fifteen of the factors correspond to the 16PF. But as described, the 16PF questionnaire includes question items which attempt to briefly measure intelligence as a personality trait. With the doubts as to whether this can be valid for an untimed and unsupervised test, the authors of the 15FQ+ deleted factor B and replaced it with a measure of a personality trait "intellectance", factor  $\beta$  which measures the subject's implied view of their own intellectual ability (irrespective of what it might be if measured directly). This is the + added to the 15 Factor Questionnaire. It could therefore be considered a better measure of personality traits, leaving g (IQ) measures to other instruments. For a summary of the 16 factors of the 15FQ+ and their relevance to directors see Table 4.4 below.

**Table 4.4 Summary of 15FQ+ Personality Trait Factors Psytech Co. Ltd (2003)**

<b>Factor</b>	<b><u>Low Score from 15FQ+</u></b> Extracted comments (Psytech ©, 2003) from 15FQ+ manual	<b><u>High Score from 15FQ+</u></b> Extracted comments(Psytech©, 2003) from 15 FQ+ manual	<b>Relevance to Director Behaviour</b>
<b>A</b> Distant Aloof vs Empathic	Tend to be cool, distant and somewhat aloof in their interpersonal relationships. Extremely private with low need for affiliation.	Interested in people around them, natural understanding of “what makes others tick”. Good listeners, likely to be valued team members. Seen as caring, concerned.	Team skills important (Cohen and Bailey,1997; Empathy may be rare (Bibb and Kourdi, 2007).
<b>β</b> Low vs High Intellectance	Lack confidence in own intellectual abilities. May feel uncomfortable having to explain complex ideas to others.	Confident of own intellectual ability. Likely to enjoy tasks that are intellectually demanding.	Need a minimum level of intellectual skills, but these are complex to measure directly (Flynn, 2007).
<b>C</b> Affected by feelings vs Emotionally stable	Inclined to experience mood swings. May sometimes over-react to situations, with their judgment being clouded by their strong emotional reactions.	Likely to be emotionally stable, steady resilient individuals. Others view them as being mature, dependable individuals who can be relied upon to cope in a crisis	Need to be able to manage a crisis without mood swings (Bartel and Saavedra, 2000).
<b>E</b> Accommodating vs Dominant	Co-operative, accommodating and obliging, low scorers are inclined to give way to others. Likely to be modest and deferential in their interpersonal relationships.	Determined to get their own way, high scorers may on occasion be aggressively assertive when dealing with others. Not being unduly concerned about upsetting people, they may be disinclined to listen to other’s point of view.	Need for some Assertive behaviours on team(Belbin,2004) and Dominance (Rotter and Hochreich, 1975).
<b>F</b> Sober-serious vs Enthusiastic	Restrained individuals. Serious minded and with little time for light-hearted entertainment, preferring instead to engage in more serious minded activities.	Keen to take part in any activity that promises fun, thrills and excitement. On occasion to step beyond the bounds of decorum.	Need for board motivation via emotional intelligence control (Dulewicz and Higgs, 2003).
<b>G</b> Expedient vs Conscientious	Lack a strong sense of duty, inclined to disregard well-established rules. Generally approach tasks in an expedient, casual manner, solving problems as they arise rather than follow a detailed action schedule.	Strong sense of duty and responsibility. They are persevering and are inclined to be neat, tidy and well organized.	Common fiduciary duty to all shareholders (Cadbury, 1992; UK governance code 2014 ).
<b>H</b> Retiring vs Socially Bold	Shy and retiring, they may be prone to “stage fright”, and are likely to be slow to speak up and express their views and opinions. They tend not to speak up in meetings.	They feel self-assured and confident in most social settings and are likely to be happy speaking in front of a large audience. Whatever the setting, they usually have something to say, and readily contribute to group discussions and debates .	Need confidence and have need for recognition (Rotter and Hochreich, 1975).

<b>Factor</b>	<b><u>Low Score from 15FQ+</u></b> Extracted comments (Psytech ©, 2003) from 15FQ+ manual	<b><u>High Score from 15FQ+</u></b> Extracted comments(Psytech©, 2003) from 15 FQ+ manual	<b>Relevance to Director Behaviour</b>
<b>I</b> Hard-headed vs Tender-minded	Adopting a rather tough-minded, no nonsense approach to life, will be primarily concerned with whether things work effectively, giving little thought to aesthetics. View themselves as being utilitarian realists.	Likely to have sophisticated tastes, appreciating fine art, literature, music etc. Creative aesthetically sensitive individuals, they will generally have little interest in working with their hands, in fixing or repairing things. This factor contributes to “Openness (to ideas) of Five Global Factors	Face hard environmental realities, within the constraints of bounded rationality (Simon, 1957).
<b>L</b> Trusting vs Suspicious	Quick to place faith in others, believing that most people are dependable and trustworthy. Inclined to give people the benefit of the doubt, may at times be overly trusting.	Doubtful and mistrusting of other’s motives. Adopting a suspicious approach to life, others may view them as being rather jaded or cynical.	Trust of each other's judgement on board essential ( Blair and stout, 2001).
<b>M</b> Concrete vs Abstract	More concerned to ensure things work, rather than explore how or why they work. May be disinclined to look beyond the obvious facts in a given situation in search of deeper possibilities and meanings.	Creative, imaginative individuals who have a strong interest in abstract theoretical ideas. Naturally inclined to look beyond the obvious facts in a given situation, they are likely to come up with innovations. May become so engrossed in their own ideas and thoughts as to lose sight of practicalities.	Need to search beyond obvious solutions , bringing external creativity to board (Rindova, 1999).
<b>N</b> Direct vs Restrained	Tend to be direct and to the point in their social interactions. On occasion this may even verge towards being somewhat blunt or tactless. Inclined to “speak first and think later”.	Tend to be diplomatic and restrained in their social interactions. Others are likely to consider them to be shrewd and socially astute. May on occasion be somewhat manipulative in interpersonal relations.	Need sophisticated skills for cohesive social interactions (Forbes and Milliken, 1999).
<b>O</b> Confident vs Self-Doubting	Confident in ability to deal with life’s challenges. To others, they may on occasion be overly confident, possibly lacking insight into their own personal weaknesses or failings.	Tend to be self-reproaching and troubled by feelings of self doubt. Lack of self confidence may on occasion prompt them to appear tentative, indecisive or lacking in resolve.	The ability to self regulate (Mischel, 1999). The need to confidently deal with issues (Stiles and Taylor, 2002).

<b>Factor</b>	<b><u>Low Score from 15FQ+</u></b> Extracted comments (Psytech ©, 2003) from 15FQ+ manual	<b><u>High Score from 15FQ+</u></b> Extracted comments(Psytech©, 2003) from 15 FQ+ manual	<b>Relevance to Director Behaviour</b>
<b>Q1 Conventional vs Radical</b>	Conventional in their outlook on life. They are inclined to question innovation, often believing that new approaches represent little more than change for the sake of change.	Value progress, innovation and change. Their attitudes and opinions are likely to be fairly unconventional, being naturally inclined to question the status quo. Prefer to work where they are free to initiate change, experiment and innovate.	Positive firm results postulated to be associated with ability to innovate (Hambrick and Mason, 1984).
<b>Q2 Group-orientated vs Self-sufficient</b>	Prefer to take decisions with others. Like to participate in committees. Extremely group orientated they may have difficulty functioning effectively in situations where they have to work independently from others. Prefer working as part of a team	Autonomous, self-sufficient individuals who prefer to take decisions on their own, dislike working in team settings.	Need to be able to work in a team (Katzenbach and Smith,1993; Higgs and Dulewicz, 1997; Clutterbuck, 2007).
<b>Q3 Informal vs Self-disciplined</b>	Tending to question authority and accepted moral values. May lack discipline and self control.. May on occasion appear somewhat impetuous and may have difficulty conforming with strict rules and regulations.	Value self-control and self-discipline. Respectful of authority, status and social position and believe it's important to follow correct protocol and procedure. May be a little dogmatic or obstinate.	Need to observe and comply with governance regulation (Stiles and Taylor , 2002; Mallin, 2007;UK governance code, 2014).
<b>Q4 Composed vs Tense-driven</b>	Dealing with frustrations in a calm, steady, easy-going manner.Can work under pressure and are unlikely to become short tempered or irritable if things go wrong. Unlikely to experience stress related health problems.	Tense, impatient and hard driving, likely to be short tempered with people or things that get in their way. May be prone to believe that the only way to ensure something is done properly is to do it oneself. Quickly get frustrated with other people.	Need to control tasks delegated to management whilst maintaining motivation (Jensen and Meckling, 1976).

Note : The stanen norms (scores 1-10, mean 5.5, SD 2) are established from a population of 1186 managerial and professional respondents tested by Psytech Co. Ltd (2003). High score  $\geq 7.5$ , low score  $\leq 3.5$ .

#### **4.2.3 Personality trait theory, criticism and conclusion**

Porteous argues that there can be too many dimensions in such tests giving a pseudo-comprehensiveness and warns of the Barnum effect of seeing what we want to see and ignoring contradictory trait data. He thereby stresses the need for objectivity (Porteous, 1997) which is tested by construct validity (Section 6.4.5.2).

Woods (1998) lists some potential criticisms of such psychometric personality tests, specifically;

- a) personality traits may change over time.
- b) they assume the individuals understand themselves (tests rely on their self report).
- c) different situations will elicit different behaviours (therefore need to be specific in respondent brief e.g. in board room), see CAPS theory Section 4.2.1 above.
- d) there is as yet no completely agreed definition of personality and it is difficult to validate such questionnaires.
- e) the respondent may vary their answers depending upon their attitude to the tester.
- f) respondents may lie, although Eysenck included a lie scale to detect the individual's tendency to give socially acceptable answers and a test for "social desirability" is included in the instrument used in this project.

adapted from Woods (1998)

However, Woods (1998) accepts that despite these potential problems personality tests if tested for reliability and validity offer a means of gathering useful data and have a place in clarifying individual differences in behaviour. As argued above, type factors are too broad and do not allow sufficient depth of analysis of differences. Secondly there are no type norms to comment on individual director variances. These faults are overcome by using a personality trait analysis such as the 16PF or 15FQ+ with 16 factors on a stanine scale giving approximately 4 million individual permutations. Thomas (2007, p. 300) reports that Cattell: "believed that personality is too complex to be represented by a small number of dimensions".

Furnham (2008) concludes that Cattell's test has a number of advantages including its comprehensiveness, its functional measurement of natural personality structures and its wide

use and data base in clinical and industrial psychology. The 15FQ+ was chosen for this study on these grounds.

### **4.3 Personality diversity on boards**

Diversity on boards has been a major subject in the literature (Williams and O'Reilly, 1998; Nielsen, 2010). It is first necessary to define the term “diversity”. van Knippenberg et al. (2004, p. 1008) define diversity simply as: “differences between individuals on any attribute that may lead to the perception that another person is different”.

Klein and Harrison (2007) suggest that the very concept of diversity is not simple, that diversity itself is diverse. It can usefully be divided into “variety”, when each group member provides unique knowledge or experience. Alternatively, diversity can be defined as “separation” when group members are polarised between extreme and opposing factions along an axis. The final third class of diversity defined by Klein and Harrison as “disparity” which occurs when one or more group members outrank the others in power or wealth. These different diversities may have different directional effects on outcomes and this complicates diversity research. It is argued in this study that personality traits of directors separate on a horizontal axis, and they represent diversity as separation.

Studies of diversity within TMTs and boards have focussed mainly on demographic diversity such as functional background, race, educational level, tenure, gender and age as proxies for predicted behaviours, with equivocal conclusions (Wiersema and Bantel, 1992; West and Swenk, 1996; Williams and O'Reilly 1998; Simons et al., 1999; Nielsen, 2010). There are less studies of the effects of personality diversity (Miller et al., 1998; Pitcher and Smith, 2001; Peterson et al., 2003; Torchia et al., 2015) and these are listed below in Table 4.5. Daily et al. (2003) point out



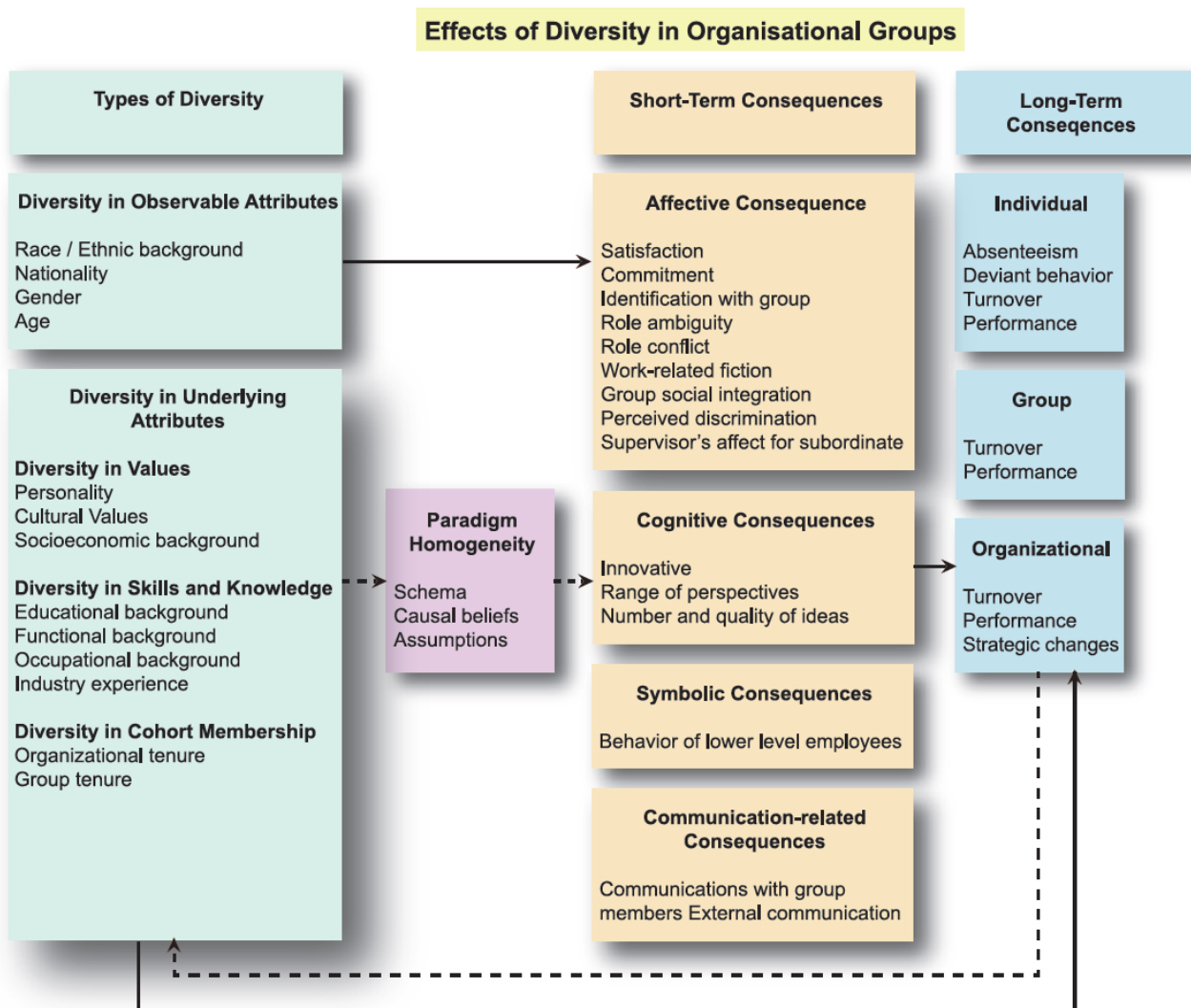
that most studies to that date used organisational demography as the important independent variable. Priem et al. (1999) in their review claimed that the more demographically diverse the TMT the better the performance in a turbulent environment. The presumed mechanism is implicit cognitive heterogeneity, producing greater cognitive conflict and therefore better decision quality, the “congruence assumption” of demography and behaviour that Lawrence, (1997) challenged. Williams and O’Reilly (1998) reviewed 40 years of research and concluded that demographic diversity alone could not fully explain variations of board performance. They suggested a more complex solution is needed. Indeed, they noted that most research supporting the benefits of heterogeneity have been laboratory based. Their review of field based studies (1998, p. 79): “provides evidence of the possible dysfunctional aspects of heterogeneity....including increased stereotyping”.

In terms of governance regulation Higgs (2003) shows concern that most boards are too homogenous and suggests better corporate governance would be served by a wider demographic diversity of directors. This is despite Priem et al. (1999) challenging the basis of trying to correlate TMT results with demographic heterogeneity, which they too describe as a poor proxy for cognitive variety. Milliken and Martins (1996) propose a model (as illustrated in Figure 4.2) of the effects of diversity in teams such as TMTs which takes account of both observable characteristics such as those described above by Hambrick (1998) to which Higgs (2003) refers and the less observable characteristics such as personality. They admit though that: “very few organisational studies actually focus on diversity (of personality characteristics)” and how such diversity might affect cognitive outcomes (Milliken and Martins, 1996, p. 409).

Figure 4.2

# Effects of Diversity

Milliken and Martins (1996)



Note: this figure illustrates the posulated effects of demographic and cognitive diversities on short term and long term consequences.

This figure represents an early recognition that diversity could be found in both observable and underlying attributes. Milliken and Martins (1996) posit that diversity of conscious and unconscious preconceptions and differences in personality characteristics can create major differences in orientation and consequent serious coordination difficulties for team processes.

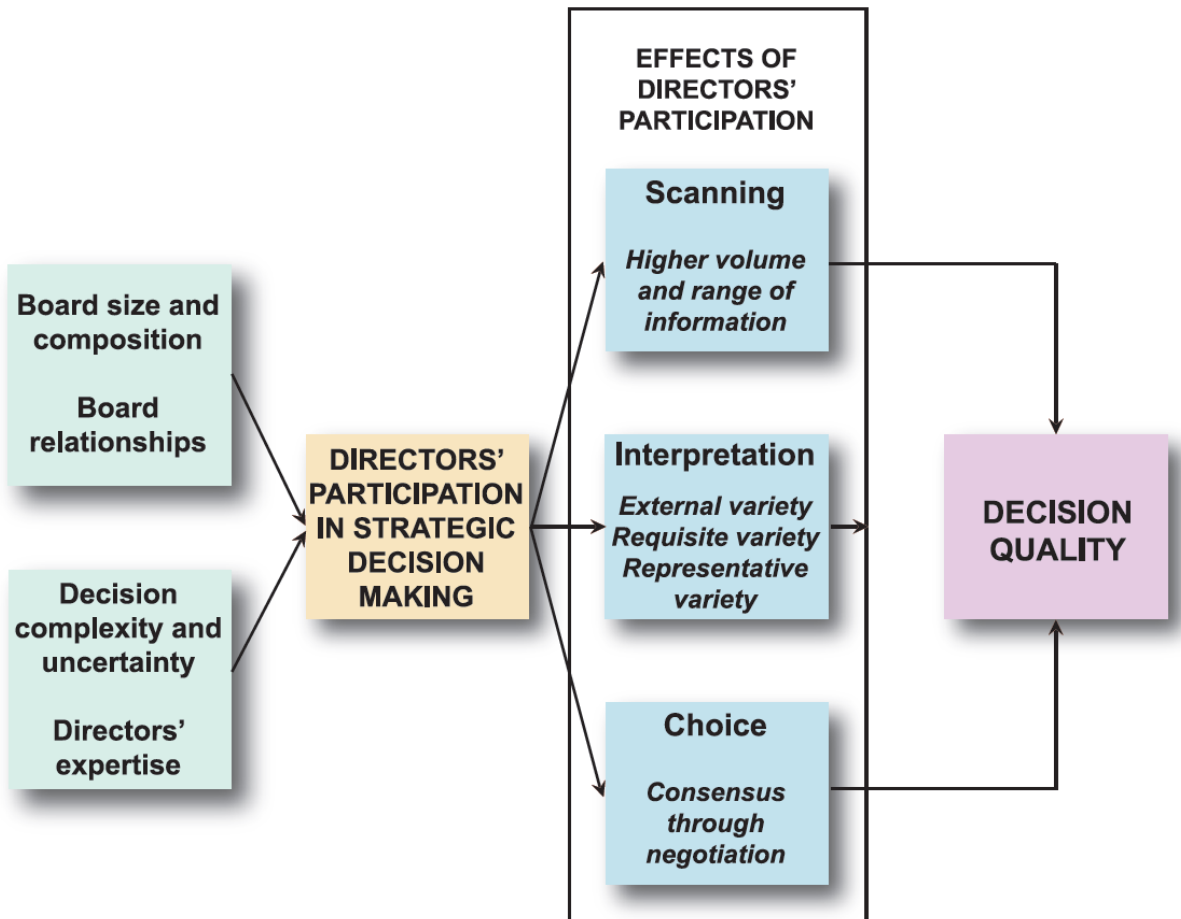
Belbin (2004) developed his theories of team construction by conducting experiments with students at the Henley Management College. The results are reported as the outcomes of business games and favour heterogeneity of personalities. However, these games were not tested in the real world of business for performance outcomes and have been criticised for being: “largely anecdotal and not strictly controlled methodology” (Porteous, 1997, p. 170). They were short term training games and did not involve long term intrapersonal commitments to a real business.

Rindova illustrates, see Figure 4.3, in some detail the cognitive advantages that active directors could bring by using this variety of knowledge and skills to input through three different routes of scanning, interpretation and choice, critically contrasting these to the constraints implied by agency theory.

Figure 4.3

Directors Variety of Skills

after Rindova, 1999



Note: this figure illustrates how Rindova postulates that variety of director knowledge and skills can improve decision quality on a board.

Thus decision quality in the Rindova model depends on achieving a negotiated consensus which takes account of the various interpretations that will flow from the “variety” of board talents. It would seem logical that this consensus will require examinations of the various interpretations offered through the positive process of cognitive conflict described by Forbes and Milliken

(1999). Daily and Swenk (1996) fail to find a consensus on the benefits of heterogeneity on the board and suggest that the benefits could be context dependent. For example, the benefit of a diversity of views that heterogeneity implies could be beneficial in an international complex business, whilst the consensus of views could be more beneficial in a less complex domestic business (Rejchrt and Higgs, 2015).

Rindova (1999) describes directors as a potential source of “external variety” which brings expertise from outside the consensus within the industry, “requisite variety” which is expertise outwith the norm of the TMT into say new markets: “increasing the pool of available interpretive frameworks” and thirdly “representative variety” which is increasing the social diversity with a : “fuller representation of the environmental complexity” (Rindova, 1999, pp. 964-966). Rindova argues that being remote from day to day management can actually add value, for example lacking the disadvantage of limited specific company knowledge can encourage and facilitate the use of general problem solving skills. A variety of director expertise can, she asserts, make decision making efficient without the need to understand detailed complex information. This leads to a conclusion that the more diverse and large the team, the more expertise and variety of experience is available. But this argument may be limited by the possible negative effects of diversity (heterogeneity) (Ancona and Caldwell, 1992; Smith et al., 1994; Milliken and Martins, 1996). It seems axiomatic that the variety of input is likely to be enhanced by knowledge, experience and skills heterogeneity, but the question is at what process cost. In her review Petrovic suggests the literature tends to show that high diversity within a group is positively associated with cognitive conflict, but negatively associated with cohesiveness (Petrovic, 2008). Rindova (1999) argues that the board TMT would be strengthened if boards of directors apply their cognitive skills and engage in decision making, particularly strategic, which thereby she

implies is unusual. She is basing her observations on US rather than UK directors, but she states a: “firm’s top decision-making body (TMT) becomes both bigger and more diverse when directors are included” (Rindova, 1999, p. 958). She suggests that including the board in strategic decision making will increase the information to the whole of the TMT and create a scan of a wider range of issues. She may be reflecting a US bias towards passive boards under the sway of the strong leadership of a combined CEO/chair duality (Mace, 1986). Her suggestions could also be seen as having some relevance to UK boards, particularly the potential benefits of either cognitive diversity or cognitive harmony to access variety.

Priem et al. (1999, p. 945) point out that:

“power homogeneity would likely encourage expression of multiple viewpoints, whereas power heterogeneity, with control typically centered in the CEO, would discourage such expression”.

This would be described as diversity of disparity (Klein and Harrison, 2007).

Tatli (2011) observes that studies on diversity tend to divide between those exploring the disadvantages that accrue from discrimination and others which are concerned with the performance implications of diversity on a team. Bowers et al. (2000) meta-analysis of 57 effect sizes from 13 studies concluded that there was a small, but not significant effect in favour of heterogeneous groups producing better team results. Diversity is defined by these authors as variations in knowledge, skills, abilities, personality, attitude, gender and ethnicity. It could be argued that this is too wide a spectrum to allow common combined meaningful analysis (Zhou and Rosini, 2015). Bowers et al. (2000) speculate, like Hambrick and Mason (1984) that the environmental context is key, heterogeneity being more productive in turbulent environments. Otherwise homogenous teams would perform at a higher level because of better coordination.

Bowers et al. (2000) argue that there will be more conflicts between dissimilar individuals which will interfere with performance.

There is an implicit assumption that diversity (Sealy et al., 2009), as defined by their study and many others (Pfeffer, 1983; Hambrick and Mason, 1984; Wiersema and Bantel, 1992; Milliken and Martins, 1996; Webber and Donahue, 2001; Stewart 2006 Brammer et al., 2007), is a function of gender, ethnic minority, sexual orientation and disability rather than personality. One could argue though that the former are just surrogate markers of implied behaviours, i.e. personality traits (Hillman, 2015). Maznevski (1994) points out that functional diversity based on work skills (finance, marketing, human resources) is normal for work groups, such as boards and not usually meant to be included in the general term “diversity” and that gender for example can also become role related if it is a deliberate assignment to represent the typical and different point of view of that gender (or culture or other group). Thus demographic diversity can be representational or a better use of the talent pool. Thus study objectives of diversity may become confused.

Maznevski (1994) proposed a model to explain the performance variation of highly diverse groups. She explained these variances by the moderating effect of communication. These skills vary with the diverse cognitive characteristics of the players which she associated with for example, gender and national origin. She argues that good communication skills in the group will positively moderate performance by making the wide contribution of diverse experience and personality available. Conversely poor communication skills will result in decreased performance as the heterogeneity encourages the creation of team barriers (Levine and Moreland, 1990; Van der Walt et al., 2006) although Wanous and Youtz (1986) found experimental support that diverse groups (of students) gave improved performance by offering a

more diverse number of solutions. It would seem that demographic diversity is too complex a set of variables to offer a simple pooled performance effect model.

Stahl et al. (2010) proposed that cultural diversity in particular affects business teams through process losses and gains associated with increased divergence and decreased convergence. Employing a meta-analysis of 108 empirical studies they suggested that cultural diversity causes losses through increased task conflict and decreased social integration, (which could be analogous to less cohesion). They separate task conflict from increased creativity which is perhaps a confusion of this definition of conflict. They refer to a meta-analysis of De Drue and Weingart (2003) to propose that both cognitive (task) conflict and affective (relationship) conflict affect performance negatively. The meta-analysis of De Drue and Weingart also includes their finding that task complexity strongly mediates the negative correlation between demographic diversity and performance.

Stahl et al. (2010, p. 694) draw on the work of Harrison et al. (1998) and differentiate between the “surface level diversity” as so defined in the overt demographic characteristics above and “deep-level diversity” which includes: “differences among team members’ psychological characteristics, including personalities” and confirm that there is still a lack of theoretical clarity on the effects of this deep-level diversity. Harrison et al. (1998) showed evidence that the affects of surface-level diversity are weakened by time and deep-level effects are increased. They surmise that this is because transfer of information between team members over time moderates the initial perceptions. Tenure on a board is thus a possible moderating variable. Harrison et al. (2002) re-inforced this finding, albeit amongst 144 artificial business student teams. They proposed the model shown in Figure 4.4 below.

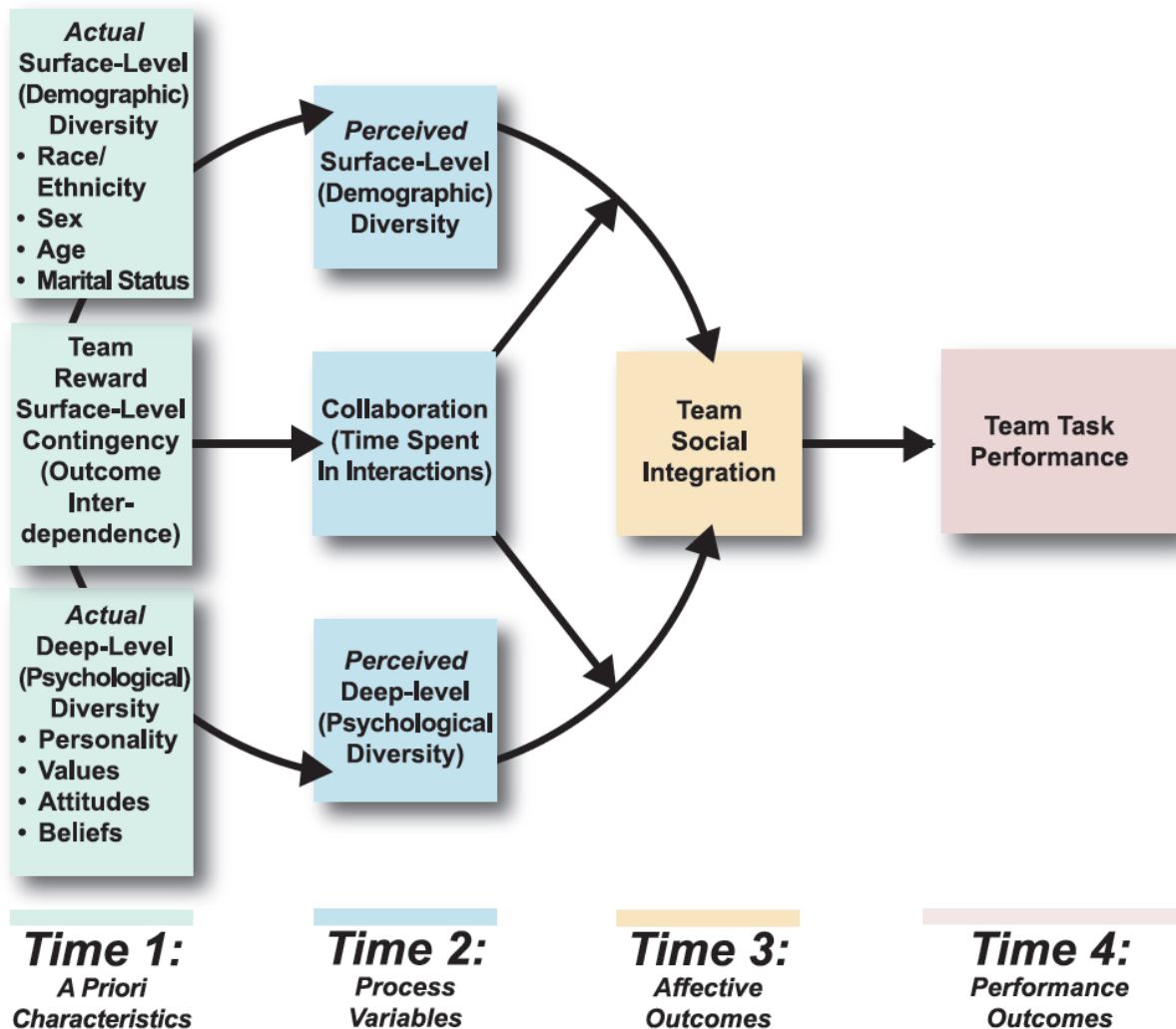


Figure 4.4

## Time Effects of Diversity

after Harrison 2002

## Intervening and Interactive Temporal Mechanisms Translating Team Surface - and Deep-level Diversity into Social Integration and Performance



Note: this figure illustrates a model of time on the effects of diversity: over time the surface level diversity declines in influence in favour of the influence of deep level diversity.

Thus, the authors reinforce the proposition that the effects of diversity are modified by time. The surface level (demographic) diversity having a weaker effect as deep level diversity (psychological) strengthens. The authors claim surface level diversity evokes prejudices and stereotypes. Harrison et al. assume that people are at first attracted to similar demographic types presuming there will be reinforcement of their beliefs; later when larger samples of actual

behaviour are observed the deep level diversity has a more profound effect on factors such as cohesiveness (Seashore, 1954). The empirical evidence collected from student project teams, may not exactly parallel real life business groups, but supports the proposition, albeit with relatively low, if statistically significant, correlations.

Chatman et al. (1998) used studies of MBA students adding to the debate on heterogeneity. They argue that the culture of an organisation may moderate the benefits or costs of demographic diversity. Culture was defined as an emphasis on individualistic or collectivistic values. The study lacks ecological validity, but may indicate that company culture could moderate the effects of board diversity. They found that interaction amongst dissimilar people was higher in collectivistic than individualist cultures. Similarity was defined by age, tenure, education, sex and race. They speculate that demographically similar people may categorise themselves as “in-groups” (Tajfel and Turner, 1986) even in individualistic cultures which mitigates against the theoretical benefits of heterogeneity. Their hypothesis that less diversity creates more interaction was partially supported by the recorded number of face to face meetings, but not by written memos.

However, Mohammed and Angell (2004) in yet another student participant study were unable to demonstrate in a 15 week study of 206 students in 45 teams that the surface-level diversity effects on relationship conflict decreased and the deep-level diversity effects increased. The deep level construct they chose was “extraversion” as the single personality trait that had most attention in the literature (Neuman et al., 1999). Mohammed and Angell were unable to evidence support for this hypothesis and were not able to demonstrate increased conflict in teams with less diversity of the extraversion trait. They examined individual propensity for team functionality

and found that team orientation over time helped to neutralise the effects of surface and deep level (time urgency) diversity on relationship conflict.

Nielsen's later (2010) comprehensive review finds that most studies were not able to confirm whether heterogeneous or homogeneous teams improve outputs. In fact 57 out of the 60 studies she reviewed applied diversity as an independent variable. She points out though that Glick et al. (1993) measured cognitive diversity directly and: "found no evidence for a link between demographic and cognitive diversity" (Nielsen, 2010, p. 307) despite the overwhelming use of demographic proxies in the studies. Neuman et al. (1999, p. 29) suggest:

"team based designs may also require the consideration of the diversity, or variability, of (personality) traits within the group to more fully understand the relationship between personality and performance".

This is an important observation for this study.

The term personality has been defined above (Section 4.2) as a prediction of future behaviour and can be measured via personality traits that can be quantified against a population norm (Cattell, 1965). To date there has been a limited body of research on the effects of personality diversity on boards and TMTs (see Table 4.5 below).

**Table 4.5**                      **Summary of Key Research Literature Relevant to Personality Diversity on Boards.**

<b>Author(s)</b>	<b>Date</b>	<b>Title</b>	<b>Respondents</b>	<b>Country</b>	<b>Method/Test validity</b>	<b>Summary of results</b>
Miller C. Burke L. Glick W.	1998	<i>Cognitive Diversity Among Upper-Echelon Executives: Implications for Strategic Decision Processes.</i>	38 CEOs. Study 1 and 85 board level executives Study 2.	US	4 items from the validated CODE questionnaire. Good reliability scores for both studies.	Attempt to demonstrate link between cognitive diversity and strategic output. Regression analysis suggests personality diversity negatively affects comprehensiveness and strategic planning.
Havaleschka F.	1999	<i>Personality and leadership: a benchmark study of success and failure.</i>	Two comparative company case studies	Denmark	Used novel 16 trait personality test. Validity implied, but not stated.	Traits demonstrating system flexibility, risk taking, dynamic and creative behaviour and un-needing of popularity favoured success. Concluded business success depends on composition of top leader personalities. No measure of diversity. Early study of board personalities.
Neuman G. Wagner S. Christiansen N.	1999	<i>The Relationship Between Work-Team Personality Composition and the Job Performance of Teams.</i>	82 retail teams. Not board level, but business team data may be generalised.	US	Used Costa and McCrae (1991) 5 Factor model. Validity well established.	Suggested Team Personality Elevation (TPE) for team's mean trait level and Team Personality Diversity (TPD) for trait differences within a team. For factors C, A and O common elevation predicted sales team success, for E and N, TPD was a better predictor.
Barsade S. Ward A. Turner J. Sonnenfeld J.	2000	<i>To Your Heart's Content: A Model of Affective Diversity in Top Management Teams.</i>	62 TMTs, 239 top managers.	US	Measured Positive Affect and Negative Affect. Validity and reliability of MPQ well established.	Concluded that affective homogeneity leads to greater cooperation, less affective conflict and increased efficiency, dismissing the theoretical benefits of heterogeneity promoting positive cognitive conflict. Euclidean distancing measure of diversity.
Kilduff M. Angelmar R. Mehra A.	2000	<i>Top Management-Team Diversity and Firm Performance: Examining the Role of Cognitions.</i>	35 simulated firms, 159 managers in training.	US	No validity data. Based on 6 questionnaire items from Zucker(1977).	Failed to demonstrate effects of cognitive diversity using the derived scales except for one in that their measure of "decision difficulty" was marginally significant. The greater the variation in the perception of this factor the lesser the game outcome performance.
Pitcher P. Smith A.	2001	<i>Top Management Team Heterogeneity: Personality, Power and Proxies.</i>	One 8 year case longitudinal study with follow up 50 semi-structured interviews	US	Personality measured by third party observers. Inter-rater reliability 0.71.	The authors attempt to correlate cognitive diversity with business results and conclude that cognitive diversity has a positive effect.

Peterson S. Smith D. Martona P Owens P.	2003	<i>The Impact of Chief Executive Officer Personality on Top Management Team Dynamics: One Mechanism by Which Leadership Affects Organisational Performance.</i>	17 CEOs investigated.	US	Third party observations from newspapers. q-sort method.	Concluded that a number of CEO personality traits strongly correlated with TMT dynamics. All Big Five core traits, but methodology of collecting personality data questionable.
Mohammed S. Angell L.	2004	<i>Surface and deep-level diversity in workgroups: examining the moderating effects of team orientation and team process on relationship conflict.</i>	206 students in 45 teams	US	Deep level construct of extraversion. Validity established.	Unable to demonstrate that surface level diversity decreased in time and deep diversity effects increased.
Boone C. van Olffen W. van Witteloostuijn A.	2005	<i>Team Locus-of-Control, Composition, Leadership Structure, Information Acquisition, and Financial Performance: A Business Simulation Study.</i>	Simulated training of 44 teams	Netherlands	Only one input variable, locus-of-control. Extracted output from commercial IMC. L-o-c validated.	Trait selected because authors believed it indicates a real difference in personality. Teams with high average internal locus-of-control with low heterogeneity for this trait performed better without leaders. With high average external l-o-c performed worse with low heterogeneity without leaders. Lacks ecological validity
Kakabadse and Kakabadse	2008	<i>Leading the board.</i>	unknown	UK/US	Validity not-stated MBTI questions	Visioning map based on MTBI. Text book for practitioners. No population conclusions drawn.
Belbin M.	2010	<i>Team Roles at Work.</i>	Executive management students	UK/US	No validity data, management game.	Favoured heterogeneity of personality types in business games. Based on business games. Lacks ecological validity.
Sangster A.	2011	<i>The personality profile of US Chief Executives.</i>	71 top executives on 7 TMTs	US	Validity established, used Costa and McCrae (1991) 5FM.	Found CEOs had significantly lower N (neuroticism) than general population and were isomorphic for this trait.
Peterson S. Zhang Z.	2011	<i>Examining the relationship between top management team psychological characteristics, transformational leadership and business unit performance.</i>	67 TMTs	US	Core Self Evaluation (CSE) and psychological capital (PsyCap).	Found a positive relationship of PsyCap to business unit performance. No relationship to CSE. Retest reliabilities 0.87 and 0.52 respectively which may be a reflection of the multi-dimensionability of the latter (Cooper, 2010). Both are compound constructs. Supports homogeneity.
Torchia M., Calabrò A. Morner M.	2015	<i>Board of Directors' Diversity, Creativity and Cognitive Conflict.</i>	385 CEOs	Norway	No validity data. Used CEO's evaluation of board personality diversity.	Investigated (deep-diversity) based on questionnaires. Regression analysis small $\beta$ coefficient 0.10 supporting hypothesis that personality diversity increases cognitive conflict and creativity. Collection of personality data methodology questionable and not robust (Cooper, 2010)

Note: This table lists the most important recent international contributions to personality diversity research that may be relevant to UK corporate boards.

Not many studies to date, especially in the UK, address the relationship of personality diversity to board processes and output, but a few international studies stand out in the literature as trying to address this issue.

Miller et al. (1998) did attempt to measure the effect of cognitive diversity among upper echelon executives after noting the problem with focussing on demographic diversity. They attempted to demonstrate the linkage between cognitive diversity and strategic output. The cognitive diversity however, defined as variation in preferences and beliefs, was not measured directly amongst the directors, but by means of a seven-point Likert scale on their views on business tactics and on preferred goals for the firm. This study attempted to measure disagreements as a resource. It could be argued that this is still removed from direct measurements of team member personality diversity as it asks for the respondents' view of team process and then implies the relationship to implied personality backwards. Their thesis is that the level of comprehensiveness in strategic decision making indicates behaviour. A regression analysis of the results suggests that personality diversity, as they measured it negatively affects comprehensiveness and extensiveness of strategic planning. These authors accept that their findings that such diversity should be avoided in executive groups may be premature and needs further research. However, their findings may be indicative of a previously unsuspected phenomenon favouring cognitive or personality homogeneity on US boards.

Kilduff et al. (2000) used data from US management games in 35 simulated firms on a management education program. They also found no evidence of demographic diversity creating cognitive diversity. As they state (2002, p. 22): "homogeneity along demographic markers does not necessarily engender homogeneity in attitudes, beliefs or values". They attempted to

measure cognitive diversity from six questionnaire items which were based on those developed by Zucker (1977) using a seven point scale perceptions of group processes. Like the study (Miller et al., 1998) above this can be regarded as an indirect measure of cognitive diversity. Zucker (1977) used what she describes as an ethnomethodological approach to investigate uniformity of view and resistance to cultural change. It is based on a socially constructed paradigm.

Neither of these two studies (Miller et al., 1998; Kilduff et al; 2000) really got beyond asking respondents what they thought the team thought when processing. There were no direct measures of personality diversity.

Havaleschka (1999) conducted an in depth longitudinal study of two Danish management teams over five years. He concluded that the success or failure of a company depends on the composition of the personalities of the top management including the interaction of these with the leader. This study does have ecological validity and utilises a novel 16 trait personality test, but is restricted to just two comparable Danish companies. The traits include propensity for risk taking, abstract thinking, empathy, self control and trust and is similar to the 15FQ+ used in this research. He found that traits demonstrating system flexibility, risk taking, dynamic and creative behaviour and un-needing of popularity favoured success. Again the specific traits are not the issue, rather the finding that differences in trait diversity can be linked to differences in firm performance.

Boone et al. (2005) studied the effects of just one personality factor, locus of control, on team performance in a simulated Dutch training environment. This study can be criticised for lacking ecological validity and focusing too narrowly on the one independent variable. Nevertheless, it

offers some insight into the potentially complex effects of personality diversity. Locus of control (Rotter, 1966) refers to the personality trait whereby persons ascribe internal or external forces to the causation of events. High externals tend to accept fate, high internals actively believe they can control events. The high internal average locus of control scoring teams performed better with low heterogeneity. Teams with high external average locus of control performed better with high heterogeneity. The issue here is not the specific characteristics of these extreme types, but a demonstration that traits differ in influencing performance, some better with less team diversity, others with more.

In an attempt to help resolve this ambiguity about the benefits of diversity Pitcher and Smith analysed one longitudinal case study of a US financial company over eight years and included a basic analysis of personality factors, as estimated by third party observers (Pitcher and Smith, 2001) of the successive CEOs and other key officers such as the CFO. The observations were collected from ten observers per subject. These factors per individual were formulated by a psychometric methodology that would not be considered robust under British Psychological Society guidelines, but do offer a rare attempt to correlate TMT cognitive diversity with business results. They concluded that cognitive diversity as they measured it through third party observation, did correlate mostly with business success, but sometimes with failure and that the previous limited success of previous studies may have been due to methodological shortcomings with the demographic proxies for independent variables rather than the absence of a true dependent relationship.

Peterson et al. (2003) reviewed the CEO leader personality effects on US TMT dynamics, although again from a limited (17) sample and third party observations from archival sources such as newspapers. Some caution is needed since the sources in the press were not anonymously



compiled and were likely to be contaminated by the firm's reported results. Peterson et al. used the classic five-factor model (McCrae and Costa, 1996) and concluded from their albeit limited, study that indeed a number of CEO personality traits were strongly correlated ( $p < 0.05$ ) with TMT dynamics. These included all five core traits of Neuroticism, Extraversion, Openness, Agreeableness and Conscientiousness.

Peterson and Zhang (2011) recognized the research gap and studied US TMTs using novel psychological constructs, core self evaluation (CSE) and psychological capital (PsyCap). CSE attempts to capture a self evaluation using scales based on measuring self esteem, self efficacy, locus of control (Rotter, 1954) and emotional stability (Costa and McCrae, 1991). They argue that these four scales load significantly on the CSE construct. PsyCap is similarly constructed from scales including task specific self efficacy (confidence), hope (positive motivational state), optimism and resilience. These authors specifically attempted to go beyond Finklestein and Hambrick's (1996) use of demographic data to explain such performance variations. They found a positive and significant relationship ( $r = 0.34$ ,  $p < 0.01$ ) of PsyCap to business unit performance, but not CSE. One could argue that these two are less true personality trait constructs and are more closely aligned to the positive affect states such as those studied by Barsade (2000), discussed below. Nevertheless, they offer another insight into how psychological constructs might explain variations in business unit performance.

Finally Torchia et al. (2015) attempted to clarify the effect of personality diversity by a questionnaire response from 385 Norwegian companies. They concluded that personality diversity had a (small) but positive effect on cognitive conflict and creativity. But the personality of the board was assessed by three questions to the CEO only and neither the reliability or the validity of the personality measures was sought. The conclusions have therefore to be treated

with great caution, but they do acknowledge that clarifying the effect of personality diversity on board functions is important and not yet fully investigated.

These international studies demonstrate a lack of unanimity on whether cognitive diversity is conducive to efficient board processes and outcomes or not. Miller et al (1998) argue that their study suggests personality diversity has a negative effect. Boone et al. (2005) did measure one personality trait and again found stronger performance of a high internal locus of control team with low heterogeneity, but the opposite with high external locus. Torchia et al. (2015) claim they found a slight positive effect of personality heterogeneity. Rindova (1999) suggests that heterogeneity at a functional (surface) level expertise is positive. Amason and Sapienza (1997) suggest that such heterogeneity can improve decision quality, but impede implementation. Hillman (2015) links gender diversity with what she claims is a different decision making neurological process between men and women, stating that decision making is improved with such diversity because a: “ broader set of alternatives is considered” (Hillman, 2015, p.104). It may be that the benefits of functional heterogeneity need personality homogeneity to create the cohesiveness that optimises its opportunity for constructive cognitive conflict (Petrovic, 2008). Clearly deep personality trait diversity is a difficult construct to measure in the field. Authors such as Zucker (1977) and Kilduff et al (2000) employ indirect methods. There is a current research gap of UK board studies directly measuring personality trait diversity effects on board tasks and processes.

DiMaggio and Powell (1983) define the tendency for professional career tracks to converge on common expectations, behaviour, style of dress and organisational vocabularies as “normative isomorphism”. In their view it is normal for: “individuals who make it to the top (to be) virtually indistinguishable” (DiMaggio and Powell, 1983, p.153). It may be that such surface

isomorphism hides a variety of personality trait profiles which may correlate to process and therefore task variability outcome, but there is as yet little conclusive evidence from UK boards to demonstrate this either way. Their hypothesis is that real personality diversity on boards is unusual and will not therefore be a useful independent variable producing variation in outcomes. However, it could also be interpreted as evidence that homogeneity is both normal and possibly useful in facilitating board processes.

The key question is how diverse director personalities might interact on a board team. Sangster (2011) used the Costa and McCrae Five factor system to profile 71 US top executives and their 7 TMTs. He introduces the concept of isomorphic personalities for when persons share some traits in common and this is statistically significant. His research hypothesized that TMT personalities and in particular the CEOs, would differ from the general population. Indeed, he found that CEOs he tested had a significantly lower N (Neuroticism) score than the general US norm and were isomorphic between TMTs for this trait. This could mean that boards share similar personality traits. His research on US TMTs in fact demonstrated that whilst there was some limited degree of isomorphism within a team for some traits, the profile differed between companies, which he terms a polymorphic effect. A TMT had a characteristic norm which he termed the personality centroid (the central tendencies of the group's traits). The polymorphism between TMTs was evident only from the A (Agreeableness) scores in this study. He also examined the degree of the personality trait differences he termed the heteromorphic effect. He found that the CEO's had quite different profiles to the general population, being one standard deviation (SD) lower than the US adult norm for N (neuroticism), one SD higher for E (extraversion) and one half SD higher for both O (openness) and C (conscientiousness). As

Sangster points out though these characteristics may reflect the ability to rise through the ranks and are not proven causal to TMT effectiveness.

Harrison et al. (2002) chose to limit the personality construct analysis to “conscientious” from the big five personality traits (McCrae and Costa, 1996) arguing that this one construct is the most likely to be strongly related to task performance. Even whilst so limited, it underlines the need to investigate psychological diversity of business teams such as boards in more depth than found in the current literature. Priem et al. (1999) review the argument of Pfeffer (1983) who suggested that demographic diversity was easier to measure and therefore more reliable and countered that the benefits did not outweigh the sacrifices, in substituting measurement reliability over construct validity. They suggest that if demographic factors accurately predicted performance then the extended pre-hiring interview processes for top executives, often involving psychometrics would be unnecessary. In fact they posit that in the demographic diversity studies the true variable is cognitive heterogeneity and if this is left unmeasured then the results are subject to uncontrolled variables.

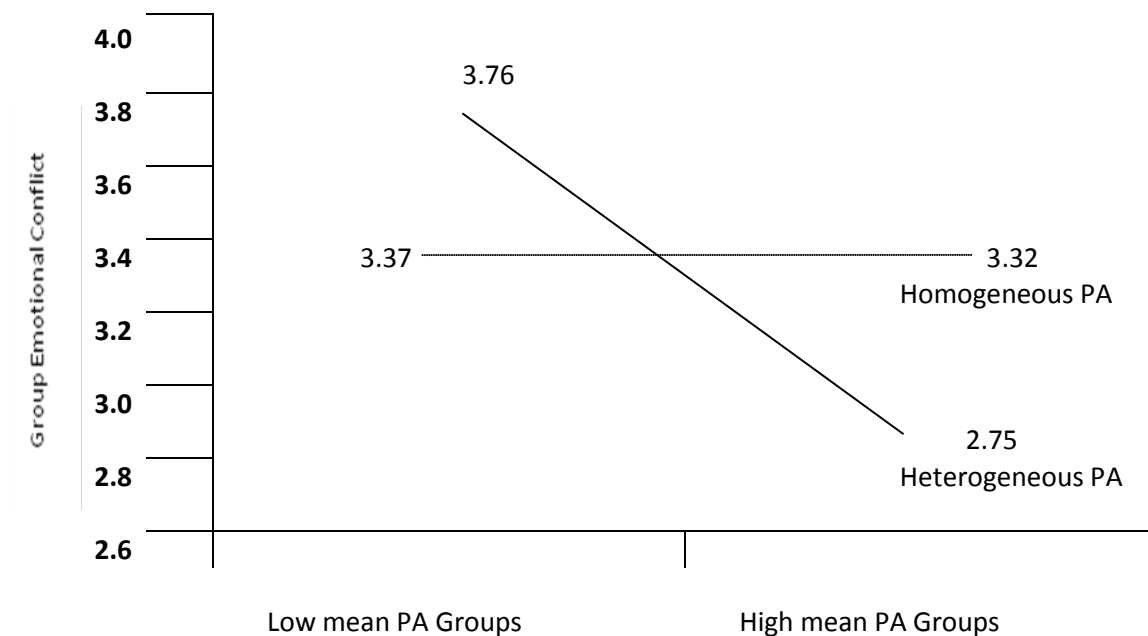
Nielsen (2010, p. 311) points out that there is a recent move: “towards more in-depth investigations of top executives and their behaviour, based on innovative data sources” when investigating upper echelons theory. Clearly more research of this type is needed. Gamero et al. (2008) for example investigated the relationship between affective and cognitive conflict and concluded that they are linked. They describe the series of vocal cues, facial expressions and body movements that communicate that conflict is occurring. These were described originally by Bartel and Saavedra (2000) who again challenged whether demographic diversity (Milliken and Martins, 1996) continues to create the variety of input described as necessary to optimise team output by Rindova (1999) and supported by others (Pfeffer, 1983; Hambrick and Mason, 1984;

Guthrie and Datta, 1997; Forbes and Milliken, 1999). The question is whether in fact homogeneity of deeper factors could enhance access to variety and more effective team work.

In a partial answer to this question the Barsade et al. (2000, p. 824) study on positive affect diversity described below attempts an empirical explanation of: “the oft-stated rationale for poor team performance: personality clashes”. Barsade et al. (2000) studied how diversity in positive affect could influence group processes and performance. They defined individual differences in positive affective personality as the degree to which a person is cheerful and energetic (high positive affect) versus subdued and reserved (low positive affect) using psychometric questionnaires. Negative affect (NA) trait is another unipolar construct which is an independent measure of the degree of subjective distress such as irritability or anxiety and is thus differentiated from low positive affect. Whilst these are generalised stable traits they will stimulate the corresponding short term mood or state when confronted by the appropriate context (Lazarus, 1991; Matthews et al., 2003). They found that low mean PA trait groups experienced the greatest emotional conflict (both relationship and cognitive) on the team, but were unable to demonstrate that a diversity of NA trait had any significant correlation with output results. They were able to claim however, that PA diversity was negatively linked to firm financial performance. They concluded that affective homogeneity should lead to greater cooperation, less conflict and increased efficiency, dismissing the theoretical benefits of heterogeneity promoting positive cognitive conflict (Milliken and Martins, 1996).

Barsade et al. (2000, p. 804) describe PA and NA as classic personality factors: “congruent with extraversion and neuroticism”. Even this limited study shown in Figure 4.5, of one construct suggests that business team affective and possibly personality trait cognitive diversity can affect team outcomes.

**Figure 4.5 The Difference Between Low PA and High PA Groups on Emotional Conflict**  
**Barsade et al (2000)**



Note : this figure plots the group emotional conflict score against heterogenic and homogenic high and low positive affect groups.

Figure 4.5 illustrates the difference between homogenous and heterogenous groups with respect to their positive affect personality trait. Thus homogenous PA (whether high or low) experience the same level of emotional conflict. Whereas heterogenous groups differ on that effect, higher group emotional conflict if the mean is low, lower if the mean is high. Thus the most conflict occurs with a low PA mean in a heterogenous group.

Cheng et al. (2003) explored how cognitive style diversity as extracted from a Myers Briggs questionnaire effected outcomes in artificially constructed accounting games. They classified the actors (accounting students) into sensing or intuitive types. This personality typing may have limited utility (Section 4.2.1 above), but gives some limited indications of possible outcomes from a more complex personality analyses. They found that the homogenous sensor groups

significantly underperformed compared to the homogenous intuitive groups, who in turn were outperformed by heterogeneous dyads of one sensor and one intuitive. They explained this by reference to the characteristics of the typical types. One might expect the typical sensor type to be focussed on important detail, seldom making errors of fact and patient with details. However such a personality would be expected to become impatient with complications and less likely than an intuitive type to see the patterns and relationships in the data. Thus a team should cover both aspects of the business task solutions. These authors acknowledged the key influence of task conflict in mediating the outcomes. They measured this with a Likert scaled questionnaire and controlled for it. Gul (1984) also examined a two type interaction using modelling with accounting students. He found that this simple classification of individual differences did demonstrate interaction to moderate another variable i.e. accounting information confidence. Volkema and Gorman (1998) again utilised student game modelling to compare homogenous groups of Myers-Briggs types. They compared uni-temperament (Sensing-Judging), which they claim to be the most common in business, with multi-temperament (Intuitive-Thinking, Intuitive-Feeling, Sensing-Judging and Sensing-Feeling) groups. They found that the multi-temperament groups had a significantly greater improvement over individual scores than the uni-temperament groups. They explained this by superior problem formation in the initial discussions, more than idea generation. Uni- temperament groups tended to be too focussed on a single objective. This supports the proposition that multiple temperaments (in the right mix) may improve group performance. Bartell and Saavedra (2000) examined the role of mood in process by direct observation as a collective property of work groups and found that members experienced a strong tendency to create group moods which were displayed through observable behavioural expressions. They were particularly interested in detecting the causes of affective conflict. They

found that groups converged into eight distinct mood categories, which has some relevance to this study of directors' board room behaviour preferences in that it demonstrates a behavioural classification of teams. They (Bartel and Saavedra, 2000, p. 198) cite Hackman (1992) who found that: "coordinated action is best accomplished when individuals can synchronize their thoughts, feelings and behaviour" and thus argue that behavioural homogeneity is a positive contributor to team process.

#### **4.4 Conclusion on board personality diversity literature**

Thus in summary, whilst definitions of personality will vary and psychometric tests are imperfect models of the complete range of possible potential behaviours, the investigator does have validated tools which will differentiate between personality trait profiles and it is possible to use these tools in quantitative research, especially when the researched environment is relatively constant. The studies to date on the effects of diversity have been inconclusive (Nielsen, 2010; Zhou and Rosini, 2015). This project attempts to clarify any benefits of personality trait heterogenic v.s. homogenic diversity on UK corporate board processes and outcomes. It is clear that ideally this should go beyond asking the leader (CEO and/or chairman's) view of the board's personalities which may be a compounded bias of the CEO's personal prejudices. This thesis argues that research of personality diversity inputs needs to investigate the ability and personality spectrum of the board as a whole by including direct psychometric data obtained from all board members.

In the conclusion of their review Abatecola et al. (2011, p. 23) refer to: "behavioural corporate governance" and this thesis argues that this concept could become more prominent in the study of governance as a key predictor of director team performance. However, it is necessary to have



evidence of the desirability of heterogeneity or homogeneity of key characteristics, including personality traits, before defining that goal further. The literature to date has not concluded that debate. As Higgs (2006, pp. 161-162) points out: “team and group research have failed to analyse the importance of the mix of personalities and team processes in achieving high performance”.

The hypotheses which are based on the literature review are now described in Chapter 5. This is followed in Chapter 6 by a detailed description and rationale of the philosophy and methodology adopted for this study followed by the presentation of the results in Chapter 7.

## **CHAPTER FIVE**

### **THE SYNTHESIS OF THE HYPOTHESES**

## **Chapter 5 The Synthesis of the Hypotheses**

### **5.1 Introduction**

The research question is concerned with the effects of personality diversity on board process and outcomes, a hitherto under-researched area. According to both Williams and O'Reilly (1998) and Nielsen (2010) the key issue is whether board team processes and outcomes are enhanced or hindered by homogeneity or heterogeneity of diversity factors. The answer is complex and seems to vary by factor and context. The factors may be surface demographics (e.g. sex, race, age, tenure) or deeper psychological constructs. As discussed in the previous chapter, many authors have positioned themselves on either side of these arguments. For example, Bantel and Jackson (1989) believe that high levels of diversity encourages creative decision-making. A tradition in the literature supports this view (Ziller et al., 1962; Cox, et al, 1991; Nemeth, 1992), although others, (e.g. O'Reilly, et al, 1993; Riordan and Shore, 1997; Bowers et al., 2000) argue that an excess of diversity creates communication problems in a team. Milliken and Martins (1996, p. 403) characterise diversity as a “double-edged sword” that might increase positive creativity, but at the potential cost of reduced group harmony. Similarly, Bowers et al. (2000) suggest that homogeneity of personality characteristics will produce better team outcomes in stable environments because of improved harmony, whilst heterogeneity will be better in more disturbed environments when the value of diverse points of view will outweigh the disadvantages of potential disharmony.

Williams and O'Reilly (1998) point out the differences between short-term laboratory work and “ecologically more valid”, field work that reflects the real world of longer relationships. In the laboratory, increased group diversity is more likely to show a positive result (Priem, et al., 1995).

On the other hand, several other authors have found heterogeneity to be dysfunctional in working groups (O'Reilly, et al., 1993; Pelled, 1996).

The literature outlined above suggests that in order to understand board task performance the mediating effect of board processes should be considered, but little is known about the effects of deeper-level board diversity in this regard, such as how board task performance is influenced by factors such as differences in personality traits. Thus, previous attempts to demonstrate that board processes mediate the relationship between input and output such as Wan and Ong (2005) are open to challenge. It is clearly key to define which board processes are likely to mediate the effects of personality trait diversity on board task performance. Garratt (1997) suggested that such efforts should look for any significant gaps and evidence of "cloning", i.e. lack of diversity, but this could be misleading if deep personality homogeneity has positive team effects.

The central thesis of this project is that personality trait diversity (PTD) has a negative effect on board task performance (i.e. the control, service and strategy tasks as defined in Chapter 2.7). O'Reilly et al. (1993) claim that team homogeneity improves team dynamics, although the negative effect of personality trait diversity could be mediated by board processes (Nielsen, 2010). Therefore it is proposed that the board will function more effectively if PTD is less and is positively mediated by board processes.

Neuman et al. (1999) investigated the relationship between team effectiveness and personality traits, utilising Costa and McCrae's (1991) five-factor model. The study found that 82 retail teams<sup>24</sup> showed significant differences in the effects of trait diversity, and offers the terms "Team Personality Elevation" (TPE) for the team's mean level of a personality trait and "Team

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<sup>24</sup> These were not board teams, but may have some relevance even if board teams are more episodic (Forbes and Milliken (1999)).

Personality Diversity” (TPD) for the difference of a personality trait within a team. The authors suggest that team tasks will determine whether homogeneous or heterogeneous trait values will be more effective and also may vary by trait. Thus, both trait elevation and trait diversity may affect outcomes. An example involves a sales team where consistent elevation of extraversion might be expected to enhance sales. The evidence indicates that for the Five Factor NEO-PI traits of conscientiousness, agreeableness and openness, TPE successfully predicted team performance<sup>25</sup> but for extraversion and emotional stability, TPD was better<sup>26</sup>. In a single regression these significant TPE and TPD components predicted 48% of across team performance variance, although it can be argued that the five-factor model is too simple to be sub-divided into diverse trait analyses and a more detailed division of personality should be utilised (Cattell and Cattell, 1995).

Any researcher investigating the effects of diversity needs to define how that diversity is conceptualised (Klein and Harrison, 2007). As noted above (Section 4.3) Klein and Harrison (2007) class diversity into separation, variety and disparity; to some degree all three will be present on a board. For the present study personality trait diversity as “separation” (as defined by Harrison and Klein, 2007) is apposite. Diversity of personality traits is therefore conceptualised along axes which do not in themselves represent a variety of discrete types (variety) or unequal power or status (disparity). Diversity as separation is in principle measured differently in that minimum diversity will be found in isomorphic populations (Sangster, 2011), moderate diversity when there is some spread along a continuum, and maximum diversity when members are concentrated at the two ends of the axes and are thus as far apart as possible (Harrison and Klein,

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<sup>25</sup> That is, homogeneity of those traits

<sup>26</sup> That is heterogeneity of those traits

2007). The latter more diverse conditions are described as heteromorphic (Sangster, 2011). Personality trait diversity is the extent to which individual board directors differ in their laterally opposing personality traits, and as such is congruent with the conceptualisation of diversity as separation (Klein and Harrison, 2007).

## **5.2 The hypothesis model**

Byrne (1997) reviews the body of research which underpinned his construction of the “attraction paradigm”. Whilst the substantial body of this work was conducted on US psychology undergraduates it can be extrapolated to more general behavioural situations such as that pertaining to boards. Byrne (1971) constructs a seven point Likert scale, the interpersonal judgement scale (IJS) used by many investigators, so that data can be compounded from a tradition of experiments. Indeed, Byrne et al. (1967, p. 165) had earlier hypothesised that:

“attraction toward another individual is a positive linear function of the proportion of that individual’s personality characteristics which are similar to the characteristics of the subject”.<sup>27</sup>

Tsui and O’Reilly (1989) study the multivariate effects of demographic variables on ratings of subordinates’ performance and preferences and found that increasing demographic dissimilarity is associated with lower effectiveness. The authors therefore also conclude that similarity has a positive effect on communication and integration among working groups.

Schein (1988) proposes that a psychological contract between team members is necessary for optimal performance. Classic social identity theory (SIT) (Tajfel and Turner, 1986) named by Turner (1985) was built on the seminal work of Tajfel (1978). Tajfel describes the notion as the

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<sup>27</sup> This relationship between similarity and attraction was described by a straight line mathematical function (Byrne and Nelson, 1965) giving  $Y$  (attraction on the IJS) =  $5.44X$  (proportion of similar attitudes, varying from 0.0 to 1.0) + 6.62.

social process whereby people identify with particular groups and disassociate from others based on a plural identity, i.e. being part of an “in group”. The theory portrays self esteem as a motivator, enhanced by belonging to a category whose characteristics are admirable (by the participant). It is created by self-stereotyping thus differentiating it from other categories e.g. other boards, or people on the same board who vary along the axes chosen.<sup>28</sup> However, this model was established in an artificial laboratory environment with trivial real differences. The question therefore is how much stronger might the discriminatory process be in real life where real, perceptible personality differences exist ? In this context, Williams and O’Reilly (1998) in their comprehensive review of diversity literature observed the creation of “in-groups” and “out-groups” in business. Tajfel argues that this need for a social identity e.g. “responsible board director” (Hillman et al., 2008) creates social categories, based on superficial differences of gender, race, nationality, class, religion etc. that may be at the root of prejudice. This process in turn encourages deprecation of “out-groups” and positive reinforcement of the possibly incorrect overestimation of the positive view of the “in-group” (see Schien, 1988, Section 3.3.3.5).

SIT has proved a useful concept in explaining management behavioural phenomena (Pearce, 2013). Pearce (2013, p. 499) describes the goal of SIT being to explain group processes and the social self as it:

“bridges the gap between the psychology perspective of individual values and behaviour and the sociology perspective of group behaviour”.

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<sup>28</sup> Tajfel established the experimental basis for the theory in the 1970s (Tajfel et al., 1971). They looked for discriminatory behaviour even if the differences were apparently trivial. The classic experiments were done using male 14 year old pupils. They were distributed randomly into groups and given a factious rationale based on a claimed difference in artistic preferences. Tajfel et al. set up games in which the boys were asked to allocate points for performance. They found that the participants were quite fair when choosing between two “in-groupers” or two “out-groupers”, but differentiated unfairly to the “in-groupers” when the dyad was mixed. Indeed they even found that the participants would utilize a strategy that reduced the points to the “in-group” if it also maximised the difference between the two.

SIT is a useful guide when formulating hypotheses regarding the influence of individual personality profiles on group processes. Conformation of profiles to a group mean might influence the effectiveness of the processes and Pearce (2013, p. 500) goes on to posit that:

“individuals’ values are formed in part by the groups to which individuals perceive themselves as belonging”.

On the basis of examining boards of directors in Denmark, Christensen and Westenholz (1997) argue that the roles of actors imposed on a board are socially constructed and take part in decision processes that are ambiguous and not necessarily subject to rational logic. They describe matching identities with situations and observe the tendency for members of a board to adapt their identities towards each other, a move towards homogeneity.

Adding weight to this argument, McPherson et al. (2001, p. 415) review the related phenomenon of homophily, finding that similarity breeds connection:

“The result is that people’s personal networks are homogenous with regard to many....behavioural...characteristics”.

Equally, McPherson et al. (2001) note that dissimilar people dissolve their ties more quickly. This propensity has often been described as a “birds of a feather flock together” situation (Flam, 2000; McPherson et al., 2001; Reed, 2003; Goodreau et al., 2009; Hogg and Vaughan, 2010). McPherson et al. (2001) suggested that peoples’ personal networks are homogenous with regard to behavioural characteristics and it is suggested here that this may be true in the board room. The stereotypes described by Schein are based at first on the differences in surface demographics, but it is hypothesised in this thesis that these will crystallise in time as directors will group themselves into functional homogeneous teams based on deeper personality attributes. McPherson et al. (2001) sees homophily as a principle that encourages and facilitates contacts amongst similar people while Fischer (1982) claimed that there is a cumulative effect, with each



similar factor, gender, age, ethnicity etc. This thesis argues that it is reasonable to extrapolate this to personality traits. The latter phenomenon was described by Lazarsfeld and Merton (1954) as “value” homophily. The question for the present study is therefore whether value homophilious bonding enhances operational efficiency amongst the board team. Forbes and Milliken (1999) also speculated that psychological ties would be weaker in more diverse groups which reinforces the potential value of homogeneity of personality traits. Here, Barrick et al. (1998, p. 378) state:

“a focus on the variance of traits is appropriate when researchers seek to understand the relationship of team composition homogeneity to team process and team outcomes”.

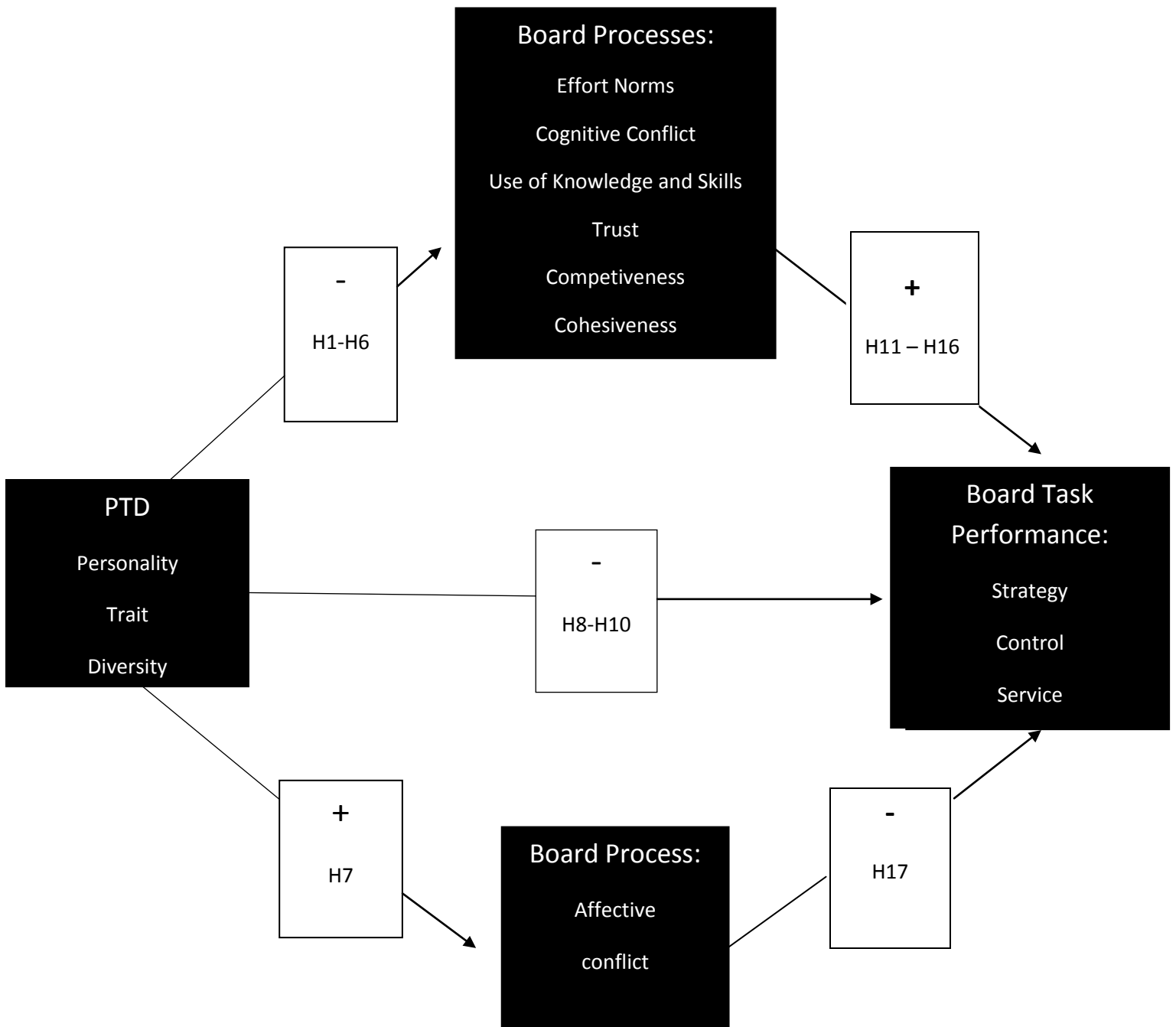
In general, the theories outlined above predict that increased psychological diversity decreases team process efficiency and outcomes. The question is whether this applies to deep personality trait diversity. This present study utilised the complex 15 FQ+ personality trait audit based on the work of Cattell and Cattell (1995). The evidence cited above suggests that directors might be expected to prefer, and be more effective working with, like minded colleagues, so the question becomes whether homogeneity or heterogeneity of the 15FQ+ personality traits affects board processes and outcomes.

The model shown in Figure 5.1 is the basis for the creation of the hypotheses that underpin the study and their inter-relationships. As the diagram indicates, personality trait diversity (PTD) is assumed to have a direct negative effect on board task performance (H8-H10) of strategy, control and service tasks. The mediating processes of trust, cognitive conflict, competitiveness, use of knowledge and skills, effort norms and cohesiveness are negatively influenced by PTD (H1-H6), but positively impact on outcomes (H11-H16).

It is hypothesised that PTD positively influences affective conflict (H7), which in turn negatively affects board task outcomes.

**Figure 5.1**

**The PTD Hypotheses Model**



Note : Thus the input of PTD is predicted to have a negative effect on board processes and board outputs except for affective conflict where the impact is positive. Affective conflict has a negative effect on board output. Board processes mediate the direct effect of PTD.

### **5.3 The hypotheses**

The discussion now turns to detailing the logic behind each of the seventeen hypotheses mapped in the figure. Together these provide the framework for the thesis that PTD has a negative effect on board processes and performance.

#### **5.3.1 Effect of PTD on processes**

##### **5.3.1.1 Effort norms**

Forbes and Milliken (1999) describe effort norms as a group's shared beliefs of the work efforts that individual members of that (board) team contribute (Section 3.3.3.1). The authors refer to Kanfer's definition (1992, p. 79) whereby effort norms are the proportion of the: "total cognitive resources directed towards the target task".

Forbes and Milliken (1999) go on to point out that if directors can avoid doing their "homework" then the group result suffers. Latane et al. (1979) describe the consequences of "social loafing" which they describe the tendency to exert less effort working in a team than alone. Kravitz et al. (1986) describe the classic experiment of Ringlemann in 1913 where men asked to pull a rope, worked harder alone than when part of a group. The hypothesis in this regard is that this tendency will be more pronounced on a board team if there is less personality harmony and less consequent cognitive interaction. Such lack of effort can lead to pluralistic ignorance as described by Westphal and Bednar (2005), who found a systematic tendency for non-executive directors to underestimate the concerns of fellow directors, potentially leading to inefficient board decision making. Clearly it is important that effort be maximised despite the many constraints listed by Forbes and Milliken (1999). It is predicted here that this will be enhanced by homogeneity of personality traits, therefore it is hypothesised that;

**H1** Personality trait diversity negatively influences effort norms.

### **5.3.1.2 Cognitive conflict**

Based on a study of the effect of cognitive conflict (Section 3.3.3.2) in Italian companies Zona and Zattoni (2007, p. 860) concluded that the concept may be ambiguous and:

“may favour the emergence of negative emotions among group members counterbalancing its positive effects on the group’s task performance”.

Those building a board therefore face a dilemma in that (Amason and Sapienza, 1997, p. 497) :

“To improve decision quality, teams must encourage cognitive conflict by building heterogeneity and by fostering confrontational interaction. Of course this conflict may undermine the harmony and commitment among team members”.

However, Amason and Sapienza (1997), in their study of 48 Top Management Teams find a positive correlation between cognitive and affective conflict and advise caution in boards seeking to increase cognitive conflict to improve decision productivity. The study Amason and Sapienza (1997, p. 499), suggests found that mutuality dampens affective conflict as the notion can be defined as:

“the belief to which (directors) believe they are mutually accountable and responsible and will share the consequences of their strategic decisions”.

Stone and Bailey (2007) investigate the management of team conflict resolution using US business students. They used a five-point Likert scale and subjected the data to rigorous statistical analysis. The authors conclude that for these students, social persuasion had a significantly positive effect on respondents’ belief that they had the necessary conflict skills. This social persuasion was offered by a faculty member who provided mentoring leadership. The study also indicates that providing opportunities to discuss conflict resolution with other teams helps develop individuals’ belief that they possess these skills. This evidence might be regarded

as board research by proxy since no actual directors took part in the study and the results must therefore be partially qualified as ecologically invalid and treated with caution.

There is a balance between having enough diversity to bring disparate sets of knowledge and skills together in a board and the ability to access them if the board have not established working harmony (Milliken and Martins, 1996), but overall cognitive conflict is seen as a necessary process for positive board functions (Forbes and Milliken, 1999) that is enhanced by homogeneity of personality traits (Bryne, 1997). It is therefore hypothesised that;

**H2** Personality trait diversity negatively influences cognitive conflict.

#### **5.3.1.3 Use of knowledge and skills**

Forbes and Milliken (1999) point out that high levels of knowledge and skills are implicit in a board appointment. Although these have to be actively employed (Pfeffer and Salancik, 1978) to have any value. The key is therefore the “use” of any assumed abilities, which in turn requires that board team members communicate freely. It is assumed that such communication will be enhanced by homogenous personalities as described above (Bryne et al., 1967; O’Reilly, Synder and Booth, 1993; Riordan and Shore, 1997; Bowers et al., 2000; McPherson et al., 2001). Therefore it is hypothesised that;

**H3** Personality trait diversity negatively influences the use of knowledge and skills.

#### **5.3.1.4 Trust**

Fahr and Irlenbusch (2008) are able to link observations of trust with personality traits, as identified by the 16PF questionnaire (Section 4.2.2). This is a significant study with specific relevance for this research project. The authors find that individuals with low anxiety scores

show particularly high trust between organisations. They demonstrate this using financial transactions in a management game, but the personality factors are reduced to Costa and McCrae's Five Global Factors (McCrae and Costa, 1996). The study also applies multiple regressions on the 16PF (Cattell and Cattell, 1995) factor data revealing that personality profiles do indeed successfully predict different types of trusting behaviour.

Gillespie and Man (2004) cited earlier ( Section 3.3.3.4), explore the key issue of trust amongst peer members of a team. The particular R and D decision making contexts Gillespie and Man (2004) describe are analogous to boards in that the team members typically have more knowledge than the leaders and the functioning of the team is only optimal if trust enables these ideas to be openly shared.

For optimal board performance, directors might be required to have trust in each other as well as the chair/CEO leader so that the group can function better, accepting the constraints and benefits of team work discussed above. In this vein, Zattoni and Cuomo (2010) describe trust as key on company boards, as it is needed to encourage board members' creativity and participation. Indeed the authors emphasise that without it one cannot expect open and critical debate, however much governance regulation calls for it. As their study says (2009, p. 13): "it is not sufficient to (*just*) add more independent directors".

Therefore it is hypothesised that;

**H4** Personality trait diversity negatively influences trust.

### **5.3.1.5 Competitiveness.**

The presence of individual competitiveness on a board may influence the behaviour of the team to match commercial market competitors, making it more reactive or less reactive to competitive events. Here the postulation is that such “individual competitiveness” is a new Higgs and Dulewicz (2002) type “driver” and is employed as a new process variable in this research. Woods (1998, pp. 85-86) does warn that internal competition in a team might adversely affect “group norms” and thereby team cohesion. It might be important for team performance on a board that internal competitiveness does not challenge the group’s solidarity. However, it could be a positive process for boards (Section 3.3.3.5) when working as a team to “beat” another team in the market (Schein, 1988). The hypothesis in this context is that the closer the personalities the easier it is for the board to function as a competitive team (Tajfel and Turner, 1986) and so it is hypothesised that;

**H5** Personality trait diversity negatively influences competitiveness.

### **5.3.1.6 Cohesiveness**

Barrick et al. (1998) studied 652 employees in 51 teams to link the effect of personality as measured by the big five factors (Costa and McCrae, 1991) with social cohesion. The study reports that a mix of conscientious and non-conscientious personality traits lower assessed performance, while, homogeneity of the agreeableness trait was associated with higher assessed performance (mediated with higher social cohesion), an indicator of positive relationships. These results were confirmed by van Vianen and De Drue (2001, p. 100) who also studied task cohesion, defined as: “an individual’s attraction to the group because of shared commitment to the group task”.

Barrick et al. (1998) also find that the minimum levels of these two personality traits were positively associated with task cohesion and performance. Whilst neither of these studies was concerned specifically with board teams, the analogy is clear.

Forbes and Milliken (1999) describe cohesiveness as a board outcome rather as a process and argue that the degree of interpersonal attraction amongst the board is likely to influence its effectiveness (Williams and O'Reilly, 1998). The study refers to Weick's (1979) definition of the part-time involvement that board directors tend to have with firms as "partial inclusion" which puts a premium on quick harmony. Forbes and Milliken also point out that relatively early discussion has been found to enhance decision making processes (Hogg, 1996). Janis (1983) argues that cognitive conflict minimisation can lead to Groupthink but generally cohesion is a positive process facilitating more effective board functioning. The impact may also depend on mutual attraction which itself may be a function of the "attraction paradigm" described by Bryne (1997) and found between similar personalities. Therefore it is hypothesised that;

**H6** Personality trait diversity negatively influences cohesiveness.

#### **5.3.1.7 Affective conflict**

De Drue and Weingart (2003) perform a meta-analysis of the literature and conclude that affective (relationship) conflict (Section 3.3.3.2) has a potentially stronger negative association with team member satisfaction than does cognitive (task) conflict. This finding is supported by Higashide and Birley (2002) who report that venture capitalists associate cognitive conflict with positive performance and affective conflict with negative, with both effects being stronger on the achievement of the firm's goals (outputs) than on its policies (process). In this context, Milliken



and Martins (1996, p. 416) refer to Nemeth's (1986) argument whereby: "the quality of reasoning is enhanced by the existence of consistent counter arguments from a minority".

However the challenge as discussed in Section 3.3.3.2 above, is to balance the need for cognitive conflict that accesses the benefits of surface diversity without triggering an excess of affective conflict (Milliken and Martins, 1996; Simons et al., 1999). Mooney et al. (2007) found that affective conflict was triggered less by cognitive conflict when the board had more "behavioural integration" which moderates the relationship, making the board more effective. It has been suggested that this ideal would be more likely to occur if the directors were attracted to each other, working in harmony because they were alike at a deep personality trait level (Bryne et al., 1967) and homophily (McPherson et al., 2001). Therefore it is hypothesised here that;

**H7** Personality trait diversity positively influences affective conflict.

### **5.3.2 Effect of PTD on outcomes**

#### **5.3.2.1 Strategy**

Strategy (Section 2.7) is, according to Stiles and Taylor (2002), the defining role of the board, the true meaning of "director" and what separates the board from management. Lynch (2006) describes it as the process of defining the purpose of the organisation and the consequent plan of actions needed to achieve this objective. It is therefore legitimate to ask which governance theory applies best to this role? As described in Chapter 2 this process requires the taking of the consensus view on the definition of the business, what it is and (just as important) what it is not. It also means understanding threats and weaknesses, new opportunities and plotting a path to reach a strategic objective, usually involving survival, growth and ultimate concrete realisation of shareholder value gains. It might be claimed that stewardship theory (Section 2.5) best

describes the need for such a vision (Donaldson and Davis, 1997). Indeed Stiles and Taylor (2002) argue that agency, stewardship and resource dependency theory all require directors to fulfil this role. Lynch (2006) points out that one of the key resources is likely to be human assets and to some extent, therefore, resource dependency theory applies. Lynch divides the creation of strategy into a prescriptive process where the final objective is defined in advance and a more flexible emergent process whose final objective is unclear until it emerges from ongoing dialogue between key actors. As discussed above (Sections 2.4.1 and 3.3.3), Cyert and March (1963) and Simon (1957) establish that managers are limited by bounded rationality and a tendency to satisfice. In order for a board to arrive at a consensus strategy, albeit limited by these constraints, will require the board to work as a team (Stiles and Taylor, 2002, Veltrop, 2015). The need for major people interactions was proposed some time ago (Pettigrew, 1985) and Lynch (2006) argues for a learning process without rancour or recrimination as experimental steps forward can be evaluated, even if from a background that is often muddled and confused in practice.

Clearly such outcomes require the board to work as an effective team with maximum cognitive conflict and minimum affective conflict. This requires personality harmony (Bryne et al., 1967; O'Reilly et al., 1993; Riordan and Shore, 1997; Bowers et al., 2000; McPherson et al., 2001) and so it is hypothesised in this regard that:

**H8** Personality trait diversity negatively influences the board task of strategy.

### **5.3.2.2 Control**

The tenets of agency theory (Section 2.3) (Berle and Means, 1932) and consequent regulation (Daily et al., 2003; Roberts et al., 2005; Mallin, 2007; Rejchrt and Higgs, 2015) require that

directors act to protect the owners' interests against any conflicting interests of the executive management (Jensen and Mecking, 1976). This conceptualisation of the firm implies that the directorial team have to put in place, and monitor, either the outcomes or behaviour of the executives (Eisenhart, 1989). This is emphasised by the role of non-executive directors who are expected to act as independent monitors (Baysinger and Hoskisson, 1990) in modern corporate governance frameworks. As described above (Section 2.3.1) it is doubtful whether the non executives normally achieve this ideal (Mace, 1986; Westfall and Kanna, 2003; Finegold et al., 2007; Wighton, 2009) and so it is arguably the case that this control task is difficult in practice and liable to produce affective conflict unless there is a degree of board personality harmony (Bryne et al., 1967; O'Reilly et al., 1993; Riordan and Shore, 1997; Bowers et al., 2000; McPherson et al., 2001). Therefore it is hypothesised that:

**H9** Personality trait diversity negatively influences the board task of control.

### **5.3.2.3 Service**

The fundamentals of resource dependency theory (Section 2.6) (Pfeffer and Salancik, 1978) require directors to understand the external environment, form appropriate alliances to deal with such challenges and gather resources that can provide a competitive advantage (Peteraf, 1993). These resources can include non-executive directors (Pfeffer, 1972; Fligstein, 1987) who have specialist skills or knowledge, including superior external access (Wei, 2006; Huse, 2007). For this type of benefit to accrue, surface diversity as variety (Klien and Harrison, 2007) is required, but without the advantages of personality homogeneity of personalities (Bryne et al., 1967; O'Reilly, Synder and Booth, 1993; Riordan and Shore, 1997; Bowers et al., 2000; McPherson et

al., 2001) this surface diversity will not be optimised. Access to the benefits of surface diversity will be limited as a result (Simons et al. 1999) and so it is hypothesised that:

**H10** Personality trait diversity negatively influences the board task of service.

### **5.3.3 The mediation of process on PTD**

#### **5.3.3.1 Effort norm mediation**

As noted above, effort norms describe the amount of effort directors make to complete the key output tasks (Hypothesis H1) (Kanfer, 1992). It is reasonable to expect that the greater the effort the directors exert on output tasks, the more the effect of PTD will be positively mediated. It can therefore be here hypothesised that:

**H11** The negative influence of PTD on board tasks will be positively mediated by effort norms.

#### **5.3.3.2 Cognitive conflict mediation**

Forbes and Milliken (1999) argue that cognitive conflict has a positive effect on board task outcomes (Forbes and Milliken, 1999). This can occur despite the possibility that cognitive conflict is associated with the negative effects of affective conflict (Amason and Sapienza, 1997) (see Hypothesis H2) and so it is hypothesised that:

**H12** The negative influence of PTD on board tasks will be positively mediated by cognitive conflict.

#### **5.3.3.3 Use of Knowledge and skills mediation**

Forbes and Milliken (1999) also suggest that the use of knowledge and skills is key to improving board outputs (see Hypothesis H3) and so it is hypothesised in this context that:

**H13** The negative influence of PTD on board tasks will be positively mediated by the use of knowledge and skills.

#### **5.3.3.4 Trust mediation**

As suggested in Hypothesis H4 above trust between directors is held to be a key factor explaining variances in director output (Zattoni and Cuomo, 2010) and so it is hypothesised that:

**H14** The negative influence of PTD on board tasks will be positively mediated by trust.

#### **5.3.3.5 Competiveness mediation**

The suggestion by Schein (1988) that extra group competition creates greater internal loyalty and increases concern regarding task accomplishment implies that the more competitive a board then the more those directors will overcome negative influences of diversity to maximise outcomes (Hypothesis H5). Thus it is hypothesised that:

**H15** The negative influence of PTD on board tasks will be positively mediated by competitiveness.

#### **5.3.3.6 Cohesiveness mediation**

Cohesion has been found to positively affect task outcomes (van Vianen and D Drue, 2001; Mooney et al., 2007) (see Hypothesis H6 above) and so it is hypothesised that:

**H16** The negative influence of PTD on board tasks will be positively mediated by cohesiveness.

#### **5.3.3.7 Affective conflict mediation**

As discussed in relation to Hypothesis H7 above, affective conflict is associated with negative board performance (Higaside and Birley, 2002). Therefore it is hypothesised here that:

**H17** The negative influence of PTD on board on board tasks is negatively mediated by affective conflict.

**5.4** The 17 hypotheses outlined above are summarised in Table 5.1 below.

**Table 5.1 Summary of the Hypotheses**

<b>Hypothesis No.</b>	<b>Independent variable</b>	<b>Relationship</b>	<b>Dependent variable</b>
1	PTD	Negative	Effort Norms
2	PTD	Negative	Cognitive Conflict
3	PTD	Negative	Use of K and S
4	PTD	Negative	Trust
5	PTD	Negative	Competiveness
6	PTD	Negative	Cohesiveness
7	PTD	Positive	Affective Conflict
8	PTD	Negative	Strategy
9	PTD	Negative	Control
10	PTD	Negative	Service
11	PTD/ Effort norm	Positive	Board Tasks
12	PTD/ cognitive conflict	Positive	Board Tasks
13	PTD/ K and S	Positive	Board Tasks
14	PTD / Trust	Positive	Board Tasks
15	PTD / Competiveness	Positive	Board Tasks
16	PTD/Cohesiveness	Positive	Board Tasks
17	PTD/ Affective conflict	Negative	Board Tasks

## **5.5 Conclusion.**

This chapter has outlined and explained the 17 hypotheses underpinning the empirical analysis presented later in this thesis. Chapter 6 now explains why a positivist functionalist epistemology was chosen and provides details of the research methods selected on this basis. This is followed

by a description of the results in Chapter 7 which are then discussed and the implications reviewed in (the concluding) Chapter 8.

**CHAPTER SIX**

**METHODOLOGY AND METHODS**



## **Chapter 6 Methodology**

### **6.1 Introduction**

This chapter will explore the philosophical basis of the current research and explain why a functionalist, positivist quantitative approach was chosen. The qualifications that attach to the epistemological choice are described. The chapter also reviews the construction of the research items and discusses their post hoc reliability and validity. The detailed operational issues and methodology are detailed as are the statistics that were used to process the data. Finally the potential consequences of common method and social desirability biases are discussed.

Business is a complex human function with multiple processes that defy complete and simple analysis (Creswell, 2009). Any single business research project can only hope to throw new light on one of these facets of truth at a time (Bryman and Bell, 2011). Blumberg et al. (2008, p. 4) define business research as:

“a systematic enquiry whose objective is to provide the information that will allow managerial problems to be solved”.

Bryman and Bell (2011) warn that such research should stay in touch with the concerns of practitioners for it to have a valued purpose, while Creswell (2009) stresses the need for a careful selection of a research design that will answer the research question whilst utilising appropriate philosophical assumptions. Maylor and Blackmon (2005) emphasise the need for a designed research process (2005, p. 5) with:

“a specific set of events and sequences of activities, with tangible and intangible inputs and outputs”.

The rest of the chapter will now explain in detail the philosophical debate which led to the choices made, the operational issues that needed to be addressed and the methodology that was followed.

## **6.2 The philosophical basis of the study**

### **6.2.1 Epistemology, ontology and social science paradigm**

Before embarking on a research enquiry the researcher needs to define which ontological perspective of truth will be engaged (Cresswell, 2009). The search for truth drives research, but debate remains regarding whether we can ever hope to illuminate more than very selective new data in each new research project (Bryman and Bell, 2011; Stainton Rogers, 2011). Social science progresses in incremental steps from different perspectives whilst scientific endeavour moves broadly and has over time evolved its view of what is acceptable as truth. Raphael (2000) describes how the 20<sup>th</sup> century philosopher Popper focussed attention on the need to establish data which can be challenged by others: personal conviction is insufficient. Raphael, when describing the contribution of Popper, uses the phrase (2000, p. 465): “Applause is not a form of proof” to describe how he replaced authoritative intuition such as that employed by Freud, Jung or Marx, with conclusions logically derived from observed data and capable of being independently verified or falsified. Importantly for this study, Popper insists that social sciences should also conform to this discipline. In fact the question is whether “truth” has any absolute meaning. Johnson and Duberley (2000) discuss Kuhn’s thesis that scientific truth is a construction of the currently socially accepted paradigm, but this itself will go through a cycle of paradigmatic crises as science develops. The evolution of astronomy from a geo-centric medieval paradigm to the 21<sup>st</sup> century belief in a big-bang expanding universe can clearly be

traced (Stainton Rogers, 2011). Under consensus theory, Hanson (1958) implies that any claimed version of “scientific truth” is the current outcome of a socially established agreement amongst current scientific opinion leaders. Kuhn is cited in Johnson and Duberley (2000) as claiming that there is no paradigm independent epistemology to discriminate between competing paradigms and he therefore argues that establishing absolute external reality is impossible.

Epistemology is described by Bryman and Bell (2011) as what should be as acceptable knowledge in a philosophical paradigm and the type of data that represent truth from that position.<sup>29</sup>

The researcher needs to embrace a compatible epistemological and ontological position before designing the observation strategy, collecting and analysing data and concluding a result (Creswell, 2009). The two major philosophical epistemological divisions are between positivism and interpretivism. The ontological decision<sup>30</sup> lies between embracing realism, the working belief in an independent reality, or nominalism, the belief that our perceived reality is a product of our consciousness and needs to be researched within that constraint.

Positivism reflects the philosophy utilised in the natural sciences (Johnson and Duberley, 2000). It assumes that the business world and the phenomena produced by the actors do exist in an external objective reality that can be measured (without effect) by an observer. The researcher becomes that objective observer, not interacting with the extant processes and thus not interfering with the consequent data. It may be an unobtainable ideal, but is a philosophy

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<sup>29</sup> The word is derived from Greek, *episteme* (knowledge) and *logos* (knowledge) and is thus *knowledge about knowledge* (Johnson and Duberley, 2000, p. 2) or the theory of knowledge.

<sup>30</sup> Ontology is derived from the Greek *ontos* (being) and *logos* (knowledge) (Johnson and Duberley, 2000, p. 67) and thus refers to the researcher’s assumptions about reality in that paradigm.

regularly and practically employed in social science research (Cresswell, 2009; Bryman and Bell, 2011). It typically involves focusing on a finite variable (see below) or set of variables that may explain one or more other variables. The concepts under investigation need to be operationalised to become such measurable variables. Thus, by necessity, other extraneous variables are excluded wherever possible (or are controlled for) and the research will tend to be quantitative (see below, Section 6.3.1).

Nineteenth century logical positivism developed from the attempt to rid science of dogma. Later that century, John Stuart Mill listed logical arguments by which causality could be inferred (Johnson and Duberley, 2000). These were inductive methods based on the premise that if B follows A and A is the only observed pre-variable, then it is the cause. This argument was developed to include cases of when A is missing and B fails to occur, when A increases B increases and so on. This inductive logic was criticised by Popper (1959) who argued that science could never assume an awareness of all possible cases and could only offer the latest theory based on deductive reasoning. Popper proposed that metaphysical ideas could be used to formulate a new theory. Testable predictions based on this new theory can then be deduced. These hypotheses can then be tested empirically in an attempt to falsify the theory. If there is no statistically significant effect demonstrated then the null hypothesis is accepted. But if the null hypothesis is rejected and the alternative hypothesis accepted then the new theory replaces the old until it too is later falsified with a better predictive model. Popper thus created a non-inductive form of empiricism (Johnson and Duberley, 2000) which is termed the hypothetico-deductive method. No absolute statement of truth is assumed, just a Darwinian progression (Johnson and Duberley, 2000) towards an even better understanding of objective reality. The present research project adopts this approach.

In this project the personalities of business actors are operationalised via 16 personality traits and the cognitive board processes and outcomes are operationalised in a 75 item questionnaire of 10 constructs. The results are analysed using conventional statistics with the conclusions reached suggesting relationships between the data which can, with qualification, (see sampling Section 6.4.2 below) be generalised to the defined population (UK boards of for profit companies). Causation is suggested, but proof of cause is not claimed.

The alternative epistemological paradigm is interpretivism, which includes the notion of phenomenology. This tradition argues that reality is to some extent constructed by actors and observers and the consequent reality is subjective, primarily because the researcher cannot avoid affecting the observation. Johnson and Duberley (2000) cite Kant, who argued that we can never directly perceive reality, but he conceded that there may be real-things, he termed “noumena”, although we can only construct “phenomena” in our minds. This logic resonates with modern cognitive psychology which characterises the perceptive processes in the mind as responses to identically structured neural impulses (action potentials) sent by the sense organs to particular dedicated areas of the brain cortex (Kemp, 2006). It is the reception area that determines the phenomena perceived. If these processes malfunction (i.e. synaesthesia) respondents can sense colour for a noun such as Monday, hear sights and/or feel sounds and/or taste colours (Kemp, 2006). The ontological question is whether these sensory inputs do originate in a real unknowable external world or whether these phenomena are instead created by our consciousness (Stainton Rogers, 2011).

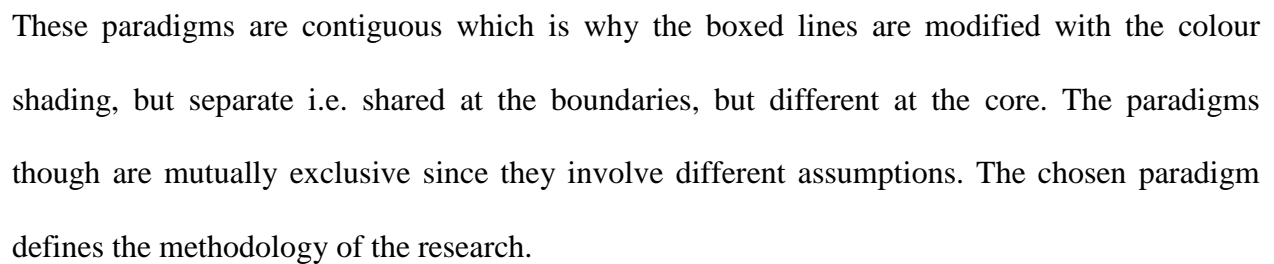
This last point relates to a major philosophical division. It can lead to the stream of research that accepts the alternative epistemological orientation of interpretivism and concedes, indeed welcomes, a subjective analysis of social phenomena (Stainton Rogers, 2011). Typically this

would involve participation in an unstructured interview to understand the totality of the phenomenon studied. It rejects the operationalisation of processes, arguing that this restricts holistic understanding because it ignores concepts not part of the researcher's extant focus. It can yield rich data, but is not subject to statistical tests and is less easily generalised and typically employing qualitative methodology (see Section 6.3.2 below). However, this is not the paradigm used for the current project, although it could be employed to follow up on the conclusions as a future development. The literature review provided on chapters 2 to 4 included research of this type as an aid to the building of the operationalised concepts adopted in this study. Use of this epistemology can provide richer data on board processes that the positivist epistemology could miss, but the observations and conclusions may well be unique to the actual situations researched (Bryman and Bell, 2011). Some would argue that this limits the value of such research in forming predictive theories of business behaviour (Bryman and Bell, 2011).

There have been calls to end the so-called "paradigm wars" stimulated by these opposing philosophies (Weick, 1999), although Shepherd and Challenger (2013) suggest that the debate will persist. Arguments for paradigm incommensurability continue, although Shepherd and Challenger (2013) reject this principle, arguing that puzzle-solving within a dominant paradigm need not prevent communication with another and that differences are constructed by researchers. These authors describe such constructions as "rhetorical" and an attempt to differentiate between paradigms to manage accountability and create a clear theoretical identity for the researcher thus:

"This builds their epistemological entitlement and orientates readers to evaluative criteria against which their research should be measured" (Shepherd and Challenger, 2013, p. 240).

**Figure 6.1**                      **Sociological Paradigms**    Burrell and Morgan (1979, p. 22)



The functionalist paradigm reflects a focus on societal regulation and a positivist philosophy. This approach is often employed in attempts to explain the status quo and social order in a rational way. Functionalism typically offers practical solutions to practical problems with phenomena measured in social science as they are in natural sciences. In the present study, personality was defined as per Section 4.2 as a set of predictable behaviours (Furnham, 2008), indicating that this research is founded on a deterministic view of human nature. Whatever has created the personality of the respondent it is viewed as a construct of traits that exist objectively and the actors obey consistently. According to Morgan (1990, p. 15) the functionalist paradigm has: “provided the foundation for most modern theory and research on the subject of organisation”. Morgan (1990) goes on to list the perceived advantages of functionalist theory which include creating a language which management can then use, acting as a mirror for an organisation to assess itself, generating problem-solving practices and attempts to create generalisable knowledge to add some certainty to management practice. The functionalist paradigm is the philosophical basis of this thesis.

The interpretive paradigm is also based on assumptions of regulation, but in a subjective manner. The approach tends therefore to reflect ideographic quests for fundamental meanings. This paradigm is not employed in the research although, as noted earlier, it could provide a useful lens for subsequent work.

The radical humanist paradigm is concerned with radical change from a subjective point of view, involving an agenda that goes beyond current social constraints. It is a search for true consciousness which is thought by Burrell and Morgan (1979) to lie below apparent consciousness. Apparent consciousness is strongly affected by ideological superstructures. Radical humanism is not relevant to this research project however, because the social



construction is, as described by Hassard (1991), tied to a: “pathology of consciousness” which attacks the philosophy of capitalism. It is unlikely to find support for this approach in a population of company directors whose business existence depends on a capitalist philosophy and whose active cooperation is essential for the data collection.

Finally, Burrell and Morgan (1979) characterise a radical structuralist paradigm as one that involves an argument for radical change, but from an objectivist point of view. Like the functionalist paradigm it adopts a natural science methodology, but argues for that radical change by emphasising structural conflict. It was also not considered a relevant paradigm for the present study because it implies a radical social critique (Hassard, 1991) which is attempting to create radical social change. That is not the intent of this project.

The discussion now turns to the logic and philosophical base of the chosen research design.

### **6.2.2 Logic of research designs**

Blumberg et al. (2008) describe two major logic systems termed deduction and induction that can work alone or together in a research design. The process of deduction starts with premises. If these are proved true then the deducted conclusion must also be true. The skill lies in constructing testable premises, i.e. hypotheses, that one variable will be positively or negatively related to another. This thesis employs the hypothetico-deductive method as described above (Popper, 1959), using hypotheses generated from the extant literature. The phenomena were operationalised and quantity data collected and statistically analysed to determine whether the significant relationships underpinning the hypotheses existed or not. This led in turn to acceptance or rejection of each of the latter.

The alternative is to employ inductive logic, whereby the conclusions flow from the data not from the proving or disproving of ex-ante hypotheses. In fact the conclusion itself becomes a hypothesis only because it is one of many possible explanations for the observations made (Blumberg et al., 2008).

These logic systems can work together, a process described by Dewey (1910, p. 79) as the: “double movement of reflective thought”. This in turn represents observation, followed by induction to offer a possible explanation of why something occurs and the creation of an appropriate hypothesis or hypotheses which can then be tested using operationalised concepts. This thesis has derived hypotheses from the literature rather than induction from observations of board behaviour so relies solely on normative deduction.

Hypotheses are key to quantitative research design as they define what is relevant to the study and indicate the philosophical paradigm that is appropriate as well as how the conclusions should be structured. It could be argued that without hypotheses a study is simply observational and not suitable for producing generalisable research conclusions.

Finally, there is a distinction between ideographic research based on individual case studies (and situational facts) and nomothetic research based on the search for general laws and universal variables (Evered and Louis, 1991). The latter usually involves a larger number of subjects and often looks for statistically significant differences to imply generality of the results and is therefore relevant to this study.

### **6.2.3 The chosen design philosophy**

This study is a positivist quantitative study founded on a functionalist paradigm. The design follows the long tradition in related research (Sangster, 2011; Torchia et al. 2015) of utilising

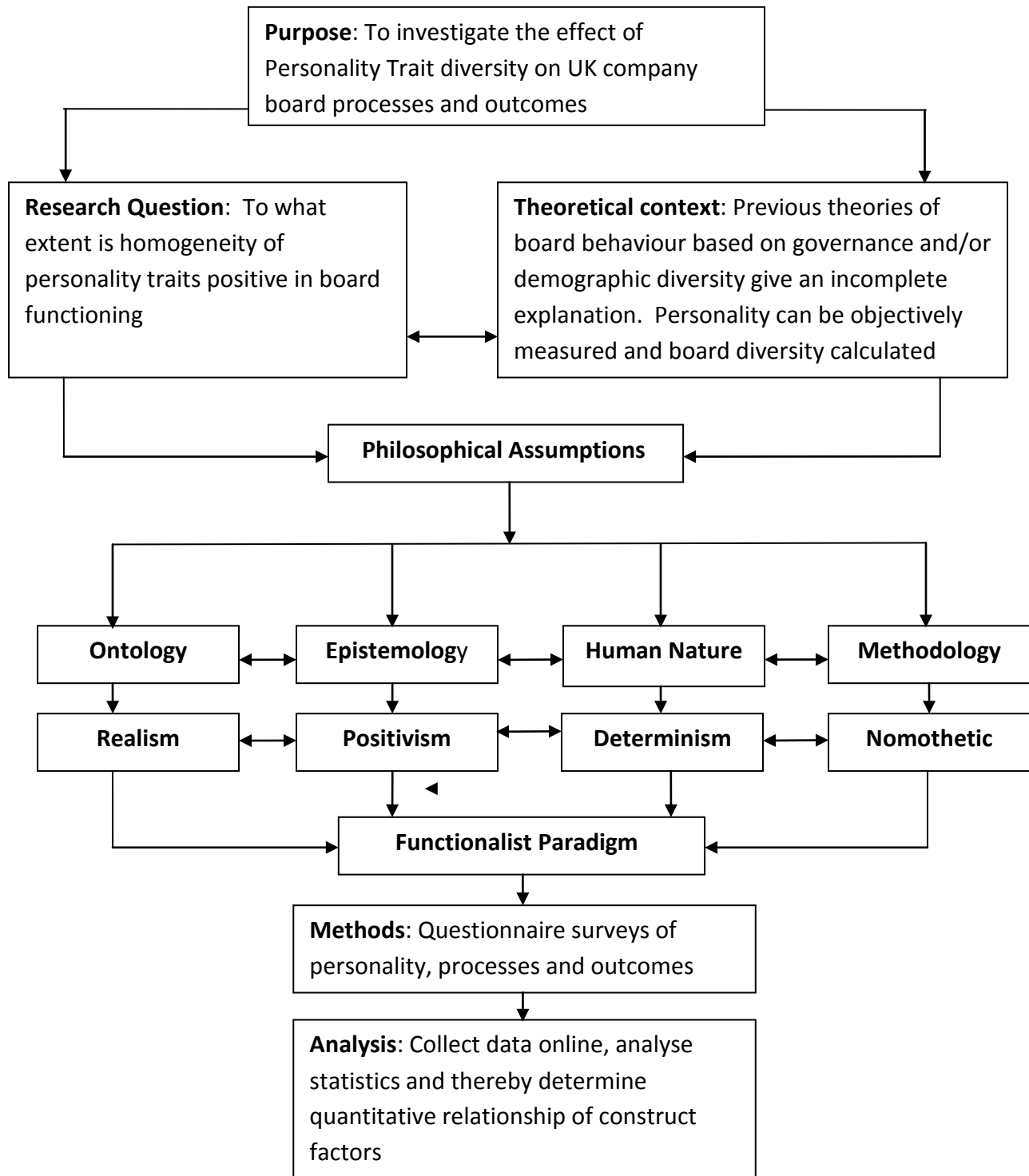
self-reporting surveys (Cresswell, 2009, Bryman and Bell, 2011). The design is not intended to be truly experimental; the personality trait diversity (PTD) I-V is a predictor variable and the work had to be completed within the bounds of available resources and practicalities. Each individual personality trait analysis was processed using a commercial questionnaire that had to be funded, the raw data being purchased from Psytech<sup>31</sup> and a consultancy research company was set up to attract the interest of potential participants who were mailed with an offer letter (Appendix 6.1). The second questionnaire was processed without attracting a charge, however. Funding was also a constraint on project management. It was not possible to use a random sample so a convenience sample was used with the acceptance of the theoretical constraints on the interpretation of the results. Boards had to be persuaded to participate and many declined and the final success rate for compete boards surveyed was less than 5% of the intial contacts made. Nevertheless it is designed to be a nomothetic, not idiosyncratic study with potential applicability beyond the boards sampled. Figure 6.2 summarises the approach followed in this research.

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<sup>31</sup> Psytech is a private international agency recognised by the British Psychological Society to train, examine and supply to qualified psychometricians. To conduct this research the author qualified with the company and sourced the 15FQ+ personality questionnaire from them.

**Figure 6.2**

**The Research Philosophy**



Note: This figure illustrates the philosophical basis of the study. Thus it is based on a realistic ontology, positivist epistemology, a deterministic view of human nature, a nomothetic methodology and a functionalist paradigm.

There now follows a more detailed description of the research methods that were used in this study. Alternatives are also reviewed and explained.

### **6.3 Applied research methods**

Several practical methods could have been employed to investigate the research question in this thesis and these are now discussed in turn.

#### **6.3.1 Quantitative research**

The major choice to be made in research activity is between quantitative and qualitative research (Cresswell, 2009). Quantitative research is described (Bryman and Bell, 2011) as dominant in business research to date. The approach involves a number of stages, beginning with identification of an underlying theory from the extant literature (Cresswell, 2009). This enables the formation of hypotheses that can be tested and, where possible, causality imputed. This process is made easier via an experimental design, but is made more challenging by the use of a non-manipulated predictor variable as is the case here (Bryman and Bell, 2011). However, use of a non-manipulative design allows a real life study that is stronger in terms of eco-validity (Evered and Louis, 1991). Concepts are usually operationalised into measurable items for a questionnaire and then subjected to reliability and validity testing (see below, Section 6.4.5).

Data are collected, analysed using appropriate statistics and tested for significance with hypotheses then accepted or rejected in favour of the null. The subsequent conclusions feed into the development of theory and an iterative process begins, leading to empirically verified conclusions (Stainton Rogers, 2011).

Bryman and Bell (2011) list three main advantages of quantitative research. First, fine differences that elude simple observation can be delineated. Second, measurement implies temporal consistency, enabling additive data in new studies. Third the use of such data makes it possible to create precise estimates of the degree of relationships between concepts, and it can do this in a way that is independent of the researcher's personal perspectives. Quantitative research attempts (as described above under the positivism paradigm) to eliminate the personal perspective on the phenomena being examined.

Criticisms of this technique exist, however. First, there can be a spurious sense of accuracy can arise (Bryman and Bell, 2011; Stainton Rogers 2011) which ignores the fact the participants are usually forced to place themselves on a scale when possibly none of the allowed responses completely describe their position. To enable measurement of an operationalised concept, some consolidation of responses has to happen. Second, the responses are usually based on self reports or experimental responses which may or may not accurately reflect "real life". Attempt can be made to minimise the causes of differences, but bias is inevitable. For example, in this study social desirability is operationalised, but it is a well known and accepted potential distortion of personality trait reporting (Furnham, 1986). Blumer (1956) argues that reducing complex human relationships to the statistical relationships between variables misses the meanings behind them, with the data tending to suggest a static versus dynamic world that is not descriptive of reality. Finally, Schultz (1962) points out that the positivist paradigm thus applied ignores the differences that phenomenologists see between the natural and social worlds, arguing the latter is subject to construction by actors.

Despite these reservations quantitative research is a highly effective approach to uncovering otherwise hidden relationships and adding to knowledge. This study acknowledges these hazards

and limitations, but has employed quantitative research as the aim is to add to knowledge regarding broad processes in a substantive manner.

### **6.3.2 Qualitative research**

Qualitative research offers an opportunity to correct some of the deficiencies of quantitative research, but at a cost. As Bryman and Bell (2011) note it emphasises words rather than quantification and is an attempt to collate richer, deeper data relating to the phenomena under investigation. It can be inductivist, constructivist and interpretivist, although it tends towards an inductive logic. The epistemology is largely interpretivist because business is researched through the interpretation of the respondents' views. The ontology is typically constructionalist i.e. meaning is constructed by all the actors involved, including the researcher. Gubrium and Holstein (1997) suggest a list of four traditions of qualitative research;

- 1) Naturalism: describing social reality, in natural settings
- 2) Ethnomethodology: understanding the creation of social order through talk
- 3) Emotionalism: an attempt to understand the inner reality of people
- 4) Postmodernism: understanding different ways to construct social reality

This may reflect the difficulty of classifying qualitative research which, by its nature, is a fluid discipline. Qualitative research includes phenomenology. Schultz (1962) commonly credited (see e.g. Bryman and Bell, 2011) with originating this tradition. Schultz claimed that the world of nature does not have meaning to sub-atomic particles and the social scientist should not employ the same research paradigms as a physicist. The question he posed is how as sentient beings we make sense of the world around us and how an appropriate epistemology can be conceptualised. The study of social reality, Schultz argues, should be based on understanding the social meanings

that we construct to manage our experiences, factors that are not subject to quantifiable measurements. Some tension has been evident between quantitative and qualitative views of research. For example Denzin and Lincoln (2005, p. xi) openly denigrate what they term the “methodological conservatism” of quantitative research and doubt if an objective “God’s Eye View” (2005, p. xi) independent of the observer is truly obtainable, whilst Lincoln and Cannella (2004) attack the US government’s prejudice for quantitative data which they claim is ill-suited to the task of understanding complex and dynamic realities.

The methodology of qualitative research will typically start with the framing of a general research question (Cresswell, 2009), but this is not a testable hypothesis as no null alternative exists. The objective is to discover, by analysing discourse or observation, the meanings of phenomena observed (Blumberg et al, 2008). This might involve unstructured exploratory interviews or semi-structured questionnaires, but the key point is that responses are not forced into categories or concepts. The data are instead gathered (as far as possible without restrictions, although the active participation of the researcher pursuing information can affect the process (Bryman and Bell, 2011).

The key analytical step of interpretation is deliberately more subjective than in quantitative research (Bryman and Bell, 2011), indeed the researcher will need to use a technique to classify and organise the data which itself will depend upon their interpretation of the key themes that have emerged (Stainton Rogers, 2011). Where a quantitative researcher finds gaps, they can revisit the respondents to explore new avenues of inquiry until there is deemed to be enough information to write a conclusion (Stainton Rogers, 2011). However, qualitative enquiry can involve difficulty in establishing credibility for the conclusions, as these may be partially or totally subjective (Bryman and Bell, 2011). The study techniques may be more generalisable



than the specific conclusions. LeCompte and Goetz (1982) recognise that qualitative research has less intrinsic reliability because of these factors and the dynamic changes that occur in business groups; they point out, though, that by seeking inter-observer consistency and by carefully matching observations to later theory some improvement can be obtained in this parameter. Edmondson and McManus (2007) state that as a strand of research progresses in the field the methodological fit should change. They argue that if the state of prior theory is undeveloped then qualitative methodology based on inductive logic will be more illuminating than (possibly spurious) quantification of random correlations that are not theoretically based. On the other hand, if prior theory is well developed a qualitative study is less likely to yield new information and a quantified study is more likely to enhance new understanding (Edmondson and McManus , 2007).

### **6.3.3 Conclusion on research applied methods**

This study represents the first step in exploring a new concept of board team work. A quantitative approach is employed in order to establish whether the initial hypotheses are supported. The discussion here has outlined the disadvantages of such an approach but, critically for this project, differences that elude simple observation can be delineated. A quantitative approach can create precise estimates of the degree of relationships between the concepts in a way that should be independent of the researcher's personal perspectives. Other methodologies including case studies do, however offer alternative sources of data that could be used for follow up analysis in the future. Having explored the methodological issues relevant to the field of enquiry, the implications of these for specific method choice are now discussed.

## **6.4 Method**

This section reviews in some depth practical research issues such as the use of surveys, sampling, appropriate scales, variables, types of measurements and key issues relating to the reliability and validity of the employed constructs. The post hoc reliability calculations are described and the questionnaire design outlined in Section 6.5 then goes on to address the methods employed in the study, data collection and statistical treatment.

### **6.4.1 Surveys**

Primary data can be collected by observation or by survey (Cresswell, 2009; Blumberg et al, 2011). Qualitative and (sometimes) quantitative research often employ observation techniques (Bryman and Bell, 2011; Stainton Rogers, 2011), but more commonly quantitative research will gather data by communicating with and from the respondent (Cresswell, 2009). This can consist of a series of personal interviews and qualitative data are also often gathered this way. More commonly, surveys are conducted which the respondents complete (Fowler, 2002).

Some research projects utilise postal surveys, but these have an inherent cost disadvantage as well as the potential for responder bias (Fink, 2002). The latter can be ameliorated by matching demographics or other indicators against the population census data. This thesis used computer delivered online self-administered questionnaires. Compliance once boards accepted to participate was 100% although prompting was sometimes required. Boards which failed to comply with the need for 100% of directors participating were excluded from further analysis. The commitment to whole board analysis i.e. the team feedback, assisted in chasing completion.

The concepts under examination were operationalised using the questionnaire items<sup>32</sup> tested on a Likert scale as discussed in further detail below.

### **6.4.2 Sampling**

A sample of the population needs to be representative if the results are to be generalisable to any meaningful extent (Babbie, 1990; Bryman and Bell, 2011). However, it is not practical to conduct a census all UK company boards. Apart from the obvious logistical challenges the cost of data processing would be prohibitive. In addition, the nature of the survey requires voluntary cooperation which is not generally available. The data employed here were therefore based on a sample of boards thought sufficient to address the research question in a robust manner. This judgement was based on careful reading and reviews of of comparable diversity studies (Williams and O'Reilly 1998; Nielsen, 2010). In this case, the question is not related to descriptions of population data that can be inferred from the sample, but instead involves answering key questions about the effects of personality on process and outcomes on a sample of UK company boards. No statistical calculations are made regarding the standard error by which this sample might differ from the population, as this is not relevant to the research question. The key issue is how personality trait diversity affects board processes and outcomes on the 30 UK boards studied. The issue of the limitations of generalisability is discussed in chapter 8.

Samples are commonly used instead of a population census because they offer greater speed at lower cost and relative logistic ease (Blumberg et al., 2008; Bryman and Bell, 2011). Samples can be split into probability and non-probability varieties.

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<sup>32</sup> The questionnaire items are all listed in Table 6.1 and with sources in Appendix 6.3

Probability samples are based on the principle of random selection, which in practice is often compromised. Each unit of analysis in the population should have a known non-zero chance of selection (Blumberg et al., 2008) which means that selected units should be re-entered after selection so they can be drawn again. There will tend to be unseen bias in most apparently random techniques employed by field researchers (Cresswell, 2009), but such sampling facilitates probability-based statistical confidence estimates of the general population. The sample size required will depend on the variance of the measured parameters in the population and the required precision. It is not a function of population size.

Non-Probability sampling can be considered less rigorous and more subjective (Cresswell, 2009). However, as indicated above this is sometimes the only practical way to investigate a real life population. If the intent is not to infer the statistically correct analysis of variances, but is instead to describe new data on relationships amongst phenomena in the population the technique can also yield valid results. The type of sampling employed in this research is labelled convenience sampling. It is generally viewed as being less reliable than probability sampling (Blumberg et al., 2008; Bryman and Bell, 2011), but can be the most practical way to gather detail in an unsympathetic population. The present study required directors to agree to expose their personality trait profiles to the researcher and to comment in detail on their own board's processes and outcomes; it required considerable commitment in effort and trust. All directors on a board had to agree to participate in order to be able to measure the complete team diversity. The computerised online questionnaire would not proceed until all questions were answered in order and all board directors engaged with all questions.<sup>33</sup> It is impossible to select such respondents randomly. In fact it took two years to get the 30 boards to participate with the

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<sup>33</sup> In all 54,450 items were answered (by 198 directors in total, 275 each) and none were missed.

benefits of the feedback requiring detailed explanation and selling. Nevertheless, the boards tested ultimately supplied sufficient variety of input / output data and were drawn from a sufficient diversity of businesses to make the analysis meaningful in answering the research question.

### **6.4.3 Questionnaire design**

Saunders et al. (2003) describe the three methods that can be used to construct a new questionnaire. The researcher can adopt or adapt questions used in related literature, or develop new ones. All these three methods were used in this research. It is obviously important to use question items that have been established in leading peer-reviewed papers, and this was done whenever possible.

### **6.4.4 Scales**

According to Patchen, (1965, p. 17) a scale is a:

“procedure for the assignment of numbers (or other symbols) to a property of objects in order to impart some of the characteristics of numbers to the properties in question”.

Of course the researcher has to take a view of which of the Stevens (1946) measurement definitions apply and whether the respondents are being asked to rate, rank or categorize. Rating is without comparison, i.e. how does this item rate against a standard, high or low etc. Ranking requires comparison with another item, i.e. better / worse etc. Categorization requires the respondent to put themselves or a property in a category relating to a particular characteristic or preference e.g. nationality. This is part of the operationalization of the concepts being researched and is a key component of the research design. Or they may be asked for a preference. The 15FQ+ personality test used here is of this type (Psytech, 2003).

Blumberg et al. (2008) claim that there is little support for a particular scale point size, despite the apparent increase in sensitivity involved by employing seven or more points. The 15FQ+ has just three, while the board process and outcomes questionnaire uses five. To avoid a central tendency the researcher should construct the item so the high and low ends of the scale range are not extreme (Blumberg et al., 2008). Blumberg et al. (2008) even suggest providing smaller differences between the end point than the central ones, although this could compromise attempts to analyse the results on an interval data basis.

The classic Likert (Murphy and Likert, 1937) scale is commonly employed in survey analyses. The scale employed in the present study is based on five boxes, Strongly Agree; Agree; Undecided; Disagree; Strongly Disagree. The respondents are asked to choose the response that most closely represents their feelings regarding statements reflecting operationalised concepts. Respondents' views are assumed to be representative of those of the population and the sample can therefore be statistically analysed to normally produce generalisable results.

An operational definition of the constructs were defined for the research. For example the (abstract) concept of trust is operationalised using questions in the literature to construct a 10 item questionnaire that employs a Likert scale which can be tested for validity and reliability. This scale consists of possible responses to a statement, this indicating the extent of agreement / disagreement. The process and outcomes questionnaire employed here had five such Likert options ranging from "strongly agree to strongly disagree" which were then coded with a number from 1 to 5. Reverse coded questions were also included with a statement that represented the opposite tendency to the positively coded statements. The scoring was reversed for these. For example a trust item: "I am not willing to discuss work related problems or difficulties with this board that could potentially be used to my disadvantage". It was assumed for the purposes of the

study that the data were interval data, but there is some debate on whether Likert scales can truly be considered as such. The debate concerns whether or not the respondents perceive equal intervals between the scale points. Dewbury (2004) argues that the real differences between ordinal, interval and ratio data are not of critical importance especially if ordinal scales are designed with reasonably equal distances between points. Dewbury cites Velleman and Wilkinson (1993) who conclude that there is a vital distinction between categorical and continuous data, but not between the other three measurement scales. Howitt and Cramer (2008) support this view and suggest (2008, p. 48): “so long as the scores are on a numerical scale they can be treated as if they are interval data”.

It has therefore been assumed here that parametric statistics can be applied to the Likert scales in this research provided that the tests for normality are satisfied. The personality trait questionnaire used a simpler “yes” / “no response” / “no” three point scale on which participants were asked to choose between alternative scenarios such as : “ I would rather be a fireman than an architect” or: “I would be first to speak up at a party”. These are not scored as continuous data. The totals in each category indicate behaviour preferences and personality traits.

#### **6.4.5 Reliability and validity**

##### **6.4.5.1 Reliability**

This is a measure of how repeatable the research results are i.e. would another researcher be able to replicate the findings at a later date (Easterby-Smith et al., 2002; Maylor and Blackmon, 2005). While it is impossible to be 100% sure of the accuracy of results, the researcher must try to minimise sources of error (Saunders et al., 2003). Robson (2002) identified four possible sources of unreliability. These are: participant error; participant bias; observer error; and

observer bias. In this thesis two separate self reporting questionnaires were used. Whilst observer error is possible in statistical processing it is unlikely to be material (Robson, 2002). Likewise observer bias is almost eliminated by the nature of the process, although participant errors and bias though are a real possibility (Robson, 2002). The 15FQ+ report is well established with well documented methods of reliability testing (Psytech, 2003). These include retest and internal consistency. One measurement of internal consistency is Cronbach's alpha coefficient (Dewberry, 2004), which tests correlation amongst the responses to individual items. If they do not reach (by convention) a "r" of  $\geq 0.7$  then the items are not usually regarded as measuring the same construct. Items can be deleted Post Hoc to reach this minimum and this process is used for both the process and outcomes questionnaire in this project.

#### **6.4.5.2 Validity**

Validity is a measure of how accurately the research concepts reflect the reality of what they are intended to measure (Easterby-Smith et al., 2002; Maylor and Blackmon, 2005). Thus a test may be reliable, but not measure the intended phenomenon. However, it must be reliable first to be valid. Validity is conventionally measured in a number of ways.

First, external validity (Saunders et al., 2003) is the term describing the generalisability of observed results. This validity is minimised as the sample number reduces. For example it would not be high for a few case study based research. The quantified research presented here will have greater external validity (and generalisability) if it is established that the sample is representative of the population of UK company boards.

Second, ecological validity (Wilkinson, 2000) refers to the degree of real life validity. It is lowest in laboratory experiments or research for example amongst university business undergraduates as



surrogates. The research here was undertaken amongst real and active UK boards and as such can be regarded as having high ecological validity.

Third, content validity (Hammond, 2000) or “face” validity asks whether the items used to test for the construct appear relevant; to a degree this is a subjective test. It appears that the items in the research process and output questionnaire here are all relevant to the construct. In particular, there are published data for the 15FQ+ test which are regarded as satisfactory (Psytech, 2003).

Fourth, criterion validity (Hammond, 2000) is again partially subjective in that it refers to the relevance of the test to some external behaviour. Commonly described as predicative validity, it is often used in the context of aptitude for a specific work role such as sales, nursing or policing. It is also sometimes described as “concurrent validity” where events such as current absenteeism are operationalised and the results correlate significantly with the externally measured data.

Finally, construct validity (Phillips, 1966; Bryman and Bell, 2011) refers to the relevance of the construct to a real life phenomenon i.e. whether it is measuring what it sets out to measure. When correlated with other construct measures (e.g. in other psychometric tests) it can also be termed “convergent validity”. The 15FQ+ (Psytech, 2003) model offers a number of such comparisons (Section 6.4.5.3). The construct validity can also be measured internally, using factor analysis to confirm the constructs are not correlated with each other. This was checked (Section 6.4.6) for the second novel processes and outcome questionnaire.

#### **6.4.5.3 Reliability and validity of the independent (predictive) variables**

The independent variables are personality trait diversities (PTDs) that are calculated as the mean Euclidean distance (MED) (see Section 6.5.3 below) for each of the 16 personality traits for each respondent on that board. The personality trait data was obtained from each respondent

completing the commercially available personality trait test, the 15FQ+ (Psytech, 2003). This first of the two questionnaires is constructed as a 200 question three point scale. The data is collected as raw scores<sup>34</sup>. For the main part of this study, respondent raw trait data (not normed) obtained from Psytech on-line were then used to compute the diversity of each factor for each respondent. It is therefore important to confirm the reliability and validity of the 15FQ+ questionnaire. These are published by the Psytech company and were not independently checked in this study.

Reliability and validity data are published in the 15FQ+ manual (Psytech, 2003). For the test used (long form 15FQ+) all cronbach alphas for all 16 factors  $\geq 0.72$ . So the test has previously demonstrated internal consistency. On short term test-retest reliability all 16 factors equal or exceed a coefficient of 0.79. Over four months this still is equal to or exceeds 0.72. These are all Psytech (2003) published data.

To establish construct validity correlations were established with similar tests such as the 16PF5 described above in Chapter 4. Cattell and Cattell (1995) published the 16PF<sup>35</sup> personality test which (as described in Chapter 4) has been the basis of many studies. The 15FQ+ is derived from the 16PF (Chapter 4) and Psytech (2003, p. 38) claim that the 15FQ+ has: “stayed true to the original source traits first identified by Cattell”. The lowest correlation score was for Factor  $\beta$  at 0.34, but Intellectance is a replacement for the 16PF5 Intelligence test as noted above. The other Factors correlate from 0.55 to 0.88 with the exception of Factor N at 0.25. Some correlations validating the factors are also demonstrated with the MBTI, the JTI and the NEO PI-R.

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<sup>34</sup> which can be normed against 1,186 business managers on a stanen (1-10) scale so the 16 factors can be compared with each other .

<sup>35</sup> Short for 16 personality factors

To establish the criterion validity of the 15FQ+, Psytech (2003) publishes a list of many occupational studies subject to multiple regression analyses all of which show significant correlations. For example 125 technicians were tested and Psytech found that factor C (emotional-stability) and factor O (self-doubting) correlated significantly ( $p < 0.05$ ) with sick days taken ( $r=.33$  and  $.28$ ). The occupations measured by them include telesales staff, New Zealand police officers, live stock sales managers, trainee solicitors and financial service executives. Beta weights in the regression tables are quoted by Psytech (2003) of between 0.3 and 0.4 and it is concluded that the 15FQ+ offers a valuable tool to predict on the job performance. This may be a biased view since Psytech are commercially conflicted, but it is a widely accepted tool in occupational psychometric testing. For the purposes of this study the criterion validity is less important.

#### **6.4.5.4 Reliability and validity of the dependent (criterion) variables**

A second questionnaire measured board processes and outcomes. This consisted of 75 questions on a five part Likert scale (see Appendix 6.3 for sources). These process and outcome constructs are now presented individually in Table 6.1 along with the post hoc results of the factor analysis and cronbach alpha calculations to show how the items were selected for the final constructs used in Chapter 7.

**Table 6.1 Research Items (items are combined into a single scale per panel)**

<b>Item No.</b>	<b>Panel A Effort Norms Items</b>
<b>1</b>	Directors on this board have usually researched the key issues before the board meeting.
<b>2</b>	Nearly all directors actively participate in board discussions
<b>3</b>	Directors on this board take notes during meetings
<b>4</b>	Directors carefully scrutinize the information provided by the company before the board meeting
<b>5</b>	Directors o this board are diligent about attending most meetings
	<b>Panel B Cognitive Conflict Items</b>
<b>1</b>	There is often disagreement amongst members of this board on their opinions about an issue.
<b>2</b>	There is often disagreement over different ideas at the board meeting
<b>3</b>	It is often true that differences about the contents of decisions have to be worked through in detail
<b>4</b>	It is common for the directors of this board to have differences of opinion
<b>5</b>	Directors will often hold back their opinions in the interests of consensus (reverse coded)
<b>6</b>	Directors will usually consider the viewpoint of other directors
<b>7</b>	The discussions on board decisions are open and candid
<b>8</b>	The board atmosphere encourages critical thinking
<b>9</b>	Differences of opinion on the board are usually related to the tasks in hand
<b>10</b>	Usually different ideas and opinions are expressed on a particular project discussed by the board
	<b>Panel C Use of Knowledge and Skills Items</b>
<b>1</b>	People on this board are aware of each other's areas of expertise
<b>2</b>	When an issue is discussed, the most knowledgeable people generally have the most influence
<b>3</b>	Task delegation on this board represents a good match between knowledge and responsibilities
<b>4</b>	Important information often gets withheld on this board (reverse coded)
<b>5</b>	Information flows quickly among board members
	<b>Panel D Trust Items</b>
<b>1</b>	If you make a mistake on this board it is often held against you (reverse coded)
<b>2</b>	People on this board are able to bring up problems and tough issues
<b>3</b>	It is safe to take a risk on this board
<b>4</b>	No one on this board would deliberately act in a way that undermines my efforts
<b>5</b>	It is difficult to ask other directors for help (reverse coded)
<b>6</b>	I can depend on this board to handle an important issue on my behalf
<b>7</b>	I can depend on this board t back me up in difficult situations
<b>8</b>	I can rely on this board's collective work-related judgements
<b>9</b>	I am not willing to discuss work related problems or difficulties with this board that cold potentially be used to my disadvantage (reverse coded)
<b>10</b>	I am willing to share my personal feelings with this board

	<b>Panel E Competitiveness Items</b>
1	Before the board meeting I worry about not performing well personally
2	I do not worry about making personal mistakes at the board meeting (reverse coded)
3	I am confident I can meet my own personal challenge at the board meeting
4	I am concerned that others will be disappointed with my performance at the board meeting
5	I am not concerned about losing in a board decision (reverse coded)
	<b>Panel F Cohesiveness Items</b>
1	This board is ready to defend each other from criticism from outsiders
2	This board helps each other on completing the board tasks
3	This board gets along well with each other
4	This board "sticks together"
5	This board presents a unified face to the outsider
	<b>Panel G Affective Conflict Items</b>
1	Emotional conflict is often evident on this board
2	Anger occurs amongst some members of the board at most meetings
3	There is rarely any personal friction between directors at the board meetings (reverse coded)
4	Personality clashes between directors are not evident at board meetings (reverse coded)
5	There is usually tension at the board meetings
6	The board directors are not ready to cooperate
7	Usually at least one director is unhappy with the board decision
8	There is often personal rivalry between the board directors
9	Directors get along very well (reverse coded)
10	Directors see win/lose situations on the board
	<b>Panel H Strategy Items</b>
1	This board stimulates strategic planning from the company's management
2	This board does not actively contribute to strategy formulation (reverse coded)
3	This board has a clear business strategy
4	Strategy is reviewed by this board with a timely response to external change
5	This board is not actively involved in promoting strategic initiatives (reverse coded)
	<b>Panel I Control Items</b>
1	This board has good control over the financial performance of the company
2	This board is not well informed about the cash position of the company (reverse coded)
3	This board is easily able to monitor senior management performance
4	This board takes appropriate action quickly if executive action fails to meet plan
5	This board is not well informed about management succession (reverse coded)
6	This board approves critical press statements
7	This board monitors and reviews risk by setting review protocols
8	This board does not regularly analyze performance v.s. budget allocation (reverse coded)
9	This board is actively involved in supervising the CEO
10	The individual performance of each of the board directors is evaluated annually

	<b>Panel J Service Items</b>
<b>1</b>	Directors on this board add considerable technical expertise which is used by the company
<b>2</b>	The directors of this board bring networking skills to the company which add value to the management's marketing operations
<b>3</b>	The directors of this board do not have the necessary experience to add value to the management's technical knowledge (reverse coded)
<b>4</b>	Each of the directors of this board bring different strengths to the board meeting
<b>5</b>	The directors of this board do not know senior executives in supplier companies such as banks or other services which could help facilitate business deals (reverse coded)
<b>6</b>	Top managers do not solicit assistance from the board (reverse coded)
<b>7</b>	The directors on this board are not chosen for their external influence in the community (reverse coded)
<b>8</b>	The directors of this board provide channels of communication between the firms
<b>9</b>	The board of directors do not serve as a link to government agencies (reverse coded)
<b>10</b>	The board provides the firm with external legitimacy and reputation

Note : This table lists all the process and outcome question items used in the research. Appendix 6.3 lists the items and their sources.

#### **6.4.6 Board Processes**

##### **Effort Norms Items**

The items were analysed by a factor analysis with one component extracted (see Appendix 6.5). The items selected by factor analysis, 1,3, 4, and 5 had a cronbach alpha of 0.699. It was found that deletion of item 3 increases the cronbach alpha only marginally to 0.700. Item 3 was therefore retained. So the final construct consisted of items 1,3 ,4, and 5. This enabled the effort norms process to be included in the results.

##### **Cognitive Conflict Items**

The items relating to cognitive conflict were analysed by a factor analysis and two components were extracted (see Appendix 6.5). Items,1,2,3,4 and 10 were found to have a cronbach alpha of 0.697. With item 3 excluded this increased to 0.711 and so the final construct consisted of items 1,2,4, and 10 which all loaded on one factor (see Appendix 6.5). The process of cognitive conflict is therefore included in the results.

### **Use of Knowledge and Skills Items**

The items for the use of knowledge and skills were analysed by a factor analysis. Rotation converged on two iterations (see Appendix 6.5). The initial cronbach alpha with all items for this process was 0.580. Items selected after factor analysis, 1,2,3 and 5 have an alpha of 0.634. It proved impossible to obtain a cronbach alpha  $\geq 0.7$  this construct was not analysed further. Thus the board process of the use of knowledge and skills could not be included in the results.

### **Trust Items**

The items were analysed by a factor analysis and one component was extracted (see Appendix 6.5). The cronbach alpha of the 10 items was calculated as 0.844 so the final trust construct was left as 10 items as above. Thus the board process of trust was considered to be a robust factor and was included in the calculation of the results.

### **Competiveness Items**

The items were analysed by a factor analysis and one factor was extracted (see Appendix 6.5). The initial cronbach alpha with all items was 0.598. If item 3 is deleted it gives a cronbach alpha of 0.724. So the final construct consisted of items 1,2,4, and 5 and competitiveness was included as a board process in the results.

### **Cohesiveness Items**

The items were analysed by a factor analysis and one factor was extracted (see Appendix 6.5). All items selected with a cronbach alpha of 0.771. So the final construct of cohesiveness consisted of items 1,2,3,4 and 5 and was included in the results.

### **Affective Conflict Items**

The items were analysed by a factor analysis and rotation converged on two iterations (see Appendix 6.5). Items of one factor 1,2,3,4,5,6,7,8 and 9 were found to have a cronbach alpha of

0.880. So the final construct of affective conflict consisted of all items excluding item number 10 and it is therefore a board process that can be included in the results.

#### **6.4.7 Board Outputs**

##### **Strategy Items**

The items were analysed by a factor analysis (see Appendix 6.5). One component factor extracted. Items selected by factor analysis, 1,2,3,4, and 5 have a cronbach alpha of 0.798 . So the final construct consisted of all 5 items. This finding is sufficiently robust to allow inclusion of this board output factor in the results.

##### **Control Items**

The items were analysed by a factor analysis with one main factor extracted (see Appendix 6.5). Items 1, 3, 4, 6, 7, 8 and 10 selected with a cronbach alpha of 0.740. So the final construct consisted of these items and the board output factor of control is included in the results.

##### **Service Items**

The items were analysed by a factor analysis and three factors extracted (see Appendix 6.5). Items 2,4,6,8 and 10 selected. These items selected by factor analysis have an alpha of 0.641. Since it proved impossible to obtain a cronbach alpha  $\geq 0.7$  this construct was not analysed further and the board output task factor service was not included in the results.



The calculations set out above are summarised in Table 6.2.

**Table 6.2 Construct Reliability**

<b>Title</b>	<b>No. Items</b>	<b>Cronbach <math>\alpha</math></b>	<b>Status</b>
Effort Norms	4	0.699	Accepted
Cognitive Conflict	4	0.711	Accepted
Use of Knowledge	0	$\geq 0.7$	Rejected
Trust	10	0.844	Accepted
Competiveness	4	0.724	Accepted
Cohesiveness	5	0.771	Accepted
Affective Conflict	9	0.880	Accepted

Strategy	5	0.798	Accepted
Control	7	0.740	Accepted
Service	0	$\geq 0.7$	Rejected

Note: This table summarises the reliability test results for the constructs employed. Those with the status shown as “accepted” were taken forward for further analysis in Chapter 7.

The variables data were all tested for normality using SPSS and were found to be acceptable. It was therefore appropriate to use parametric methods to analyse the data, including Pearson’s coefficient of correlation and hierarchical multiple regression.

## 6.5 The study

The effects of personality trait diversity of UK company directors on board processes and task outcomes was explored through a quantitative study. UK boards are single-tiered, comprising of both executive and non-executive directors with a (usually independent) chairman who is senior to the CEO. The UK governance system is based on a dispersed ownership structure, strong reliance on equity financing, and a clear division of responsibilities between boards, shareholders and management with a tendency to accord shareholders primacy over other stakeholders (Shleifer and Vishny, 1997; Denis and McConnell, 2003). UK boards are typically portrayed as

highly homogenous in terms of age, gender, ethnic and social status (Useem, 1982; Singh and Vinnicombe, 2004; Brammer et al., 2007). It is in this context that the present study examines the effects of deep level diversity (Harrison et al., 2002) as diversity of separation (of personality traits) (Harrison and Klein, 2007).

### **6.5.1 Pilot test**

To remove ambiguity in the question items and improve the design it is important to pilot test any questionnaire (Fowler, 1993; Bryman and Bell, 2011). This is especially true of self-completion questionnaires such as used in this project. The survey used here was piloted in its entirety on-line with members of an angel investment club, all of whom were also directors of other companies (Fowler, 1993) and with an independent university academic from a non-business field. Several suggestions were made and subsequently incorporated into respondent instructions. For example the instruction not to finish and sign off at the end of the first questionnaire, the 15FQ+. The questions for the second questionnaire were mainly sourced from the literature, but also benefited from minor modifications aimed to enhancing clarity (Dillman, 2000). However, no questions had to be dropped from the pilot for this cause.

### **6.5.2 Data collection**

Data were collected over two years, 2010-2012, through an on-line questionnaire sent to UK boards who had already agreed to participate. Since the focus of the research is on personality trait diversity, data were collected from all board members (i.e. measures of each director's personality traits) rather than a single respondent only as is common in board process research (Minichilli et al., 2009). Given the challenges associated with gaining access to board members, and moreover having all board members participate in the survey (Pettigrew, 1992; Daily et al.,

2003; Abatecola, 2011) a convenience sampling approach was adopted<sup>36</sup>. The author is a Fellow of the Institute of Directors (IoD), a Chartered Director and has held a variety of board positions and board chairmen and CEOs known to the author were approached initially through a mail-out letter (shown in appendix 6.1) inviting the board to participate in the research in return for:

- a) individualised feedback on personality traits of each director; and
- b) group feedback based on an overall board evaluation.

The letter highlighted that boards could use the (free) analysis and feedback as part of their annual board evaluation, a practice recommended by the UK Corporate Governance Code (Combined Code, 2006)<sup>37</sup> and also of value to investors. After the initial few boards were recruited the letter targets were expanded to random lists of companies from mailing lists and press reports. In addition, an advertising press campaign was run via *The Director* (IoD in-house journal) and other outlets. Internet social networks were also used to generate contacts while networking via government agencies and investment angel clubs yielded a few more boards. Access was difficult and it took some time to reach the target number of 30 boards. The invitation letter stressed the practical experience of the author when offering the free feedback consultancy. Because of the feedback it was possible to insist on a complete questionnaire from all respondents so there are no “missing” items in the data base.

When the initial responses were positive, a meeting was arranged between the researcher and the board to explain:

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<sup>36</sup> A mix of industries was sampled to reduce bias and facilitate access, see Appendix 6.4 for anonymised company profiles.

<sup>37</sup> Later replaced with the UK Governance Code 2014, not published at the time of the field research.

- a) the outline administration of the questionnaire;
- b) the data to be provided to individual respondents and the board team; and
- c) the ethical constraints of both the author's host university regulations and the Code of Practice of the British Psychological Society.

The offering of these services was undertaken to enhance the chances of access. Many authors (e.g. Hambrick and Mason, 1984; Abatecola, 2011; Zhou and Rosini, 2015) have commented on the difficulty of getting psychometric research data from board directors. It was felt unlikely that an unrewarded appeal would succeed with a sufficient number of respondents. The board and individual feedback incentivised compliance. Although such convenience sampling may be seen as introducing biases to the research, analyses from psychological research comparing convenience and random sampling show that there are fewer variances between random and convenience sampled data than might be expected, and only minimal differences in diversity, which is the particular focus of this research (Hultsch, 2002).

Data was collected on-line, each participant receiving identical instructions (Appendix 6.2), as per good psychometric practice to reduce bias.

The research closed at the end of 2012, when 30 complete boards (198 directors) had been surveyed. This compares with the numbers found in Nielsen's (2010) board diversity literature 22-year review in which the minimum sample size for quantitative studies was 27 companies. Of the 60 studies Nielsen reviews, only two apply random sampling whilst only two considered multiple aspects of heterogeneity simultaneously.

### 6.5.3 Applied statistics

As noted, the first 15FQ+ questionnaire (personality traits) is an established and well-tested research instrument (Hammond, 2000; British Psychological Society, 2008; Revelle, 2009). The questionnaire has built in questions that test for social desirability (Section 6.6.2) bias (on a scale from 1-10) which are independent from the 16 personality trait factors. In these data the mean social desirability bias is 7.12 (Standard Deviation 1.8) which is generally considered to be acceptable and represents no cause for concern (Psytech, 2003). This issue is further discussed in some detail below (Section 6.6.2).

Diversity of personality traits was measured using Euclidean distancing (Burt, 1982; O'Reilly et al., 1989; Barsade, 2000) via a two stage process. This technique first measures each individual's distance (based on a chosen parameter) from each other member of the group. By then next taking the board mean (**Mean Euclidean Distance**) each director was given a value of the distance of each personality trait from the rest of the board team. It thus measured diversity of every director on every personality trait on each board. First the Euclidean distance for each director was calculated as the square root of the mean squared distance of the raw trait score from every other director on that board, as per the formula below<sup>38</sup>. In practice, the individual Euclidean distances were extracted using the SPSS program. Then for the second step the MED for each director was constructed by calculator, adding the Euclidean distances to each of the other directors on that board and dividing for each director by n-1 (as obviously the director had zero distance from themselves). As O'Reilly et al. (1989) explain, the squaring and subsequent

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$$E(x, y) = \sqrt{\sum_{i=0}^n (x_i - y_i)^2}$$

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square root calculations of the first formula make this measure deliberately insensitive to the individual's distance direction, without disproportionate weight being given to distance (Burt, 1982). It is therefore accepted as a robust statistical measure of diversity (Barsade, 2000, Harrison and Klein, 2007).

Hierarchical multiple regression is a technique in which a series of models are examined with an increasing number of chosen independent variables included in each model. Multiple regression is described by Hair et al. (2010) as a technique to calculate the variate, a linear combination of variables whose (Beta) weights are determined empirically to maximise the correlation between the multiple independent variables and the dependent variable. The Beta coefficient is standardised to make vertical comparisons between of the variables possible. An assessment of multicollinearity is required to eliminate the possibility of correlation between the independent variables. The measure employed is the variance inflation factor (VIF). Higher degrees of multicollinearity give higher VIF values. Hair et al. (2010) suggest a maximum cutoff value of 10, but preferably below 3 to 5. The square of the total correlation coefficient (adjusted  $R^2$ ) indicates the percentage of the variation in the dependent variable explained. The measure is adjusted (Dancey and Reidy, 2004) downwards to account for the tendency for the sample regression line to fit the sample better than the population and the conventional  $R^2$  measure to increase automatically as the number of independent variables rises.

The multiple regression used in this study was a hierarchical design. In model 1 the controls of company size, company growth, board size (ln), % non-executive directors and duality are regressed on the process or task outcome construct. In model 2 the personality trait diversity (PTD) of all of the 16 factor traits is added to the controls and they are all regressed on to the process or outcome construct. The  $\beta$  weights are standardised vertically to be comparable. The

$R^2$  is adjusted for the reasons explained above. Model 2 therefore gives a measure of the increase in the percentage of the variation of the dependent variable explained by the addition of the PTD data to the controls. The statistical significance of this contribution is indicated by the significance of the F change. This sign applies to the column of independent variables i.e. all the PTD factors and controls. The  $\beta$  weights indicate the comparable contribution of each independent variable to the explanation of the variation in the independent variable.

Factor analysis is a commonly used way of detecting patterns of correlations (Dancey and Reidy, 2004). In this study the operationalised constructs represent a factor, as per the original 16PF personality trait study by Cattell (1945). The technique is now used to reduce a large number of variables to a smaller number of factors, so that within the factor the set of variables will vary closely together and independently of the variables found (loading) on other factors. It is relevant to construct validity. Exploratory factor analysis was carried out (Appendix 6.5).

## **6.6 Experimental issues**

As described above no one method is without sources of error, those most common to the methodology adopted in the present study are now discussed. It is necessary to consider common method bias (CMB) which includes both common source and method variance (CMV), and the social desirability (SD) error potential.

### **6.6.1 Common method bias**

Common method bias (CMB) is described by authors (e.g. Podsakoff, et al. 2003; Richardson et al., 2009) as variance that results from methodological set-up rather than true variation in the constructs. CMB can be difficult to eliminate in practice, but its potential effects can be mitigated by the research design. There is some debate in the literature about the value of

Podsakoff's recommendations on eliminating CMB. Brannick et al. (2010) argue that it is sometimes difficult to get studies published that fail to address CMV, although they cast doubt on whether it is a real problem in practice or an "urban legend" (Brannick et al., 2010, p. 408). These authors also accept though that high correlations can arise inadvertently if there is poor discriminant validity between construct items. Spector (2006, p. 221) argues that concern in this area is overstated, claiming that empirical evidence casts: "doubt that the method itself produces systematic variance in observations that inflates to any significant degree".

Spector (2006) points out that unless CMV is inconsequential it should produce many significant correlations. Nevertheless, many empirical studies, even those underpinned by robust theory fail to achieve significance. Pace (2009) further emphasises the need for clarity on whether any source of potential bias is based on a common method or other issues concerned with the accurate measurement of the construct; these will include scale length, response options, item ambiguity and raters' inherent beliefs about likely co-variance of linked items. It is more complex than simply eliminating CMV by using independent sources.

The present study data are produced by common sources. The personality profile input data and board process/outcomes feedback data are garnered from the same director respondent. To reduce the potential CMB different scale formats are used in the two questionnaires. The 15FQ+ uses a simple three choice scale, while the board process and task outcomes questionnaire uses a five point Likert scale. Podsakoff et al. (2003) recommend this as a way of reducing artifactual covariance.

These authors also describe the tendency described in the literature as "acquiescence", described by Winkler et al. (1982, p. 555) as the: "tendency to agree with attitude statements regardless of



content”. In this study an attempt was also made to minimise the problem by inserting by inserting negative (reverse coded) questions in the second questionnaire. Podsakoff et al. (2003) point out this can introduce method bias if it is not recognised by the respondent. Moreover, CMB is less likely to be a problem in this research since the process and task output mean data were not collected from a single board respondent, but from every board member on the team.

### **6.6.2 Social desirability**

Social desirability responding (SDR), is the term used (e.g. by Ganster et al., 1983; Paulus, 2002; Psytech, 2003; Steenkamp et al., 2010) to identify the respondent’s possible desire to present an unrealistically positive image, with the denial of minor failings and idiosyncrasies. This propensity may not be deliberate, but may reflect a “highly over-idealised self image “(Psytech, 2003, p. 8) or “simply provide answers that make them look good” (Steenkamp et al., 2010, p. 199). In this context, Spector (2006) cites Moorman and Podsakoff (1992) who found many examples of where social desirability failed to influence correlations. Paulhus (1991) describes SDR as encompassing two separate phenomena, self deceptive enhancement (SDE), and deliberate impression management (IM), an attempt to impress others. This concern is particularly salient for self report measures such as the 16PF and 15FQ+ questionnaires (Furnham, 1986). In the present project attempts have been made to decrease the respondent value of IM by stressing confidentiality of the personal data which is not shared with other respondents except for (anonymous) board mean and range feedback.

Ellingson et al. (1999) investigated this question using an experimental approach. Participants were instructed first to respond honestly and then, in a within-subjects design, were instructed to create a favourable impression via the second responses. Perhaps not surprisingly the results

suggested that the second set of responses did distort the personality factor structure. When not experimentally instructed to fake, respondents tended not to inflate their scores equally amongst the factors and construct validity was not influenced (Ellingson et al., 1999, p. 131):

“Hence, although individuals in the high-SDR groups may have been socially desirable in their responses, their recognition of item content translated into a specific response pattern focussed on certain items”.

Collins and Geaves (1998) found that high SD scores did not measurably alter the personality factor structure. This was true even though those respondents with high “agreeableness” (Costa and McCrea, 1991) had a tendency to (i) agree with test items, the “yea saying” socially desirable responding phenomenon (Meier, 1994, Podsakoff et al., 2003); and (ii) exhibit “openness” where high SD pushed responders towards mid-range responding. Collins and Geaves claim that SD reporting bias is particularly true of African Americans, but still found no significant differences between ethnic groups’ personality structures. The authors note, however, that this may be because the across group variation was too subtle for the five-factor model to detect.

Ellingson et al. (2001) examined four large data sets relating to 39,879 respondents to the 16PF to determine whether high social desirability (SD) scores negatively affect construct validity scores and found little or no distortion when of the correlations of results for high and low SD scores including the 15 (non factor B) 16 PF factors equivalent to the non factor  $\beta$  15FQ+ factors. This is relevant to this present study which uses the 15FQ+.

These results suggest that high SD scores in themselves do not necessarily invalidate the personality factor results. It could be argued that this is especially true if the respondents are aware that there is a mechanism to detect such a tendency which was part of the respondent protocol brief in this study.

Steenkamp et al. (2010, p. 200) describe such “unconscious self-deception ” as “traitlike”. Thus, high SDR can become a defining characteristic (Paulhus, 2002) that permanently moderates the personality profile through honestly-held self perception named “egoistic response tendency” (ERT) by Paulhus and John (1998) - not necessarily a deliberate distortion. The results of these personality profiles are thus held to be representative of the respondents’ views of their own profiles. It is important to distinguish between ERT and moralistic response tendency (MRT). MRT is described by Steenkamp et al. (2010) as essentially a claim to avoid disapproval via conformation with social norms such as acting in a considerate, cooperative and affectionate manner. The 15FQ+ SD scale is incapable of differentiation between these concepts.

The Steenkamp et al. (2010) data set of more than 12,000 respondents in 26 countries, reveal that the lowest scores for both ERT and MRT arise in the UK. Referencing Hofstede (2001), the authors point out this is consistent with the former’s findings on population norms for individualism / collectivism and masculinity / femininity (of the cultures).

Table 6.3 presents these findings of Paulus and John (1998) and Steenkamp (2010) in a grid to demonstrate how high SD scores can arise from multiple causes and not necessarily from an attempt to deceive which might distort the personality trait profile.

High SD can be an enduring tendency (Steenkamp et al., 2010) particularly if the respondents are drawn from a population of generally successful businessmen and businesswomen. Paulhus and John (1998) argue that SDR is more likely in contexts which involve dominance, assertiveness, control, power, status and independence; these characteristics accord with the personality factor means found in this project (Table 6.4).

**Table 6.3**

**Social Desirability Grid**

		Response Tendency	
		ERT Egoistic Response Tendency (Paulus and John, 1998)	MRT Moralistic Response Tendency (Steenkamp et al., 2010)
<b>SDE</b>  Self-Deceptive Enhancement  (Paulus, 1991)	BOX 1	Genuine self belief in own superiority for traits seen as desirable within context of questionnaire. May or may not be accurate. No reason to be less accurate than other self reported traits.	Genuine self belief in superior moral position. May or may not be accurate. But usually will not. MRT can be detected with specific questions (Paulhus, 2002).
	BOX 2		
<b>IM</b>  Impression Management  (Paulus, 1991)	BOX 3	Deliberate deception in attempt to enhance own trait profile to a perceived ideal within context of questionnaire. Probably inaccurate. Tend to enhance all traits in profile by deliberate faking.	Deliberate deception to enhance own apparent moral traits in conformation to perception of idealised social norms. Probably inaccurate. Tend to enhance all traits by faking.
	BOX 4		

Note: This table brings together the various propositions of Paulus, John (1998) and Steenkamp et al, (2010) in a four box grid format to demonstrate that simple social desirability in fact can arise from unrelated phenomena of self deceptive enhancement or impression manangement, moderated by an egoistic or a moralistic personality tendency. Thus SD can arise from at least four separate causes.

Ganster et al. (1983) point out that one source of a Type 1 error would be spurious correlation between the independent and dependent variables as a result of shared variance in SD. In this study the directors' SD is likely to be SDE/ERT as inspection of Table 6.3 Box 1 above reveals when it affects the independent variables and is not likely to impact variations dependent variables in the second survey as these are concerned with items on the functioning of the board team as a whole. Ganster et al. (1983) describe the spurious correlation hypothesis as plausible, but unknown in practice. These authors also point out that the suppression of correlation caused by the SD effect on any one variable may generate a Type 2 error.

To test the SD effect on trait reporting the data were divided into high and low SD responders (Table 6.4). Psytech (2010) state that their SD score (1-10) of the 15FQ+ is based on 8 dedicated items out of 200. A fictitious example would be "as a child I always did as I was told" . They score the scale 1-10 and only consider Sten scores of 8-10 as high (Psytech, 2010). The results of the present study where the mean = 7.12, standard deviation = 1.8 (n= 198) could be read as an indication of a slight propensity for high SD scoring, in turn raising an issue regarding the accuracy of the personality factor profiling. The pertinent question then becomes how does the SD score effect the validity of the personality profiling.

**Table 6.4 Normed Scores of Factor Traits for High and Low SD**

Trait	All Directors n=198		Low Social Desirability n=100		High Social Desirability n=98		Low vs. High df= 196	
	Mean	Std Dev	Mean	Std Dev	Mean	Std Dev	t	p
<b>A</b>	5.17	2.151	4.92	2.130	5.42	2.154	-1.506	.134
<b>β</b>	7.19	2.102	7.00	2.132	7.38	2.064	-1.590	.113
<b>C</b>	7.31	2.085	6.49	2.111	8.15	1.695	-5.699	.000***
<b>E</b>	6.83	1.833	6.70	1.806	6.96	1.861	-1.040	.300
<b>F</b>	5.10	1.801	5.13	1.889	5.06	1.716	.334	.739
<b>G</b>	5.90	2.225	5.79	2.076	6.02	2.372	-.336	.737
<b>H</b>	6.24	2.128	6.00	1.912	6.48	2.312	-1.552	.122
<b>I</b>	4.65	1.610	4.76	1.652	4.54	1.568	.992	.322
<b>L</b>	3.74	2.026	4.02	2.060	3.45	1.959	2.000	.047*
<b>M</b>	4.91	1.779	5.13	1.873	4.69	1.659	1.724	.086
<b>N</b>	5.76	2.189	5.43	2.189	6.10	2.147	-2.593	.010**
<b>O</b>	4.55	1.942	5.10	1.946	3.98	1.776	4.728	.000***
<b>Q1</b>	5.20	1.963	5.20	1.717	5.19	2.195	-.229	.819
<b>Q2</b>	5.33	2.130	5.57	2.171	5.08	2.069	1.848	.066
<b>Q3</b>	5.68	1.868	5.32	1.657	6.04	2.005	-2.416	.017*
<b>Q4</b>	5.02	1.950	5.62	1.884	4.40	1.826	4.648	.000***

Population norm 1186 managerial and professional tested by Psytech Co. Ltd (Psytech, 2003)

Note : This table lists all factor normed scores by high and low SD scores to demonstrate any obvious differences. Factor O (Confident-doubting shows the greatest difference, which is rational). The last columns test these differences for significance. So the Low-High social desirability scores seem to indicate some separation of the sample respondents into two groups on Factors C, O and Q4 and less on Factors N, L and Q3. The remainder of the factors show no significant separation

The 15FQ+ manual (Psytech, 2003) states that the social desirability score is weakly correlated with the individual factors used in this research, leading to little contamination of the 15FQ+ primary factors. In fact, as shown in Table 6.5 below, the three largest correlations out of sixteen factors in the present study are with factor C (emotional stability) at .508, factor Q4 (informal-tense) at -.395 and factor O (confident-doubting) at -.400. All others are either non-significant or with small r values. It might be expected that high SD scores would partially correlate with these factors, with director respondents slightly over emphasising their emotional stability, lack of

anxiety and self-confidence. Whilst this possibility might affect the results for these factors, the overall low correlations suggest no need for undue concern.

**Table 6.5 Correlation of SD Score with Factor Trait Score**

15FQ + Factor No.	Description	Correlation with SD
Factor A	Empathic	.127 ns
Factor β	Intellectance	.106 ns
Factor C	Emotionally Stable	.508 **
Factor E	Dominant	.112 ns
Factor F	Enthusiastic	-.054 ns
Factor G	Conscientious	.071 ns
Factor H	Socially Bold	.160 *
Factor I	Tender-minded	-.128 ns
Factor L	Trusting-Suspicious	-.193**
Factor M	Abstract	-.185**
Factor N	Restrained	.240**
Factor O	Confident-Doubting	-.400**
Factor Q1	Radical	-.057 ns
Factor Q2	Self-sufficient	-.156 *
Factor Q3	Self-disciplined	.244 **
Factor Q4	Informal- Tense	-.395**

Note: This table lists the correlations between the 16 personality trait factors and SD scores. Only factor C has a high correlation and is highly significant. \* =  $p \leq 0.05$  \*\* =  $p \leq 0.001$

## **6.7 Conclusion**

This chapter has explored the philosophical basis of this study and explained why a positivist quantitative study built on a functionalist paradigm was chosen. It was challenged however, by examining other paradigms and ontologies which offer alternative perspectives and could be the basis of further investigations. The practical issues of the study were described and the methodology used described in detail. The constructs were tested for reliability and validity once the data was collected and the results discussed. Chapter 7 now builds on this by testing the hypotheses from chapter 5.



## **CHAPTER SEVEN**

### **RESULTS**

## **Chapter 7 Results**

### **7.1 Introduction**

Chapter 6 reviewed the methodology and developed the constructs used to analyse the results in this thesis. In this chapter the findings from hierarchical regression analysis on the control variables (company size, company growth, board size log, % non-executive directors and duality) are presented. In addition, the role of board processes in mediating between the personality trait diversity (PTD) and outcomes is reported. The effect of PTD on these processes is evaluated in the context of the 17 hypotheses listed in Chapter 5.

### **7.2 Measurements**

#### ***Independent Variables***

The sixteen independent variables are the mean Euclidean distance (MED) of each of the 15FQ+ personality traits on each board. These are titled personality trait diversity (PTD).

#### ***Dependent Variables***

There are six process dependent variables (use of knowledge and skills is excluded since the construct failed to reach a cronbach's alpha score of 0.7). There are two dependent outcome variables, the board outputs of strategy and control. The service output construct failed to reach a cronbach's alpha of 0.7 and so was also excluded. The process variables are also tested as mediating variables.

### ***Mediating Variables***

There are six potential mediating variables, namely: effort norms; cognitive conflict; trust; competitiveness; cohesiveness and affective conflict. Use of knowledge and skills has been excluded since the construct failed to reach a cronbach's alpha of 0.7.

### ***Control Variables***

Firm size was measured as turnover within a band. Company growth was measured as financial top line increase. Board size was measured as the number of directors on the board transformed into a logarithmic scale to control for heteroskedasticity. The proportion of non-executive directors on the board was calculated from the self reports on exec / non-exec status of each respondent. Duality was captured via a binary dummy variable.

## **7.3 Descriptive Statistics**

The sample comprised 30 boards, from which data for 198 directors was obtained and analysed. Table 7.1 summarises the demographic details.

**Table 7.1 Board and Director Characteristics**

Panel A Director Demographics				
Male		168		84.8%
Female		30		15.2%
Directors	Min	Max	Mean	SD
Age	25	77	48.97	9.52
Tenure (yrs)	0.1	35.0	4.84	5.2
Panel B Board Size				
Min	Max		Mean	SD
3	12		7.77	2.84
Panel C Duality				
Number of boards total		Separate roles CEO / Chair		Dual roles CEO / Chair
30		15		15
Panel D £'000 Company Turnover by Director (n=198)				
Turnover Band		Frequency		%
≤ £1m		28		14.1
£1m-£5m		43		21.7
£5m-£10m		17		8.6
£10m-£50m		52		26.3
≥£50m		58		29.3
Panel E Turnover Growth by Director (n=198)				
Growth		Frequency		%
Decline		14		7.1
Static		29		14.6
1-5%		12		6.1
5-7.5%		19		9.6
7.5-10%		16		8.1
≥ 10%		108		54.5
Panel F Industry Growth by Director (n=198)				
Industry Growth		Frequency		%
Decline		45		22.7
Static		27		13.6
1-5%		77		38.9
5-7.5%		30		15.2
7.5-10%		0		0
≥ 10%		19		9.6

Note : This table reports the demographic data for the sample of 198 directors. It includes gender, age and tenure. Duality of chair / CEO, turnover size, growth and industry growth levels are also reported. SD = standard deviation.

Inspection of Panel A in Table 7.1 reveals that a gender split of 85% male:15% female, a balance reflective of UK norms in this time-frame. For example, 12.5% of directors in the FTSE 350 were female in 2011 (Davies, 2015). The table also indicates that the mean age of the directors

was 49, the mean tenure almost 5 years, but with a wide standard deviation of 5.2 years. Panel B reveals the mean board size in the sample to be just below 8, whilst Panel C shows that an equal number (15) of boards each had split and combined CEO and chairman roles. This evidence facilitated a post hoc analysis of the potential effects of this control variable, discussed below in Section 8.3. Panel D illustrates the variation in company turnover found in the sample. There has been some debate in the literature (Zahra and Pearce, 1989; Machold et al., 2011) about the effect of firm size on board governance behaviour, in particular regarding the question of whether a large corporation with diffuse multiple ownership behave(s) differently to one where the ownership share of management is dominant. This size effect is also discussed in Section 8.3 below. Panel E illustrates the variation in turnover growth, indicating that respondents tended to come from companies who were growing, with only 7.1 % reporting business decline. Finally Panel F illustrates industry growth levels for the sample firms; inspection of the data reveals that less than 23 % of the directors were on the boards of firms in declining industries.

**Table 7.2 Sample Director Personality Profile Relative to General Management**

<b>Trait</b>	<b>All Directors n= 198</b>	<b>Exec n=110</b>	<b>Non-Exe n=41</b>	<b>CEO n=28</b>	<b>Chairman n=19</b>
<b>A Aloof-empathic</b>	5.17 *	5.19	5.24	5.11	4.95
<b>β Intellectance</b>	7.19 ***	7.25 ***	6.76 **	7.68 ***	7.00 **
<b>C Emot stability</b>	7.31 ***	7.05 ***	7.80 ***	7.54 ***	7.42 ***
<b>E Dominance</b>	6.83 ***	6.60 ***	6.63 ***	7.50 ***	7.58 ***
<b>F Serious-Enthus</b>	5.10 *	5.08 +	4.95 +	5.32	5.16
<b>G Conscientious</b>	5.90	5.77	6.10	6.32	5.63
<b>H Retiring-Bold</b>	6.24 ***	5.90 *	6.46 **	6.68 **	7.05 **
<b>I Hard-Tender</b>	4.65 ***	4.55 ***	5.15	4.61 *	4.26 **
<b>L Trusting-Suspicious</b>	3.74 ***	3.94 ***	3.54 ***	3.36 ***	3.58 ***
<b>M Concrete-Abs</b>	4.91 ***	4.76 ***	5.02	5.11	5.26
<b>N Direct</b>	5.76	5.80	6.00	5.21	5.84
<b>O Confident-Dbtg</b>	4.55 ***	4.71 ***	4.17 ***	4.50 **	4.47 *
<b>Q1 Conventional</b>	5.20 *	5.04 **	5.46	5.54	5.05
<b>Q2 Group-Self</b>	5.33	5.47	5.00 *	5.18	5.42
<b>Q3 Informal</b>	5.68	5.66	5.41	5.57	6.47 *
<b>Q4 Composed</b>	5.02 ***	5.08 *	4.37 ***	5.50	5.32

Note: This table compares the personality trait profiles found for different classes of director and the normed trait profile of the general population of managers previously tested by Psytech Co. Ltd (Psytech, 2003). The levels of significance are derived from a two-sided T test compared to this general management population. \*/\*\*/\* indicates significance at the 5%/1%/0.1% level. The trait scores are normed 1-10, with mean = 5.5 and standard deviation = 2 .

Table 7.2 summarises the evidence regarding directors' personality trait profiles and the differences between these and the general managerial and professional sample previously tested by Psytech (2003). Inspection of the data reveals some significant differences. The significant scores in all cases suggest that sampled directors have a higher degree of self belief in their intellectual ability v.s. general management. The mean is especially high for CEO directors: their score of 7.68 is more than one standard deviation above the general management population norm of 5.5. Directors as a whole report a significantly higher emotional stability score (factor C) than did the general management population; for non-executives it was more than one SD above the latter. Dominance (factor E) was more than one SD above for CEOs and Chairpersons than the general management norm. The results for factor H (retiring-bold) suggest these directors exhibit more of the bold axis of this trait than the general management norm. The other

notable result is for factor L (trusting-suspicious); all classes of director were almost (or exceeding) one SD more trusting than the general managerial population. This is most marked for the CEO directors (3.36 v.s. 5.5). In addition, all classes of these directors generated results suggesting that they tend to be significantly more confident - and the non-executives more composed - than the general managerial population.

The evidence in Table 7.2 therefore suggests a potential new norm for UK company directors, anchored on intellectual confidence and emotional stability, but accompanied by dominance and boldness. At the same time, the results indicate that directors tested tend to be very much more trusting than general management; this is consistent with the obvious need to delegate management tasks from above, whilst being dominant enough to ensure compliance (Stiles and Taylor, 2002; Huse, 2007). The implications of these results are discussed below in Section 8.4.

## **7.4 Correlations**

**Table 7.3 Correlations: Individual Mean for Each Process and Outcome**

Euclidean Distance Factor	Description	Process Effort Norms	Process Cog Conflict	Process Use of Knowledge and Skills	Process Trust	Process Competitive	Process Cohesiveness	Process Affective Conflict	Outcome Strategy	Outcome Control	Outcome Service
A	Aloof	-.164*	.023	.011	.012	-.051	-.116	.043	-.172*	-.151*	-.095
B	Intellectance	.013	-.144*	.035	-.116	.029	-.145*	.100	-.103	.040	-.097
C	Emot stable	-.103	.150*	-.069	-.018	-.079	-.007	.064	-.194**	-.133	-.074
E	Dominant	-.047	-.002	-.056	-.088	.066	-.017	.125	-.052	-.050	.029
F	Enthusiastic	-.201**	.001	.047	.067	-.204**	-.014	.017	-.125	-.193**	-.070
G	Conscientious	-.114	-.055	.047	-.049	-.068	-.072	.002	-.013	-.046	-.091
H	Bold	-.151*	.059	-.138	-.093	-.033	-.129	.277**	-.032	-.017	-.040
I	Hard headed	.038	.053	.029	.002	.048	-.010	.063	-.007	.086	.079
L	Trusting	-.135	.101	-.084	-.116	.093	-.041	.032	-.027	.032	-.040
M	Concrete	-.001	.029	.026	.067	-.067	.078	-.155*	-.056	-.070	-.096
N	Restrained	-.020	-.022	.045	-.025	-.144*	-.014	.054	-.008	.020	-.010
O	Confident	-.094	.014	-.008	-.055	.054	-.012	-.131	-.197**	-.187**	-.188**
Q1	Radical	-.060	-.047	.051	.033	-.092	.025	.113	-.103	-.086	.004
Q2	Group orient	-.033	.089	-.052	.056	.037	-.023	.002	-.071	-.135	-.007
Q3	Informal	-.058	-.048	.027	.052	-.222**	.026	.001	-.049	-.122	-.048
Q4	Composed	-.107	-.055	-.056	-.083	-.076	-.078	-.032	-.158*	-.160*	-.125

Note: The correlation coefficients in this table measure the diversity of individual director personality traits on a board and the individual responses to the process and outcome questionnaire. The processes and outcomes data are not normalised by board. \*/\*\*/\*\* indicates significance at the 5%/1%/0.1% level.



The results shown in Table 7.3 indicate that the process of effort norms are significant negatively correlated with the PTD of factors A, (aloof), F (enthusiastic), and H (bold) of -.164, -.201 and -.151 respectively. The process of cognitive conflict shows one significant negative association, with the PTD of factor  $\beta$  (intellectance) of -.144 and one significant positive association with the PTD of factor C (emotional stability) of .150. Use of knowledge and skills show no significant correlations with personality trait diversity at the individual level. At the individual level trust had no significant association with PTD. The process of competitiveness was significantly negatively associated with PTD for factors F (enthusiastic), N (restrained) and Q3, (informal) with significant correlation coefficients of -.204, -.144 and -.222 respectively. Cohesiveness is significantly negatively associated with the PTD diversity in one case, factor  $\beta$  (intellectance) at -.145. The process of affective conflict is significantly positively associated with diversity of factor H (bold) at .277, but significantly negatively associated with the PTD of factor M (concrete) at -.155. More generally, the majority of the correlations are negative with the notable exception of affective conflict.

The PTD of factors A, C, O and Q4 all exhibit a negative correlation with strategy output generating coefficients of -.172, -.194, -.197 and -.158 respectively. Factors A, F, O and Q4 all have significant negative correlations with control output of -.151, -.193, -.187 and -.160 respectively. Factor O diversity alone has a negative correlation with service output of -.188. Thus broader evidence of negative correlations between PTD and board task outputs is revealed in the table.

Thus diversity in personality traits is (mostly) negatively associated with individual assessment of board process and outcomes. These associations are now tested against board means for the processes and outputs.

**Table 7.4 Correlations: Board Mean for each Process and Outcome**

Euclidean Distance Factor	Description	Process Effort	Process Cog Conflict	Process KandS	Process Trust	Process Competiv	Process Cohesiv	Process Affective Conflict	Outcome Strategy	Outcome Control	Outcome Service
A	Aloof	-.280**	-.020	-.142*	-.165*	.075	-.310**	.135	-.172*	-.233**	-.162*
B	Intellectance	.038	-.241**	-.009	-.105	-.041	-.117	.085	-.103	.160*	-.048
C	Emot stable	-.038	.093	-.020	-.026	-.025	.082	-.059	-.194**	-.044	-.060
E	Dominant	-.095	-.034	-.037	-.075	.046	-.008	.092	-.052	.002	.052
F	Enthusiastic	-.051	-.171*	.231**	.162*	-.378**	.085	-.101	-.125	-.110	.157*
G	Conscientious	-.219**	.011	.069	-.111	-.072	-.120	.097	-.013	-.128	-.054
H	Bold	-.196**	.013	-.176*	-.200**	.018	-.212**	.237**	-.032	-.054	-.048
I	Hard headed	-.042	.044	-.011	-.015	.039	-.134	.154*	-.007	.034	.034
L	Trusting	-.099	.071	-.120	-.116	.216**	-.101	.054	-.027	.033	-.060
M	Concrete	.078	-.007	.055	.084	-.095	.036	-.131	-.056	-.002	-.073
N	Restrained	.030	.060	.111	-.083	-.153*	-.072	.113	-.008	.117	.080
O	Confident	-.132	.073	-.060	-.092	.042	-.018	.002	-.197**	-.181**	-.184**
Q1	Radical	-.133	.024	.045	.025	.073	-.026	.001	-.103	-.144*	-.038
Q2	Group orient	.082	-.040	.081	.123	-.221*	.062	-.032	-.071	-.013	.090
Q3	Informal	-.082	-.094	.048	.097	-.217**	.057	-.148*	-.049	-.162*	-.102
Q4	Composed	-.114	-.034	.003	-.094	.020	-.079	.040	-.158*	-.178*	-.113

Note: This table is based on board means. These correlation coefficients are between the mean diversity of individual director personality traits on a board and the board mean responses to the process and outcome questionnaire. \*/\*\*/\*\* indicates significance at the 5%/1%/0.1% level.

The results shown in Table 7.4 indicate significant negative correlation coefficients between the process of effort norms and the PTD of factors factors A (aloofness), G (conscientiousness) and H (boldness) of -.280, -.219, and -.196 respectively. The process of cognitive conflict is significantly associated with the PTD of factor  $\beta$  (intellectance) and factor F (enthusiastic) with correlations of -.241 and -.171 respectively. Use of knowledge and skills is significantly negatively associated with the diversity of factor A (aloofness) and H (boldness) but positively significantly associated with diversity of factor F (enthusiastic). The process of trust is significantly negatively associated with the diversity of traits A (aloofness) and  $\beta$  (intellectance) with correlations of -.165 and -.200 respectively, but positively associated with the diversity of factor F, (enthusiastic) with a coefficient of .162. The process of competitiveness is significantly negatively associated with diversity of factors F (enthusiastic), N (restrained), Q2 (group orientation) and Q3 (informal) with significant correlation coefficients of -.378, -.153, -.221 and -.217 respectively, but significantly positively correlated (coefficient = 0.216) with diversity in factor L (trusting). Cohesiveness is significantly negatively associated with the diversity in factors A (aloofness) and H (boldness), with correlations of -.310 and -.212 respectively. The process of affective conflict is significantly positively associated with the diversity of factors H (boldness) and I (hard headed) with correlations of .237 and .154 respectively, but significantly negatively associated with factor Q3 informal with a correlation of -.148.

The board outcome of strategy is significantly negatively associated with the diversity of factors A, C, O and Q4 with correlations ranging from of -.158 to -.197.. The board outcome of control is significantly negatively associated with the diversity of factors A, , O, Q1,Q3 and Q4 with correlations of -.233, -.181, -.162, -.178 respectively, but positively associated with the PTD of

factor  $\beta$  (intellectance). The board outcome of service is significantly associated with the diversity of factors A and O, but significantly positively associated with factor F.

Thus there is some initial evidence that personality trait diversity is associated with negative effects on board process and outcomes. It is most evident at the board mean level. This apparent pattern in the evidence will now be examined in more depth using hierarchical multiple regression (Hair et al. 2010).

### **7.5 Board processes**

Hypotheses 1-7 were examined by means of multiple regression analysis and the results are shown in tables 7.5- 7.10. Variance inflation factor (VIF) analysis was performed as a check on multicollinearity. The VIF values varied between 1.153 and 3.077 and it was therefore concluded that multicollinearity between the independent variables was not a problem as these values fall well within the conventional acceptable ranges (Hair et al., 2010).

**Table 7.5 Testing Hypothesis 1 (PTD has a negative relationship with effort norms)**

<b>Hypothesis 1</b>	<b>Board Mean Effort Norms</b>	
(standardized beta coefficients)	Model 1	Model 2
<b>Board and firm characteristics</b>		
Company size (turnover band)	.077	.036
Company growth	-.224**	-.364***
Board size (ln)	.146+	.187*
% non-executive directors	.212*	.554
Duality	-.116	-.121
<b>Personality trait diversity</b>		
Diversity Factor A (Empathy)		-.278***
Diversity Factor $\beta$ (Intellectance)		.029
Diversity Factor C (Emotional stability)		-.033
Diversity Factor E (Dominance)		.024
Diversity Factor F (Sober-enthusiasm)		.025
Diversity Factor G (Conscientious)		-.083
Diversity Factor H (Retiring-bold)		-.127+
Diversity Factor I (Hard-headedness)		.125+
Diversity Factor L (Trusting)		-.136*
Diversity Factor M (Concrete-abstract)		.000
Diversity Factor N (Direct-restrained)		.119
Diversity Factor O (Confidence)		-.121
Diversity Factor Q1 (Conventional-radical)		-.108
Diversity Factor Q2 (Group-orientation)		.105
Diversity Factor Q3 (Informal)		-.048
Diversity Factor Q4 (Composed)		-.039
Adjusted R <sup>2</sup>	.144	.264
F (sign) full model	7.625***	4.363***
F change	7.625***	2.956***

Note: This table shows the multiple regression scores of controls and PTD against the board process of effort norms. The columns show the standardised coefficients ( $\beta$ ), the adjusted R<sup>2</sup> and the value of the F change. \*/\*\*/\*\* indicates significance at the 5%/1%/0.1% level.

Table 7.5 presents the results relating to the multiple regression of the PTD of all the personality trait factors and controls measured on the process of effort norms. The first model includes only the controls, while the second includes both controls and the PTD of all the factors. The table shows that model 2 with all 16 PTD factors included accounts for 26.4 % of the variation in effort norms compared to just 14.4 % in the first model. The F change value of 2.956 is highly significant. As noted above, Scarborough (2003) reported a positive relationship between effort norms and the level of board activity. These results suggest personality trait homogeneity will

tend to enhance effort norms performance and thereby potentially increase board activity. Diversity of personality trait factors A, H and L were significantly negatively associated with effort norms. Diversity of personality trait factor I was weakly positively associated with effort norms. As a result, hypothesis 1 is accepted whereby a negative relationship is predicted between PTD and effort norms, is thus supported.

**Table 7.6 Testing Hypothesis 2 (PTD has a negative relationship with cognitive conflict)**

<b>Hypothesis 2</b>	<b>Board Mean Cognitive Conflict</b>	
(standardized beta coefficients)	Model 1	Model 2
<b>Board and firm characteristics</b>		
Company size (turnover band)	-.192**	-.212
Company growth	.023	.010
Board size (ln)	.256***	.227**
% non-executive directors	.209*	.183+
Duality	.712***	.776***
<b>Personality trait diversity</b>		
Diversity Factor A (Empathy)		.049
Diversity Factor $\beta$ (Intellectance)		-.190***
Diversity Factor C (Emotional stability)		-.025
Diversity Factor E (Dominance)		-.021
Diversity Factor F (Sober-enthusiasm)		-.107+
Diversity Factor G (Conscientious)		-.114+
Diversity Factor H (Retiring-bold)		-.013
Diversity Factor I (Hard-headedness)		.066
Diversity Factor L (Trusting)		-.061
Diversity Factor M (Concrete-abstract)		.124 *
Diversity Factor N (Direct-restrained)		.084
Diversity Factor O (Confidence)		.049
Diversity Factor Q1 (Conventional-radical)		-.008
Diversity Factor Q2 (Group-orientation)		-.032
Diversity Factor Q3 (Informal)		-.058
Diversity Factor Q4 (Composed)		-.096
Adjusted R <sup>2</sup>	.350	.407
F (sign) full model	22.211***	7.444***
F change	22.211***	2.159**

Note: This table shows the multiple regression scores of controls and PTD against the board process of cognitive conflict. The columns show the standardised coefficients ( $\beta$ ), the adjusted R<sup>2</sup> and the value of the F change. \*/\*\*/\*\* indicates significance at the 5%/1%/0.1% level.

Table 7.6 presents the results relating to the multiple regression of the PTD of all the personality trait factors and controls measured on the process of cognitive conflict. The first model again includes only the controls, with the having both second controls and the PTD of all factors. Inspection of the table reveals that model 2 with all 16 PTD factors included accounts for 40.7 % of the variation in cognitive conflict compared to just 35 % in the first model. The F change value of 2.159 is highly significant. It was noted above that previous authors (Guetzkow and

Gyr, 1954; Jehn, 1995; Roberto, 2005) cite cognitive conflict as a positive phenomenon, that can also be described as “critical debate” (Minichilli et al, 2009, p. 61). Such debates are needed for optimal board function (Milliken and Martins, 1996). Thus if personality trait homogeneity promotes cognitive conflict, it should also enhance board processes (Kakabadse and Kakabadse, 2008).

Board size measured by turnover is strongly associated with cognitive conflict consistent with the earlier work of Amason and Sapienza (1997). Duality as measured by the dummy variable is strongly associated with cognitive conflict i.e. the stronger duality (i.e. the combined role of CEO/ chair) the greater the cognitive conflict.

Diversity of personality trait factor  $\beta$  has a strong negative association with cognitive conflict; the closer the intellectance scores the higher the level of cognitive conflict. The only positive association was a weaker positive significance for Factor M. As a result, hypothesis 2 is accepted whereby a negative relationship is predicted between PTD and cognitive conflict is thus supported.



Note: Hypothesis 3 could not be tested because the cronbach alpha for the use of knowledge and skills construct failed to reach 0.7. Hypothesis 3 whereby a negative relationship is predicted between PTD and use of knowledge and skills is therefore rejected. The detailed regression results in this case are shown in appendix 7.1.

**Table 7.7 Testing Hypothesis 4 (PTD has a negative relationship with trust)**

<b>Hypothesis 4</b>	<b>Board Mean Trust</b>	
(standardized beta coefficients)	Model 1	Model 2
<b>Board and firm characteristics</b>		
Company size (turnover band)	-.289***	-.250**
Company growth	-.158*	-.172*
Board size (ln)	-.126+	-.156*
% non-executive directors	.250**	.269**
Duality	.053	.149
<b>Personality trait diversity</b>		
Diversity Factor A (Empathy)		-.171**
Diversity Factor $\beta$ (Intellectance)		-.086
Diversity Factor C (Emotional stability)		-.165*
Diversity Factor E (Dominance)		.025
Diversity Factor F (Sober-enthusiasm)		.110
Diversity Factor G (Conscientious)		-.086
Diversity Factor H (Retiring-bold)		-.168*
Diversity Factor I (Hard-headedness)		.065
Diversity Factor L (Trusting)		-.087
Diversity Factor M (Concrete-abstract)		.085
Diversity Factor N (Direct-restrained)		-.082
Diversity Factor O (Confidence)		-.040
Diversity Factor Q1 (Conventional-radical)		.083
Diversity Factor Q2 (Group-orientation)		.083
Diversity Factor Q3 (Informal)		.126+
Diversity Factor Q4 (Composed)		-.047
Adjusted R <sup>2</sup>	.284	.363
F (sign) full model	16.598***	6.354***
F change	16.598***	2.503**

Note: This table shows the multiple regression scores of controls and PTD against the board process of trust. The columns show the standardised coefficients ( $\beta$ ), the adjusted R<sup>2</sup> and the value of the F change. \*/\*\*/\*\* indicates significance at the 5%/1%/0.1% level.

Table 7.7 presents the results relating to the multiple regression of the PTD of all the personality trait factors and controls measured on the process of trust. The first model again includes only the controls, with the second having both controls and the PTD of all factors. Inspection of the table reveals that model 2 with all 16 PTD factors included accounts for 36.4 % of the variation in trust compared to just 28.4 % in the first model when PTD is excluded. The F change value of 2.503 is highly significant. Company size, as measured by turnover, company growth and board

size are strongly negatively associated with trust. The % of non-executive directors is positively associated with trust.

Duality has no significant relationship with trust. The negative diversity of personality trait factors A, C and H are significantly negatively associated with trust, i.e. the less diverse the personality traits the higher the trust. It was noted above that Zattoni and Cuomo (2010) argue that inter-director trust enhances board team function. These results suggest personality trait homogeneity will enhance trust between directors and thereby improve board efficiency with concurs with Solomon and Flores (2001). Hypothesis 4 whereby a negative relationship is predicted between PTD and trust is thus supported.

**Table 7.8 Testing Hypothesis 5 (PTD has a negative relationship with competitiveness)**

<b>Hypothesis 5</b>	<b>Board Mean Competiveness</b>	
(standardized beta coefficients)	Model 1	Model 2
<b>Board and firm characteristics</b>		
Company size (turnover band)	-.063	-.131
Company growth	.051	.098
Board size (ln)	.434***	.398***
% non-executive directors	-.124	-.066
Duality	-.040	-.040
<b>Personality trait diversity</b>		
Diversity Factor A (Empathy)		.247***
Diversity Factor $\beta$ (Intellectance)		.060
Diversity Factor C (Emotional stability)		.099
Diversity Factor E (Dominance)		.049
Diversity Factor F (Sober-enthusiasm)		-.280***
Diversity Factor G (Conscientious)		-.079
Diversity Factor H (Retiring-bold)		-.029
Diversity Factor I (Hard-headedness)		.048
Diversity Factor L (Trusting)		.179**
Diversity Factor M (Concrete-abstract)		-.081
Diversity Factor N (Direct-restrained)		-.129+
Diversity Factor O (Confidence)		-.041
Diversity Factor Q1 (Conventional-radical)		.065
Diversity Factor Q2 (Group-orientation)		-.135*
Diversity Factor Q3 (Informal)		-.176**
Diversity Factor Q4 (Composed)		.063
Adjusted R <sup>2</sup>	.167	.358
F (sign) full model	8.924***	6.232***
F change	8.924***	4.563***

Note: This table shows the multiple regression scores of controls and PTD against the board process of competitiveness. The columns show the standardised coefficients ( $\beta$ ), the adjusted R<sup>2</sup> and the value of the F change.

\*/\*\*/\*\*\* indicates significance at the 5%/1%/0.1% level.

Table 7.8 presents the results relating to the multiple regression of the PTD of all the personality trait factors and controls measured on the process of competitiveness. The first model includes only the controls, while the second includes both controls and the PTD of all factors. Inspection of the table reveals that model 2 with all 16 PTD factors included accounts for 35.8 % of the variation in competitiveness compared to just 16.7 % in the first model when the PTD factors are excluded. The F change value of 4.563 is highly significant. Of the control variables only board

size was strongly associated with competitiveness. This measures individual propensity of competitiveness expressed as a board mean.

It was argued above in chapter 3 that inter-group competitiveness can enhance the ability to accomplish tasks within the group (Schein, 1988; Wilson, 2015). Thus a competitive pressure to perform can improve actual performance (Jones, 1997). If such competitiveness increases with personality trait homogeneity then PTD could decrease board performance as inter-group competitiveness decreases.

Diversity of personality trait factors F, N, Q2 and Q3 were significantly negatively associated with competitiveness. Diversity of personality trait factors A and L were positively associated with competitiveness. Hypothesis 5 whereby a negative relationship is predicted between PTD and competitiveness is thus supported.

**Table 7.9 Testing Hypothesis 6 (PTD has a negative relationship with cohesiveness)**

<b>Hypothesis 6</b>	<b>Board Mean Cohesiveness</b>	
(standardized beta coefficients)	Model 1	Model 2
<b>Board and firm characteristics</b>		
Company size (turnover band)	-.418***	-.343***
Company growth	-.059	-.069
Board size (ln)	-.089	-.175*
% non-executive directors	.108	.042
Duality	-.130	-.148
<b>Personality trait diversity</b>		
Diversity Factor A (Empathy)		-.291***
Diversity Factor $\beta$ (Intellectance)		-.059
Diversity Factor C (Emotionalstability)		-.012
Diversity Factor E (Dominance)		.094
Diversity Factor F (Sober-enthusiasm)		.015
Diversity Factor G (Conscientious)		-.023
Diversity Factor H (Retiring-bold)		-.118
Diversity Factor I (Hard-headedness)		-.085
Diversity Factor L (Trusting)		-.023
Diversity Factor M (Concrete-abstract)		.047
Diversity Factor N (Direct-restrained)		-.021
Diversity Factor O (Confidence)		.001
Diversity Factor Q1 (Conventional-radical)		.017
Diversity Factor Q2 (Group-orientation)		.025
Diversity Factor Q3 (Informal)		.097
Diversity Factor Q4 (Composed)		-.093
Adjusted R <sup>2</sup>	.374	.460
F (sign) full model	24.583***	8.993***
F change	24.583***	2.903***

Note: This table shows the multiple regression scores of controls and PTD against the board process of cohesiveness. The columns show the standardised coefficients ( $\beta$ ), the adjusted R<sup>2</sup> and the value of the F change. \*/\*\*/\*\* indicates significance at the 5%/1%/0.1% level.

Table 7.9 presents the results relating to the multiple regression of the PTD of all the personality trait factors and controls measured on the process of cohesiveness. The first model includes only the controls, while the second includes both controls and the PTD of all factors. Inspection of the table reveals that model 2 with all 16 PTD factors included accounts for 46.0 % of the variation in cohesiveness compared to just 37.4 % in the first model when the PTD factors are excluded.

The F change value of 2.903 is highly significant. Company size and board size were negatively associated with cohesiveness.

Lott and Lott (1965) claim cohesion leads to improved intra-group communication, and provided this does not lead to “groupthink” (Janis, 1972) it can therefore increase group effectiveness (Hogg and Vaughan, 2010). Thus personality trait homogeneity on a board should improve board function as it increases cohesiveness.

Diversity of personality trait factor A was significantly negatively associated with cohesiveness. No diversity of personality trait factor was significantly positively associated with cohesiveness. As a result, hypothesis 6 whereby a negative relationship is predicted between PTD and cohesiveness is thus supported.

**Table 7.10 Testing Hypothesis 7 (PTD has a positive relationship with affective conflict)**

<b>Hypothesis 7</b>	<b>Board Mean Affective Conflict</b>	
(standardized beta coefficients)	Model 1	Model 2
<b>Board and firm characteristics</b>		
Company size (turnover band)	-.087	-.213**
Company growth	.164**	.106
Board size (ln)	.381***	.481***
% non-executive directors	-.103	-.109
Duality	.299***	.294***
<b>Personality trait diversity</b>		
Diversity Factor A (Empathy)		.152*
Diversity Factor $\beta$ (Intellectance)		.125*
Diversity Factor C (Emotional stability)		-.023
Diversity Factor E (Dominance)		-.067
Diversity Factor F (Sober-enthusiasm)		-.073
Diversity Factor G (Conscientious)		-.015
Diversity Factor H (Retiring-bold)		.158*
Diversity Factor I (Hard-headedness)		.137*
Diversity Factor L (Trusting)		-.030
Diversity Factor M (Concrete-abstract)		-.077
Diversity Factor N (Direct-restrained)		.192**
Diversity Factor O (Confidence)		-.039
Diversity Factor Q1 (Conventional-radical)		-.018
Diversity Factor Q2 (Group-orientation)		.008
Diversity Factor Q3 (Informal)		-.227***
Diversity Factor Q4 (Composed)		.079
Adjusted R <sup>2</sup>	.349	.452
F (sign) full model	22.142***	8.742***
F change	22.142***	3.255***

Note: This table shows the multiple regression scores of controls and PTD against the board process of affective conflict. The columns show the standardised coefficients ( $\beta$ ), the adjusted R<sup>2</sup> and the value of the F change.

\*/\*\*/\*\* indicates significance at the 5%/1%/0.1% level.

Table 7.10 presents the results relating to the multiple regression of the PTD of all the personality trait factors and controls measured on the process of affective conflict. The first model includes only the controls, while the second includes both controls and the PTD of all factors. Inspection of the table reveals that model 2 with all 16 PTD factors included accounts for 45.2 % of the variation in affective conflict compared to just 34.9 % in the first model when the PTD factors are excluded. The F change value of 3.255 is highly significant. There is a strong negative association of affective conflict with company size as measured by turnover. The



smaller the company the less affective conflict. There is a strong positive association with board size and duality. The greater the board size the more affective conflict is reported, which concurs with Amason and Sapienza (1997). The combination of the chair/CEO role is positively associated with the level of affective conflict.

There is a significant positive association of affective conflict with the personality trait factors A,  $\beta$ , H, I and N. The greater the diversity the greater the affective conflict reported. The only significant personality trait factor with the opposite tendency was Q3 (informal). As a result, hypothesis 7 whereby a positive relationship is predicted between PTD and affective conflict is thus supported.

## **7.6 Board task outputs**

Hypotheses 8-10 were examined by means of hierarchical multiple regression analysis and the results are shown in tables 7.11 – 7.12. Variance inflation factor (VIF) was performed as a check on multicollinearity. The VIF values varied between 1.153 and 3.077. It was therefore concluded that multicollinearity between the independent variables was not a problem since these values fall within the acceptable range (Hair et al., 2010).

**Table 7.11 Testing Hypothesis 8 (PTD has a negative relationship to strategy)**

<b>Hypothesis 8</b>	<b>Board Mean Strategy</b>	
(standardized beta coefficients)	Model 1	Model 2
<b>Board and firm characteristics</b>		
Company size (turnover band)	-.241**	-.248**
Company growth	-.126+	-.245***
Board size (ln)	.052	.003
% non-executive directors	.169+	.032
Duality	.546***	.597***
<b>Personality trait diversity</b>		
Diversity Factor A (Empathy)		-.205**
Diversity Factor $\beta$ (Intellectance)		-.112+
Diversity Factor C (Emotional stability)		-.155*
Diversity Factor E (Dominance)		.173*
Diversity Factor F (Sober-enthusiasm)		.088
Diversity Factor G (Conscientious)		-.155*
Diversity Factor H (Retiring-bold)		-.066
Diversity Factor I (Hard-headedness)		-.033
Diversity Factor L (Trusting)		-.062
Diversity Factor M (Concrete-abstract)		.081
Diversity Factor N (Direct-restrained)		-.002
Diversity Factor O (Confidence)		-.243***
Diversity Factor Q1 (Conventional-radical)		-.100
Diversity Factor Q2 (Group-orientation)		.012
Diversity Factor Q3 (Informal)		.029
Diversity Factor Q4 (Composed)		-.074
Adjusted R <sup>2</sup>	.153	.305
F (sign) full model	8.127***	5.113***
F change	8.127***	3.617***

Note: This table shows the multiple regression scores of controls and PTD against the board output task of strategy. The columns show the standardised coefficients ( $\beta$ ), the adjusted R<sup>2</sup> and the value of the F change. \*/\*\*/\*\*\*\* indicates significance at the 5%/1%/0.1% level.

Table 7.11 presents the results relating to the multiple regression of the PTD of all the personality trait factors and controls measured on the task output of strategy. The first model includes only the controls, while the second includes both controls and the PTD of all the factors. Inspection of the table reveals that model 2 with all 16 PTD factors included accounts for 30.5 % of the variation in strategy compared to just 15.3 % in the first model when the PTD factors are excluded. The F change value of 4.563 is highly significant. There is a negative significant

association of company size and growth with strategy. There is a strong significant positive association with duality.

Diversity of personality trait factors A,  $\beta$ , C, G and O and L were significantly negatively associated with strategy. Only diversity of personality trait factor E was positively associated with strategy. As a result, hypothesis 8 whereby a negative relationship of PTD with the board output of strategy is thus supported.

**Table 7.12 Testing Hypothesis 9 (PTD has a negative relationship to control)**

<b>Hypothesis 9</b>	<b>Board Mean    Control</b>	
(standardized beta coefficients)	Model 1	Model 2
<b>Board and firm characteristics</b>		
Company size (turnover band)	.551***	.526***
Company growth	.028	-.100
Board size (ln)	-.325***	-.362***
% non-executive directors	.193+	.020
Duality	.008	-.044
<b>Personality trait diversity</b>		
Diversity Factor A (Empathy)		-.288***
Diversity Factor $\beta$ (Intellectance)		.054
Diversity Factor C (Emotional stability)		-.012
Diversity Factor E (Dominance)		.157*
Diversity Factor F (Sober-enthusiasm)		.046
Diversity Factor G (Conscientious)		-.109
Diversity Factor H (Retiring-bold)		-.021
Diversity Factor I (Hard-headedness)		.050
Diversity Factor L (Trusting)		-.002
Diversity Factor M (Concrete-abstract)		-.041
Diversity Factor N (Direct-restrained)		.197**
Diversity Factor O (Confidence)		-.051
Diversity Factor Q1 (Conventional-radical)		-.089
Diversity Factor Q2 (Group-orientation)		-.025
Diversity Factor Q3 (Informal)		-.104
Diversity Factor Q4 (Composed)		-.191**
Adjusted R <sup>2</sup>	.156	.289
F (sign) full model	8.279***	4.815***
F change	8.279***	3.248***

Note: This table shows the multiple regression scores of controls and PTD against the board output task of control . The columns show the standardised coefficients ( $\beta$ ), the adjusted R<sup>2</sup> and the value of the F change. \*/\*\*/\* indicates significance at the 5%/1%/0.1% level.

Table 7.12 presents the results relating to the multiple regression of the PTD of all the personality trait factors and controls measured on the task output of control. The first model includes only the controls, while the second includes both controls and the PTD of all factors. Inspection of the table reveals that model 2 with all 16 PTD factors included accounts for 28.9 % of the variation in control compared to just 15.6 % in the first model when the PTD factors are excluded. The F change value of 3.248 is highly significant.. Company size is strongly

significantly associated with control. Board size is strongly significantly negatively associated with control.

There are no significant results for non-executive % and duality which is surprising.

Diversity of personality trait factors A and Q4 were significantly negatively associated with control. PTD of Factor A at -0.288 was the strongest correlation found. Diversity of personality trait factors E and N were significantly positively associated with control.

As a result, hypothesis 9 whereby a negative relationship is predicted between PTD and the board output of control is thus supported.

Hypothesis 10 could not be tested because the cronbach alpha for the service output construct failed to reach 0.7. Hypothesis 10 whereby a negative relationship is predicted between PTD and the board output of service is therefore rejected. The detailed regression results in this case are shown in appendix 7.2.

## 7.7 Mediation of board processes on board task output

A mediating variable is one that mediates the influence of the independent variables on the dependent variables. Baron and Kenny (1986, p. 1173) define mediating variables as representing:

“the generative mechanism through which the focal independent variable is able to influence the dependent variable”.

Baron and Kenny (1986) define the four steps required to demonstrate mediation in a multi-variable regression setting analysis.

The first step requires significant correlation to be evidenced between the levels of the independent and dependent variables; this first establishes the existence of an effect that may be mediated. The second step requires that the independent variable is correlated with the mediator as if it were an outcome variable. Step three involves showing that the mediator affects the dependent variable. The independent variable must be controlled, to establish the effect of the mediator. The final step then relates to complete mediation being established via the effect of the independent variable on the dependent variable equalling zero when the mediating variable is itself controlled. In practice, this exact result can be difficult to achieve as other mediating variables may be present; weak correlation may be sufficient if steps one to three are followed robustly<sup>39</sup> (Baron and Kenny, 1986; Hair et al, 2010).

Hypotheses 11-17 were examined by means of a Baron and Kenny four-step multiple regression analysis and the results are shown in tables 7.13 – 7.18. Variance inflation factors, (VIFs) again calculated as a check on multicollinearity. The VIF values varied between 1.153 and 3.077, and

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<sup>39</sup> Steps 3 and 4 are estimated in the same equation.



it was therefore concluded that multicollinearity between the independent variables was not a problem.

**Table 7.13 Testing Hypothesis 11 (PTD positive mediation by board process of effort norms on board tasks)**

**Panel A PTD of factor A mediation by effort norms on strategy**

Baron and Kenny	Steps 1 and 2		Steps 3 and 4
<b>Hypothesis 11</b>	Strategy $\beta$ values	Effort Norms $\beta$ values	Strategy $\beta$ values
PTD Factor A	-.218 ***	-.279***	-.024
Effort Norms			.696***
<b>Controls</b>			
Company size	-.215*	.110	-.292***
Company growth	-.154*	-.259***	.027
Board size (ln)	.018	.102	-.053
% non-exec	.118	.148	.016
Duality	.512 ***	-.160	.623***
Adjusted R <sup>2</sup>	.195	.216	.573
F change	8.304***	8.098***	24.632***

**Panel B PTD of factor A mediation by effort norms on control**

Baron and Kenny	Steps 1 and 2		Steps 3 and 4
<b>Hypothesis 11</b>	Control $\beta$ values	Effort Norms $\beta$ values	Control $\beta$ values
PTD Factor A	-.283***	-.279***	-.082+
Effort Norms			.719***
<b>Controls</b>			
Company size	.584***	.110	.505***
Company growth	-.008	-.259***	.178***
Board size (ln)	-.368***	.102	-.442***
% non-exec	.128	.148	.021
Duality	-.037	-.160	.078
Adjusted R <sup>2</sup>	.230	.216	.634
F change	10.174***	8.098***	25.757***

Note: The tables show the standardised coefficients ( $\beta$ ) in steps 1,2,3 and 4 of Baron and Kenny's method of demonstrating mediation , the adjusted R<sup>2</sup> and the value of the F change. \*/\*\*/\*\*\*/ indicates significance at the 5%/1%/0.1% level.

Panels A and B in Table 7.13 report the findings relating to the test of Hypothesis 11, for mediation of PTD by effort norms on strategy and control respectively. The results show that effort norms are found to strongly mediate the effect of negative PTD of factor A on strategy. The greater the PTD of factor A (empathy) the less the board strategy output, mediated positively

by the board effort norms. The evidence also indicates that effort norms mediate the effect of negative PTD of factor A on control. The greater the PTD of factor A (empathy) the less the board control output, mediated positively by greater the board effort norms. Overall therefore Hypothesis 11 whereby the negative influence of PTD on board tasks is positively mediated by effort norms is supported.

**Table 7.14 Testing Hypothesis 12 (PTD positive mediation by board process of cognitive conflict on board tasks)**

**Panel A PTD of factor  $\beta$  mediation by cognitive conflict on strategy**

Baron and Kenny	Regression 1	Steps 1 and 2
<b>Hypothesis 12</b>	Strategy $\beta$ values	Cognitive Conflict $\beta$ values
PTD Factor $\beta$	-.056	-.204***
<b>Controls</b>		
Company size	-.224*	-.128
Company growth	-.126	.023
Board size (ln)	.043	.224***
% non-exec	.167	.205*
Duality	.538***	.684***
Adjusted R <sup>2</sup>	.152	.387
F change	7.742 ***	22.357 ***

**Panel B PTD of factor G mediation by cognitive conflict on strategy**

Baron and Kenny	Regression 1	Steps 1 and 2
<b>Hypothesis 12</b>	Strategy $\beta$ values	Cognitive Conflict $\beta$ values
PTD Factor G	-.161 *	-.090
<b>Controls</b>		
Company size	-.243 **	-.193 *
Company growth	-.106	.034
Board size (ln)	.026	.242 ***
% non-exec	.163	.206 *
Duality	.585 ***	.734 ***
Adjusted R <sup>2</sup>	.173	.354
F change	9.065	22.802 ***

Note: The tables show the standardised coefficients ( $\beta$ ) in steps 1 and 2 of Baron and Kenny's method of demonstrating mediation, the adjusted R<sup>2</sup> and the value of the F change. \*/\*\*/\*\* indicates significance at the 5%/1%/0.1% level.

Panels A and B of Table 7.14 report the findings relating to the test of Hypothesis 12 for factors  $\beta$  and G respectively. The results show no mediation of PTD factor  $\beta$  (the independent variable) by cognitive conflict on strategy since there is no significant correlation of PTD factor  $\beta$  with strategy (the dependent variable). There is also no mediation of PTD factor G by cognitive

conflict on strategy since there is no significant correlation of PTD factor G with cognitive conflict. Hypothesis 12 i.e. the positive mediation of cognitive conflict on the negative influence of PTD on board tasks is therefore rejected.

### **Hypothesis 13**

No mediation of any PTD by use of knowledge and skills on board tasks. Use of knowledge and skills construct failed to reach a cronbach alpha of 0.7 and was rejected. Hypothesis 13 is therefore rejected.

**Table 7.15 Testing Hypothesis 14 (PTD positive mediation by board process of trust on board tasks)**

**Panel A PTD of factor A mediation by trust on strategy**

Baron and Kenny	Regression 1	Steps 1 and 2	Steps 3 and 4
<b>Hypothesis 14</b>	Strategy $\beta$ values	Trust $\beta$ values	Strategy $\beta$ values
PTD Factor A	-.218 ***	-.163**	-.117*
Trust			.619 ***
<b>Controls</b>			
Company size	-.215*	-.269***	-.049
Company growth	-.154*	-.179**	-.043
Board size (ln)	.018	-.152*	.112
% non-exec	.118	.212*	-.013
Duality	.512 ***	.027	.495***
Adjusted R <sup>2</sup>	.195	.306	.458
F change	8.304***	17.026***	17.150 ***

Note: The tables show the standardised coefficients ( $\beta$ ) in steps 1,2,3 and 4 of Baron and Kenny's method of demonstrating mediation , the adjusted R<sup>2</sup> and the value of the F change. \*/\*\*/\*\* indicates significance at the 5%/1%/0.1% level.

**Panel B PTD of factor C mediation by trust on strategy**

Baron and Kenny	Steps 1 and 2		Steps 3 and 4
<b>Hypothesis 14</b>	Strategy $\beta$ values	Trust $\beta$ values	Strategy $\beta$ values
PTD Factor C	-.213**	-.163**	-.122 *
Trust			.622 ***
<b>Controls</b>			
Company size	-.282***	-.269 ***	-.085
Company growth	-.149*	-.179**	-.041
Board size (ln)	.040	-.152 *	.123
% non-exec	.216*	.212*	.040
Duality	.625***	.027	.558 ***
Adjusted R <sup>2</sup>	.191	.306	.459
F change	10.173 ***	17.016***	18.461 ***

Note: The tables show the standardised coefficients ( $\beta$ ) in steps 1,2,3 and 4 of Baron and Kenny's method of demonstrating mediation , the adjusted R<sup>2</sup> and the value of the F change. \*/\*\*/\*\* indicates significance at the 5%/1%/0.1% level.

**Panel C PTD of factor A mediation by trust on control**

Baron and Kenny	Regression 1	Steps 1 and 2	Steps 3 and 4
<b>Hypothesis 14</b>	Control $\beta$ values	Trust $\beta$ values	Control $\beta$ values
PTD Factor A	-.283***	-.163**	-.220***
Trust			.380***
<b>Controls</b>			
Company size	.584***	-.269***	.687***
Company growth	-.008	-.179**	.060
Board size (ln)	-.368***	-.152*	-.311***
% non-exec	.128	.212*	.047
Duality	-.037	.027	-.047
Adjusted R <sup>2</sup>	.230	.306	.326
F change	10.174***	17.026***	15.181***

Note: The tables show the standardised coefficients ( $\beta$ ) in steps 1,2,3 and 4 of Baron and Kenny's method of demonstrating mediation, the adjusted R<sup>2</sup> and the value of the F change. \*/\*\*/\*\* indicates significance at the 5%/1%/0.1% level.

Panels A, B and C of Table 7.15 report the findings relating to the test of Hypothesis 14 for factors A,C and A respectively. The results show that trust is found to partially mediate the effect of negative PTD of factor A (the independent variable) on strategy (the dependent variable). In addition trust is found to partially mediate the effect of negative PTD of Factor C (the independent variable) on strategy (the dependent variable). The greater the PTD of factor C (emotional stability) the lesser the board strategy output, mediated positively by greater board trust. The greater the PTD of factor A (empathy) the lesser the board strategy output, mediated positively by greater the board trust. Trust is also found to slightly mediate the effect of negative PTD of factor A (the independent variable) on control (the dependent variable). The greater the PTD of factor A (empathy) the less the board control output, mediated positively by greater the board trust. Hypothesis 14 i.e. the positive mediation of trust on the negative influence of PTD on board tasks is accepted.



**Table 7.16 Testing Hypothesis 15 (PTD positive mediation by board process of competitiveness on board tasks)**

**Panel A PTD of factor A mediation by competitiveness on strategy**

Baron and Kenny	Regression 1	Steps 1 and 2	Steps 3 and 4
<b>Hypothesis 15</b>	Strategy $\beta$ values	Competitiveness $\beta$ values	Strategy $\beta$ values
PTD Factor A	-.218***	.121+	-.178**
Competitiveness			-.333 ***
<b>Controls</b>			
Company size	-.215*	-.077	-.241**
Company growth	-.154*	.067	-.131*
Board size (ln)	.018	.453***	.169*
% non-exec	.118	-.096	.086
Duality	.512***	-.207	.505***
Adjusted R <sup>2</sup>	.195	.177	.283
F change	8.304***	9.429***	10.171***

Note: The tables show the standardised coefficients ( $\beta$ ) in steps 1,2,3 and 4 of Baron and Kenny's method of demonstrating mediation , the adjusted R<sup>2</sup> and the value of the F change. \*\*\*/\*\*\* indicates significance at the 5%/1%/0.1% level.

**Panel B PTD of factor A mediation by competitiveness on control**

Baron and Kenny	Regression 1	Steps 1 and 2	Steps 3 and 4
<b>Hypothesis 15</b>	Control $\beta$ values	Competitiveness $\beta$ values	Control $\beta$ values
PTD Factor A	-.283***	.121+	-.267***
Competitiveness			-.128+
<b>Controls</b>			
Company size	.584***	-.077	.574***
Company growth	-.008	.067	.000
Board size (ln)	-.368***	.453***	-.310***
% non-exec	.128	-.096	.115
Duality	-.037	-.207	-.039
Adjusted R <sup>2</sup>	.230	.177	.239
F change	10.174***	9.429***	9.650***

Note: The tables show the standardised coefficients ( $\beta$ ) in steps 1,2,3 and 4 of Baron and Kenny's method of demonstrating mediation , the adjusted R<sup>2</sup> and the value of the F change. \*\*\*/\*\*\* indicates significance at the 5%/1%/0.1% level.

Panels A and B of Table 7.16 report the findings relating to the test of Hypothesis 15 for factor A. The results show that competitiveness is found to weakly mediate the effect of negative PTD of factor A (independent variable) on strategy (dependent variable). The greater the PTD of factor A (empathy) the less the board strategy output, only slightly mediated negatively by greater the board competitiveness. Competitiveness is also found to only slightly mediate the effect of negative PTD of Factor A (independent variable) on control (dependent variable). The more the PTD of factor A (empathy) the less the board control output, mediated negatively by greater the board competitiveness. But the affect is not large and is discounted. Hypothesis 15 i.e. that the positive mediation of competitiveness on the negative influence of PTD on board tasks is therefore rejected.

**Table 7.17 Testing Hypothesis 16 (PTD positive mediation by board process of cohesiveness on board tasks)**

**Panel A PTD of factor A mediation by cohesiveness on strategy**

Baron and Kenny	Regression 1	Steps 1 and 2	Steps 3 and 4
<b>Hypothesis 16</b>	Strategy $\beta$ values	Cohesiveness $\beta$ values	Strategy $\beta$ values
PTD Factor A	-.218 ***	-.311***	-.026
Cohesiveness			.619***
<b>Controls</b>			
Company size	-.215*	-.381***	.020
Company growth	-.154*	-.098+	-.093
Board size (ln)	.018	-.137*	.102
% non-exec	.118	.036	.096
Duality	.512 ***	-.180*	.623***
Adjusted R <sup>2</sup>	.195	.466	.397
F change	8.304***	28.475***	18.246***

Note: The tables show the standardised coefficients ( $\beta$ ) in steps 1,2,3 and 4 of Baron and Kenny's method of demonstrating mediation , the adjusted R<sup>2</sup> and the value of the F change. \*/\*\*/\*\*\*/ indicates significance at the 5%/1%/0.1% level.

**Panel B PTD of factor A mediation by cohesiveness on control**

Baron and Kenny	Steps 1 and 2		Steps 3 and 4
<b>Hypothesis 16</b>	Control $\beta$ values	Cohesiveness $\beta$ values	Control $\beta$ values
PTD Factor A	-.283***	-.311***	-.103
Cohesiveness			.576***
<b>Controls</b>			
Company size	.584***	-.381***	.804***
Company growth	-.008	-.098+	.048
Board size (ln)	-.368***	-.137*	-.290***
% non-exec	.128	.036	.107
Duality	-.037	-.180*	.067
Adjusted R <sup>2</sup>	.230	.466	.404
F change	10.174***	28.475***	21.984***

Note: The tables show the standardised coefficients ( $\beta$ ) in steps 1,2,3 and 4 of Baron and Kenny's method of demonstrating mediation , the adjusted R<sup>2</sup> and the value of the F change. \*/\*\*/\*\*\*/ indicates significance at the 5%/1%/0.1% level.

Panels A and B of Table 7.17 report the findings relating to the test of Hypothesis 16 for factor A. The results show that cohesiveness is found to strongly mediate the effect of negative PTD of factor A (the independent variable) on strategy (the dependent variable) i.e. the greater the PTD of factor A (empathy) the less the board strategy output, mediated positively by greater the board cohesiveness. Cohesiveness is also found to strongly mediate the effect of negative PTD of factor A (the independent variable) on control (the dependent variable). The greater the PTD of factor A (empathy) the less the board control output, mediated positively by greater the board cohesiveness. Hypothesis 16 i.e. the positive mediation of cohesiveness on the negative influence of PTD on board tasks is accepted

**Table 7.18 Testing Hypothesis 17 (PTD negative mediation by board process of affective conflict on board tasks)**

**Panel A PTD of factor A mediation by affective conflict on strategy**

Baron and Kenny	Steps 1 and 2		Steps 3 and 4
<b>Hypothesis 17</b>	Strategy $\beta$ values	Affective Strategy $\beta$ values	Strategy $\beta$ values
PTD Factor A	-.218***	.188***	-.160*
Affective Conflict			-.311***
<b>Controls</b>			
Company size	-.215*	-.109	-.249**
Company growth	-.154*	.188**	-.095
Board size (ln)	.018	.410***	.145+
% non-exec	.118	-.060	.100
Duality	.512***	.328***	.614***
Adjusted R <sup>2</sup>	.195	.380	.251
F change	8.304***	24.240***	11.391***

Note: The tables show the standardised coefficients ( $\beta$ ) in steps 1,2,3 and 4 of Baron and Kenny's method of demonstrating mediation , the adjusted R<sup>2</sup> and the value of the F change. \*/\*\*/\*\* indicates significance at the 5%/1%/0.1% level.

**Panel B PTD of factor  $\beta$  mediation by affective conflict on strategy**

Baron and Kenny	Regression 1	Steps 1 and 2
<b>Hypothesis 17</b>	Strategy $\beta$ values	Affective Conflict $\beta$ values
PTD Factor $\beta$	-.056	.111+
<b>Controls</b>		
Company size	-.224*	-.122
Company growth	-.126+	.164**
Board size (ln)	.043	.398***
% non-exec	.167	-.101
Duality	.538***	.314***
Adjusted R <sup>2</sup>	.152	.358
F change	7.742***	22.692***

Note: The tables show the standardised coefficients ( $\beta$ ) in steps 1 and 2 of Baron and Kenny's method of demonstrating mediation , the adjusted R<sup>2</sup> and the value of the F change. \*/\*\*/\*\* indicates significance at the 5%/1%/0.1% level.

**Panel C PTD of factor A mediation by affective conflict on control**

Baron and Kenny	Regression 1	Steps 1 and 2	Steps 3 and 4
<b>Hypothesis 17</b>	Control $\beta$ values	Affective Conflict $\beta$ values	Control $\beta$ values
PTD Factor A	-.283***	.188***	-.258***
Affective Conflict			-.128
<b>Controls</b>			
Company size	.584***	-.109	.570***
Company growth	-.008	.188**	.016
Board size (ln)	-.368***	.410***	-.316***
% non-exec	.128	-.060	.120
Duality	-.037	.328***	.005
Adjusted R <sup>2</sup>	.230	.380	.236
F change	10.174***	24.240***	9.921***

Note: The tables show the standardised coefficients ( $\beta$ ) in steps 1,2,3 and 4 of Baron and Kenny's method of demonstrating mediation, the adjusted R<sup>2</sup> and the value of the F change. \*\*\*/\*\*\* indicates significance at the 5%/1%/0.1% level.

**Panel D PTD of factor N mediation by affective conflict on control**

Baron and Kenny	Regression 1	Steps 1 and 2
<b>Hypothesis 17</b>	Control $\beta$ values	Affective Conflict $\beta$ values
PTD Factor N	.058	.151*
<b>Controls</b>		
Company size	-.543***	-.107
Company growth	.032	.174**
Board size (ln)	-.315***	.407***
% non-exec	.181	-.135
Duality	-.005	.264**
Adjusted R <sup>2</sup>	.155	.368
F change	7.782***	23.363***

Note: The tables show the standardised coefficients ( $\beta$ ) in steps 1 and 2 of Baron and Kenny's method of demonstrating mediation, the adjusted R<sup>2</sup> and the value of the F change. \*\*\*/\*\*\* indicates significance at the 5%/1%/0.1% level.

Panels A,B,C and D of Table 7.81 report the findings relating to the test of Hypothesis 17 for factors A,  $\beta$  and N respectively. The results show that affective conflict is found to only partially negatively mediate the effect of PTD of factor A (independent variable) on strategy (dependent variable). No mediation of PTD factor  $\beta$  (independent variable) by affective conflict on strategy (dependent variable) was found since there is no significant correlation of PTD factor  $\beta$  with strategy (DV). But affective conflict is found to slightly mediate the effect of negative PTD of factor A (independent variable) on control (dependent variable). The greater the PTD of factor A (empathy) the less the board control task output, slightly mediated negatively by greater the board affective conflict. The affect is so slight it is discounted. The greater PTD of factor A, the less the board strategy output, mediated negatively by the board affective conflict. No mediation of PTD factor N (independent variable) by affective conflict on control (dependent variable) was found since there is no significant correlation of PTD factor N with control.

Hypothesis 17 i.e the negative mediation of affective conflict on the negative influence of PTD on board tasks is therefore rejected.

### 7.7.1 Summary of mediation results

**Table 7.19 Mediation of Board Processes of PTD Effects Results Summary**

PTD	Process	Outcome	Mediation
A	Effort Norms	Strategy	POSITIVE
A	Effort Norms	Control	POSITIVE
$\beta$	Cognitive Conflict	Strategy	NONE FOUND
G	Cognitive Conflict	Strategy	NONE FOUND
-	Use of Knowledge/Skills	Strategy / Control	N/A
A	Trust	Strategy	POSITIVE (PARTIAL)
C	Trust	Strategy	POSITIVE (PARTIAL)
A	Trust	Control	SLIGHT POSITIVE
A	Competiveness	Strategy	SLIGHT NEGATIVE
A	Competiveness	Control	SLIGHT NEGATIVE
A	Cohesiveness	Strategy	POSITIVE
A	Cohesiveness	Control	POSITIVE
A	Affective Conflict	Strategy	NEGATIVE (PARTIAL)
$\beta$	Affective Conflict	Strategy	NONE FOUND
A	Affective Conflict	Control	NONE FOUND
N	Affective Conflict	Control	NONE FOUND

Note: this table summarises the mediation results.

Table 7.19 shows that some mediation has been demonstrated, but only with limited processes such as effort norms and cohesiveness with PTD of select personality factors, dominated by factor A. In summary the acceptance of hypothesis 11 means that it is accepted that effort norms positively mediate the negative effects of factor A PTD on both strategy and control. The greater the PTD the less the board task output, mediated positively by the effort norms of the board.



Whereas the lack of mediation effects of cognitive conflict, as proposed in hypothesis 12 means that no significant mediating effect of cognitive conflict on the negative effects of PTD on board tasks has been demonstrated. The inability to use the use of knowledge and skills construct because of the low cronbach  $\alpha$ , prevents further analysis of potential mediation effects. The overall results shown for the positive mediation of PTD negative effects by trust imply that the greater the trust between members of a board the less the negative effects of PTD will have on board outcomes, as per hypothesis 14. The slightly negative effects of competitiveness mediation on the effects of PTD imply that hypothesis 15 should be rejected and increased competitiveness will not mediate for the negative effects of increased PTD on board outcomes. Hypothesis 16 suggested that increased cohesiveness would mediate the effects of increased PTD and this was accepted since positive mediation was demonstrated. Finally, hypothesis 17 suggested that increased affective conflict would negatively mediate PTD i.e. the more affective conflict the more the negative effects of PTD on board task outputs. This was not demonstrated.

## 7.8 Control data

**Table 7.20 Control Data from Multiple Regression, model 2**

<b>Construct</b>	<b>Co.size</b>	<b>Co. growth</b>	<b>Board size</b>	<b>% NED</b>	<b>Duality</b>
Effort Norms	n/s	-.364***	.187*	n/s	n/s
Cog Conflict	n/s	n/s	.227**	.183+	.776***
Trust	-.250**	-.172*	-.156*	.269**	n/s
Competitiveness	n/s	n/s	.398***	n/s	n/s
Cohesiveness	-.343***	n/s	-.175*	n/s	n/s
Affect Conflict	-.213**	n/s	.481***	n/s	.294***
Strategy	-.248**	-.248**	n/s	n/s	.597***
Control	.526***	n/s	-.362***	n/s	n/s

Note : This table summarises the control data extracted from model 2 of the multiple regression tables used to present the data on hypotheses 1-10. . \*/\*\*/\*\* indicates significance at the 5%/1%/0.1% level.

Table 7.20 details the  $\beta$  coefficient estimates relating to the control data in the regression models

2. Inspection of the figures suggest some significant relationships between the control data and the dependent constructs. For example, the relationship between effort norms and company growth is strongly negative with a coefficient of -.364. This result implies that less growth is linked to greater board effort. There is a significant negative relationship between trust and company size, but a significant positive relationship between trust and the percentage of non-executive directors. The findings on duality suggest a strong positive link between cognitive conflict (and less with affective conflict) as well as strategy with duality. Overall, it is evident that model 2 has identified a whole series of substantive relationships and these are discussed more fully in Chapter 8.

## 7.9 Conclusion

**Table 7.21 Summary of Hypothesis Testing**

Hypothesis No.	Independent / mediating variable	Relationship	Dependent variable	Accept/reject
<b>Process</b>				
1	PTD	Negative	Effort Norms	Accepted
2	PTD	Negative	Cognitive conflict	Accepted
3	PTD	Negative	Use of knowledge	Rejected
4	PTD	Negative	Trust	Accepted
5	PTD	Negative	Competiveness	Accepted
6	PTD	Negative	Cohesiveness	Accepted
7	PTD	Positive	Affective conflict	Accepted
<b>Outcome</b>				
8	PTD	Negative	Strategy	Accepted
9	PTD	Negative	Control	Accepted
10	PTD	Negative	Service	Rejected
<b>Mediation</b>				
11	PTD / Effort norm	Positive	Board Tasks	Accepted
12	PTD / Cognitive conflict	Positive	Board Tasks	Rejected
13	PTD / Knowledge and S	Positive	Board Tasks	Rejected
14	PTD/ Trust	Positive	Board Tasks	Accepted
15	PTD/ Competiveness	Positive	Board Tasks	Rejected
16	PTD/ Cohesiveness	Positive	Board Tasks	Accepted
17	PTD/ Affective conflict	Negative	Board Tasks	Rejected

Note: This table summarises the results of the testing of hypotheses 1-17, 11 are accepted and 6 rejected.

Review of the Table 7.9 indicates a number of key findings. For example, in six of the seven process hypotheses PTD was found to negatively effect board processes. Hypothesis 3, that the PTD has a negative effect on the use of knowledge and skills was rejected only because the construct failed to show an acceptable cronbach reliability. Likewise the table shows that the effect of PTD on board task outcomes of strategy and control is negative, i.e. lower levels of personality trait diversity generates better outcomes. The third outcome related hypothesis, Hypothesis 10, with service as the dependent variable as rejected only because the service construct failed to demonstrate an acceptable cronbach reliability. The three hypotheses (11, 14

and 16) relating to board processes mediating the effect of PTD on board task outcomes were all accepted. Thus effort norms, trust and cohesiveness have been shown to mediate PTD. However, the research failed to demonstrate mediation of four other processes and so hypotheses 12, 13 and 16 were rejected.

Of course many of the individual  $\beta$  coefficients of PTD in the multiple regression tables were not statistically significant on their own. The F test measures variability as a ratio of the mean “estimated true” data over the mean “estimated error” data as a test of the null hypothesis. The greater the F change number, the more likely that the null hypothesis that the data do not represent true differences is not true. If the F change in the multiple regression is significant then the more likely that the overall  $R^2$  reflects a real increase in the % explanation of variance of the dependent variable. The overall F statistics though in all cases showed a significant increase from model 1 to model 2 which backs up the conclusions arrived at that in addition to the specific significant PTDs highlighted there is a general statistically significant net increase as a result of all the PTD factors measured. The overall effect of introducing the column of PTDs to the model was always significant and positive.

The implications of these results will be explored further in Chapter 8, but they clearly imply that increasing the level of some board processes - notably effort norms, trust and cohesiveness - may go some way to overcome any PTD disadvantage that negatively affects board outputs of strategy and of control.

Chapter 8 will now discuss the results presented in the thesis as a whole in more detail, offering conclusions and suggesting avenues for further research that builds on the main implications of the work presented here.

## **CHAPTER EIGHT**

### **CONCLUSIONS**

## **Chapter 8    Conclusions**

### **8.1 Introduction**

It has been argued that diversity is a valuable asset on a board (Williams and O'Reilly, 1998; Rindova, 1999; Nielsen, 2010; Zhou and Rosini, 2015), but exploring the literature in detail reveals a more complex picture. Chapter 4 of this thesis illustrated the complexities of diversity at different levels in terms of both material and potential impact. The research question posed in this study is whether diversity at a deeper personality level can have a negative effect on board functioning. The prime question posed was whether homogeneity in personality traits across a board of directors enhances the latter's processes and outputs? The work of Klein and Harrison (2007) classifying diversity into variety, disparity and separation elements was explored in Chapter 4 and it was concluded that personality trait diversity (PTD) essentially represents a diversity of separation, reflected as diversity of personality traits along axes of opposing factions. This conceptualisation is different to the diversity of demographic variety described in Hambrick and Nelson (1984). The results of the present study indicate that diversity at a deep personality trait level can be counter-productive to board processes and outcomes possibly by inhibiting access to surface diversity of knowledge, experience and skills. Variation of PTD offers an alternative, if still partial, explanation for the variation in board behaviours, processes and successful task outcomes; certainly it contributes to the total explanation.

It was argued in Chapter 2 that corporate governance theories alone fail to fully account for all observed variation in director behaviour, it was also suggested that optimal board team performance will not be achieved by regulation based on for example, agency theory alone, however attractive that option appears to legislators when responding to widespread corporate

failure. This study has demonstrated that the diversity of some personality traits can in fact make a significant contribution to the explanation of variation in board processes and outcomes, implying that homogeneity of personality traits is more productive than is heterogeneity. Regulation nevertheless tends to follow from agency theory analyses (Dalton et al., 1998; Roberts et al. 2005; Hendry 2005; Rejchrt and Higgs, 2015). More structured research into the causes of variation of director behaviour might change this paradigm. As Daily et al. (2003, p. 371) stated:

"Corporate governance researchers have a unique opportunity to directly influence corporate governance practices through the careful integration of theory and empirical study."

Recent abuses of board responsibility and the consequent corporate failures have produced regulatory responses such as the Sarbanes-Oxley Act of 2002 in the US (Sarbanes-Oxley, 2002; Monks and Minow, 2008). The number of codes setting out corporate best practice <sup>40</sup> continues to grow, despite nearly a quarter of a century having passed since the original Cadbury Code, to address inadequate board behaviour and company failures (Bratton, 2001; Companies Act, 2006;

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<sup>40</sup> The original Cadbury Report 1992 (Cadbury, 1992) prescribed best practice in UK board structure and composition and was followed for UK listed companies by the Greenbury Report 1995 linking directors' earnings to corporate performance (Greenbury, 1995). The Hampel report 1998 then developed the earlier codes by stressing the board's role in improving prosperity of the company (Hampel, 1998). The first Combined Code on Corporate Governance combining these recommendations, was issued in 1998 (Combined Code, 1998) which was followed by the Turnbull Report 1999, emphasising that directors should be responsible for effective risk management and offering guidance on internal control requirements of a new code (Turnball, 1999). This was followed by Smith, 2003, stressing the important role of the audit committee (Smith, 2003) and the Higgs report in the UK on the importance of the role of the non-executive director (Higgs, 2003).

These led to the publication of the new UK Combined Code on Corporate Governance (Combined Code, 2006) which defines the required governance behaviour of listed companies. The Combined Code states;

"the board should undertake a formal and rigorous annual evaluation of its own performance and that of its committees and individual directors" (Combined Code, 2006).

In 2010 and 2011 these were followed up again with later developments (FRC, 2010; 2011(a) ). The FRC published that latest code in 2014, now named the UK Corporate Governance Code, and reported on the latest code developments in January 2015 (FRC, 2015).



Costello, 2009; Mallin, 2007; FRC 2015). However, the results of this thesis suggest that regulation may be an inadequate response to the issue of underperforming boards.

In addition, the research indicates that governance theories, on their own, are insufficient to fully explain the observed variation in board behaviour, nor are the surface diversities described by upper echelon theory (Hambrick and Nelson, 1984). These issues are discussed in detail in this chapter.

## **8.2 Main Findings**

The seven hypotheses (H1-H7) based on the notion that personality trait diversity would have a negative effect on board processes were generally borne out and accepted. Sixteen personality traits were tested in each hypothesis. The effects of PTD varied across the different traits identified by Cattell (1965). PTD of factor A (empathy) dominated the data. This trait was considered the most important by Cattell (1957) and is described (Psytech, 2003) as an axis between distant aloof and empathic. The distant aloof end of the axis applies to respondents who are disinclined to express their feelings and end up becoming distant and detached. Such individuals are not perceived as having much empathy and are characterised as being slow to form relationships. At the empathic end of the axis respondents are seen as being quick to offer support and encouragement, having good personal relationships, and a sympathetic and caring nature. The mean normed score for the 198 directors was 5.17 which varied slightly, but significantly from all general management towards the cool and distant end of the axis, but less than one standard deviation away from the management mean. So whilst minimal diversity on this trait has been shown to be very important on the UK boards tested, it does not appear to vary towards an extreme at either end of the axis.

The diversity of other traits also contributed to the results. For example: (i) the PTD of factor L (trusting-suspicious) had a significant negative effect on the process of effort norms; (ii) the PTD of factor  $\beta$  (intellectance) had a significant negative effect on cognitive conflict; (iii) the PTD of factor H (retiring-bold) had a significant negative effect on the process of trust; (iv) the PTD of factor F (sober-enthusiasm) had a significant negative effect on competitiveness; (v) the PTD of factor A had a significant negative effect on cohesiveness; and (vi) the PTD of factors  $\beta$  (intellectance), factor H (retiring-bold), factor I (hard headedness and factor N (direct-restrained) all had a positive (as predicted) effect on affective conflict. This final result implies that the greater the personality differences, the more dysfunctional affective conflict (Forbes and Milliken, 1999) there is on a board. The results therefore suggest that homogeneity of personality traits on a board will enhance its processes and inhibit affective conflict.

Hypotheses (8-10) suggesting that personality trait diversity would have a negative effect on board task outcomes, were borne out and accepted for strategy and control, but the service outcome construct failed its post hoc reliability  $\alpha$ . The results also suggest that homogeneity of personality traits on a board will generally enhance its outcomes. As discussed earlier in (section 2.7 above), the board's strategic output is widely seen as crucial (Huse, 2007). The increase in the explanation of variance in board task output on strategy related to a lack of trait diversity (especially factor A (empathy), factor G (conscientious) and factor O (confidence) is important. Given that producing and overseeing a corporate strategy is perhaps the key role of a board (Stiles and Taylor, 2002; Huse, 2007) this finding deserves specific attention and should influence further discussion and research in this area.

The extent to which variances in the other key board output task of control was explained was more mixed. Factors A (empathy) and Q4 (composed) underwrote the hypothesis that the lower

PTD the greater the board output. However, two traits, E (dominance) and N (direct-restrained) exhibited contrary directionalities in that PTD had a significant positive effect on control. It seems reasonable to argue in the context suggested that for a board to better exercise control it needs some members who can dominate the discussion without imposing undue restraints. For such an outcome to be effective an underlying convergence of traits facilitating cognitive v.s. affective conflict - and therefore enough trust for the board to function well – is necessary.

Evidence regarding the mediation of processes on the negative effects of PTD on board task outcomes was mixed. Only three hypotheses out of seven were accepted. In Section 7.7 of the previous chapter section the Baron and Kenny (1986) conditions of mediation were defined. Essentially these require the absence of any major direct effect of the PTD on board task output with the effect channelled via a mediator (board process). The data revealed supported the mediation of factor A (empathy) PTD by effort norms on the outputs of strategy and control, but the PTD of all other factors were found not to be mediated by effort norms. Effort norms were defined (as per Section.3.3.3.1.) as: “the shared beliefs about the level of effort directors should expend on board work” (Scarborough, 2003, p. 81). Scarborough indicates that in practice this will reflect the amount of effort put into understanding financial statements, managerial explanation of variances and board reports before and during the board meeting. Thus if factor A PTD increases and in so doing causes a fall in board task outputs, increasing effort norms will compensate and have a positive effect on outcomes. This pattern should indicate to chairpersons that it is worth focussing on this board process, whereby the harder directors work, the better the outcomes. This propensity may seem obvious and intuitive, but these results add empirical support to a largely untested (but common) belief.

The failure to demonstrate the same mediation of cognitive conflict on the PTD of factor  $\beta$  (intellectance) and factor G (conscientiousness) implies that encouraging cognitive conflict i.e. a critical examination of the issues without personal rancour, may not mediate for the negative effect of PTD of these factors on board task outcomes. In this case the management of the board would best focus on reducing the PTD, despite Forbes and Milliken (1999) contending in their theoretical model that cognitive conflict is a mediating variable.

However, the process of trust was found to mediate the negative effects of PTD of factors A (empathy) and C (emotional stability), implying that it would be worth investing in building the process of board trust to negate the negative effects of PTD on outcomes. Whilst this idea again may seem intuitive, these data provide the first empirical support for the notion in a modern context. Trust was not specifically recognised in the Forbes and Milliken (1999) model as a key or mediating process, although as mentioned above in Section 3.3.3.4 Gillespie and Man (2004) suggest that trust has cognitive and affective bases such as conflict and is useful as a basis for predicting behaviour. Since personality traits are essentially behaviour predictions (Cattell and Cattell, 1995) it is perhaps not surprising that increased trust can mediate the negative effects of increased PTD<sup>41</sup>.

The process of competitiveness was also found to mediate the negative effects of factor A (empathy) on board task outputs. Competitiveness was defined in Section 3.3.3.5 of this thesis as the evolutionary: “need for victory” (Workman and Reader, 2008) which can be at the expense of either the group or between groups (Schein, 1988). Wilson (2015) suggests that humans have

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<sup>41</sup> Section 3.3.3.4 does refer to Luhman’s (1980) observation that trust is essential for a (board) to handle complexity and work effectively as a team, something that resonates with the findings here.

evolved via a process of group selection which favourably biases to altruism within the group as a method of furthering extra-group success. It might be expected that the expression of this factor on a board would positively mediate the negative effects of PTD; under competitive challenge the directors would be pressured to overcome any inherent antipathies to cooperate.

The process of cohesiveness was also found to mediate the negative effects of factor A (empathy) on board task outputs. Cohesiveness was defined here (Section 3.3.3.6) as being based on the idea of mutual reciprocation (Cialdini, 1984), enhanced by mutual liking that in turn reflects the perception of similarity (Hogg and Vaughan, 2010). It is therefore perhaps not surprising that the PTD of factor A would have a negative effect on cohesiveness.

The potential negative mediation of affective conflict on the PTD of factors A (empathy),  $\beta$  (intellectance) and N (direct-restrained) failed to be demonstrated. This does not imply that affective conflict can be indulged on a board without cost. PTD was earlier shown to increase affective conflict (Hypothesis 7) and as discussed in Section 3.3.3.2 above, affective conflict is defined as relationship conflict that is predicted to have a negative effect on board functions (Runde and Flanagan, 2008).

It is therefore quite difficult to separate the direct effects of PTD on board processes and board task outputs from the mediating effect of the processes themselves. There is some evidence, however that certain processes can perform a mediating role, but this seems to impact less than the obvious direct effects of PTD already discussed.

The result on duality deserves some attention as this was not in line with expectations. Duality i.e. the assumption of the roles of CEO and chair by one person, is relatively common in the USA, but is proscribed by governance codes in the UK (UK Corporate Governance Code, 2014).

Krause and Semandi (2011) presented convincing US-sourced evidence that, depending upon context, duality can positively influence future firm performance; this seems to be borne out by stock market data at times when firms are performing well and no change to duality is made. In fact, reversing duality in this circumstance had a spectacular negative effect on performance, whereas in the contrary situation reversing duality of poor performing firms had a positive effect. The data in this thesis reflected an even split of duality (15 out of 30 boards). Table 7.20 illustrates significant and positive correlations of duality with with cognitive conflict, affective conflict and the board task output of strategy of .776, .294 and .597 respectively. These associations have a number of potential implications and these are discussed in the Section 8.3 below.

This research has identified new norms regarding director personality relative to those highlighted by Psytech (2003) for general management. As described in Table 7.2 and Section 7.3 above these new norms show significant differences for factor  $\beta$  (intellectance), C (emotional stability, E (dominance) and H (retiring- bold). This pattern suggests that the director population sampled consider themselves more intellectually competent, more emotionally stable, exert more dominance and are bolder than general management. None of this may be surprising. In contrast is the finding (via factor L) that the sample are significantly more trusting, which is less straight forward to rationalise. Upon reflection however, it may not be so counter-intuitive; directors have to take major decisions on delegated information sources and it is clearly not possible to function effectively in such a role without taking much on trust. It seems that those individuals becoming directors do have personalities that differ from the with the general management population. This evidence has some significant potential implications for director selection and training since it is

generally accepted by personality psychologists that it is not possible to change the trait profile easily, and certainly not quickly (Furnham, 2008; Cooper, 2010).

A number of significant correlations with board size is evidenced in Table 7.20. Effort norms, cognitive conflict, competitiveness, and affective conflict are all significantly positively associated, with  $\beta$  coefficients of .187, .227, .398, and .481 respectively. Trust and the output of control are significantly negatively associated with board size with  $\beta$  coefficients of -.156 and -.362 respectively. The implications of this evidence is discussed in the next section.

Company size and growth exhibited a number of significant negative relationships with board processes. Effort norms strongly correlated with company growth, with lower effort norms being associated with lower growth levels ( $\beta$  coefficient of -.364). This directionality provides empirical corroboration of Forbes and Milliken's model (1999). Company size is negatively associated with board trust, cohesiveness and affective conflict i.e. larger companies had less trust and cohesion on a board, but also less affective conflict. In contrast control as a board function varies positively with company size, with a  $\beta$  coefficient of .526. Perhaps this is not surprising given the larger financial budgets and the importance of potential variances that would be expected in larger companies. However, the negative association of company size and growth with strategy ( $\beta$  coefficients both -.248) is possibly harder to explain. Possibly the smaller the company and the less it is growing the more the board may need to focus on strategy.

The percentage of non-executive directors exhibits a strong positive relationship with trust with a  $\beta$  coefficient of .269. Thus, the larger the proportion of non-executive directors the greater the amount of trust on a board. This is again surprising if non-executive directors are fulfilling their role as proscribed by agency theory of challenging the executive team. It implies that the non-

executive directors help the board processes positively by enhancing trust which is a positive mediator of PTD diversity. It does not imply they are fulfilling their oversight role on behalf of the principals.

Finally, the social desirability scores (mean 7.8, SD 1.8) for these directors (Section 6.6.2) are towards the high end although just within the deemed acceptable range (i.e. less than 8.0). Directors may well be more subject to; (i) self-deceptive enhancement and/or (ii) impression management (Paulus, 1991) than the general management and professional norms (Psytech, 2003). These are both aspects of an egoistic response tendency (Paulus and John, 1998), but directors may instead be responding to a moralistic response tendency (Steenkamp et al., 2010). In any case, this study was not designed to distinguish between these options. As stated in Section 6.6.2 the respondents may have (slightly) overstated their emotional stability, lack of anxiety and self confidence or may have just been relating their actual personality differences of directors to the general management norm. The different director personality profiles (Table 7.2) found are an obvious avenue for potential future work in this area.

### **8.3 Implications**

Whilst governance theories clearly do offer a partial explanation of the variances of board behaviours and outputs, this study has demonstrated that a more detailed examination of personalities on the board team can strengthen our understanding of the relationships involved. In particular it is evident that the use of governance theories to explain variations in director behaviour and board performance would be more valid if account is taken of the impact of personal antipathies on processes. O'Reilly et al. (1993) claimed that homogeneity would be conducive to effective team work on boards, but this has been challenged by others (e.g.



Hambrick and Mason, 1984; Seally et al. 2009). The attraction paradigm of Byrne (1997), as discussed in Chapter 5, describes a positive linear function between similarity and the “liking” of another person. The hypotheses were based on the proposition that such a liking would improve group functioning on a board. That proposition seems to be borne out in this study as greater PTD impedes board processes and outcomes, which endorses Schein’s (1988) social contract theory. These conclusions are also reinforced by social identity theory (Turner, 1985) also reviewed in Chapter 5, which is fundamental to much of social psychology. This well accepted theory has established the value of being within an “in-group” v.s. competitive “out-groups”. The research question was based on the proposition that if directors enjoy a basic liking of each other because of similar personalities they are more likely to form such an “in-group” and so perform more effectively as a team. The primary implication of this research is therefore that diversity is a complex subject and despite the intuitive command of regulatory codes to create personality diversity to stimulate more board argument (Garratt, 1997), these data suggest that it would be counter productive. In the introduction it was pointed out that the Financial Reporting Council (FRC, 2011 (a) p. 10) claim (without offering supporting evidence) that:

“Diversity of psychological type, background and gender is important to ensure that a board is not composed of like-minded individuals”.

The results of this thesis are an important challenge to the first of these assumptions. In particular the summary of hypothesis testing Table 7.21 shows that the hypothesis that PTD has a negative relationship to the positive board processes of effort norms, cognitive conflict, trust, competitiveness and cohesiveness was accepted, as was the positive relationship of PTD to the negative process of affective conflict. There was also an acceptance of the hypotheses that PTD has a negative effect of the board outcomes of strategy and control.

It is important that when investigating this issue reliable and validated personality tests are used. Some authors have tried to research this question, bypassing this step (Pitcher and Smith, 2001; Torchia et al., 2015) which could be misleading. This study helps to clarify this issue with robust psychometric methodology.

There have been many calls for boards to increase demographic diversity (Hambrick and Mason, 1984; Bantel and Jackson, 1989; UK Code, 2014). It may be that to best access this surface diversity of gender, age, race and work experience with the benefits of multiple perspectives it might be necessary to reduce deeper personality diversity within and between these categories as referenced above with the acceptance of hypotheses 1 to 9 (excepting no. 3). The board is an episodic team (Forbes and Milliken, 1998) which means there are inbuilt difficulties in achieving optimal working harmony when they meet so rarely. Construction of an effective board may need conscious effort to choose compatible personalities to make up the team to achieve optimal working harmony. The acceptance of hypotheses 1 to 9 (excepting no. 3) and the positive effects of mediation of PTD of some traits by effort norms, trust and cohesiveness on board output tasks (hypotheses 11, 14 and 16) further indicate the beneficial effects of harmonising the personality trait profiles on a board. Investors and chairpersons may be advised to take a psychometric perspective on appointing board teams. Such recruiters might take cognisance of the director personality trait profile above in Table 7.2, taking note of where the profile differs significantly from the profile of general management. As shown the tested directors were significantly higher than general management in the self belief in intellectual ability, emotional stability, dominance and trusting. This personality profile could be used to guide recruitment and team construction towards a UK director norm. However, this research was designed to investigate the effects of personality diversity not the effects of personality trait profiles on outcomes. It is not claimed

here that the significant differences found between director personalities and more general management enhance performance. That is not evidenced and was not looked for (see future research below section 8.4). The results though do indicate a significantly different UK director personality trait profile to that of general management currently exists.

The size of a board was included as a potential influence on variances in output (as per Pearce and Zahra, 1992). The results indicate that increasing size may lead to more conflict, productive cognitive conflict and un-productive affective conflict and a rise in effort norms. This result conforms to the seminal model proposed by Forbes and Milliken (1999). Increasing the size of the board obviously increases the variety of personalities, consistent with the central hypothesis of this thesis whereby the less PTD, the more effectively the board will function. Whilst the smaller the board the less trust and board output of control are found. This is more difficult to explain and it may be that a confounding variable exists relating to board size.

It appears reasonable to ask why increasing PTD have a negative effect on board processes and outcomes. It may be a function of trust; trust has been examined across cultures (Ferrin and Gillespie, 2010) and has been found to vary in line with Hofstede's (2001) cultural dimensions<sup>42</sup>. These UK board directors tested showed that diversity of three personality traits, A (empathy), C (emotional-stability) and H (retiring-bold) was significantly negatively related to trust on the board. Further it was found (hypothesis 14) that trust successfully mediated the negative effects of PTD on board task outcomes. Clearly this study indicates that trust is a key process on the UK boards tested. Trust levels in populations are not universal and are found to vary greatly with

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<sup>42</sup> These are individualism v.s. collectivism, masculinity v.s. femininity, high v.s. low power distance and high v.s. low uncertainty avoidance.

national cultures<sup>43</sup>. Some authors (Sullivan et al., 1981; Buchan et al., 2002; Kuwabara et al., 2007) used management games to compare propensity to trust across national cultures and confirmed that trust tends to decline from the highs in the Nordic countries to lows in non Western cultures and that this is also a function of social identity, trust being higher within an “in-group” (Tajfel and Turner, 1986). In fact Yuki et al. (2005) found that Americans tended to trust strangers if they were members of such a categorical “in group”. The research data of this study was based exclusively on UK boards. The results on trust should not therefore be extrapolated across other national cultures whether American or Asian. The levels of board trust and effects on board processes in those cultures will require new examination.

Another key finding, the effects of duality, challenges the perceived wisdom of UK practice. Various codes governing corporate behaviour in the UK (FRC, 2015) take as axiomatic the notion that governance is improved without duality i.e. that the roles of chairman and chief executive are best separated. This position conforms to agency theory, but not stewardship theory. As described above, the data in this study indicated a strong positive relationship between duality and cognitive conflict, affective conflict and the strategic output of a board. Whilst the research did not examine the relationship between duality and governance as such, the evidence challenges the common assumption that duality is always negative for board task efficiency. Whilst this is an inconvenient result for proponents of orthodoxy in the UK it should be acknowledged that the effects of separating or combining the roles may depend upon context. It would seem possible that, when needed, a strong chair / CEO leader may effectively stimulate

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<sup>43</sup> Ferrin and Gillespie (2010) reviewed fifty six relevant articles and found that the most comprehensive survey was titled the World Values Survey (WVS) (Delhey and Newton, 2005) which involved participants from sixty countries. Those responding that most people can be trusted varied from 65% in Norway to only 3% in Brazil. They report a spectrum of typical trust populations, highest in US, Canada, Australia, Western Europe, through to low trust in Eastern Europe, South America and Africa.

and control conflict whilst increasing strategic output. The same phenomenon was not observed however, for the board output of control and may be specific to those companies requiring strong strategic output. It conforms to UK governance codes and agency theory that the board output of control is lessened with duality.

This study has also established a new research norm. Authors have acknowledged the theoretical benefits of investigating the psychology underlying director behaviours, but believed it to be too difficult to achieve (Hambrick and Mason, 1984; Pettigrew, 1992; Zhou and Rosini, 2015) given the usual reluctance of directors to engage in research about their personal details and beliefs. Irrespective of the interpretation of the specific results of this study, it has clearly demonstrated that it is possible (even if difficult) to access these basic phenomena. This potentially may indicate opportunities for productive research directions that were previously thought to be precluded by practicalities.

One potential limitation of the study is the use of the Input-Process-Output (IPO) model as described by Gist et al. (1987) and many others (Smith et al., 1994; Knight et al., 1999), whereby the actors are assumed to be unaffected by feedback from the outputs. This unidirectional linear model was used because it follows the rules of parsimony (Bryman and Bell, 2011) and the research is specifically focussed on the effects of diversity in those inputs on process and outputs. As described in detail in Section 3.3 this model evolved from earlier simple models which tried to predict output from input alone (Pfeffer, 1983). The work of Hermalin and Weisbach (1991) pointed out the dangers of this simplistic approach and suggested that board processes could act themselves as a mediator. The various I-P-O models are discussed in section 3.3 illustrate the proposed simple relationships between input, processes and board output. Of course in real life the process will be more iterative and this has not been accounted for. It is

possible that the unidirectional model is more complex and feedback from output will effect input. This is described as endogeneity (Adams et al., 2010). Power as an example of diversity by disparity (Harrison and Klein, 2007) is discussed by Adams et al. (2010), whereby for example a high achieving CEO could determine the board's structure and control its processes as a manifestation of his/her performance. This would make it difficult for a board to exercise control over strategy, until the performance fails. Contra wise, if the original board included a venture capitalist representative director it may inherit a powerful legacy of control over the executive, even after the VC has left (Baker and Gompers, 2003). Thus cause and effect can appear reversed. The model used in this thesis to explore the effects of personality traits on process and outputs do not account for these situations. Of course the  $R^2$  in the multiple regression results which explains the % of dependent variable variance is never complete and there will always be a substantial % of variance to be explained by these other factors.

#### **8.4 Future Research**

One possible criticism of this study is that diversity has been investigated purely as a phenomenon of separation. In fact according to Harrison and Klein, (2007) two other classes of diversity are likely to affect board processes and outcomes. The first of these is diversity as variety, including the effects of differences in functional specialities (e.g. finance, marketing, legal, scientific or HR) and demography (gender, race, disability). The second type is diversity as disparity, which could emerge as disparity in the power differences between, say, the CEO, chairman or non-executive directors and the rest of the board. This diversity will be particularly apparent if the ownership is unevenly distributed, for example if one non-executive director represents a majority of the equity, which might be expected in family businesses. Both of these phenomena are worthy of investigation in the future.

A study of fault lines in boards might also be a useful follow up to the work reported here. Personality profiles on a board may coalesce via more than one alliance and create single or multiple schisms. It was noted when processing the data that one or more directors often stood out, well away from the personality trait board mean. The issues this raises might lend themselves well to further study.

New norms for personality traits that contribute to boardroom behaviour in UK directors have been established here, potentially facilitating further research along the lines mentioned in Section 8.3 above. However, no claim is made that these norms are related to output; that was not the intent of this study. The study was not designed to investigate the effects (positive or negative) of the distinctive personality profile discovered, but future work building on the data set might permit identification of the results of these differences on outcomes. This endeavour might be particularly interesting in family businesses (Zellweger and Kammerlander, 2015) in view of the high heritability of most of the major personality traits (Cooper, 2010).

The use of knowledge and skills process construct and the service outcome construct failed to reach a sufficient  $\alpha$  reliability coefficient. These could therefore be redesigned in subsequent research to enrich the analysis. It is not suggested that either construct proved invalid here, but unfortunately the items selected from the literature did not work well enough. Had time permitted it would have been desirable to have pre-tested the constructs in more depth.

This research employed the positivist paradigm, but further work could adopt triangulation as a means of generating further insights. Teddlie and Tashakkori (2009) suggest such an approach adds value to research enquiry by combining the benefits of in-depth qualitative research with

aggregate quantitative studies; qualitative research findings can therefore be used to explore the meanings behind of quantitative conclusions<sup>44</sup>.

Another possible criticism of this work is that it's cross sectional nature leads to ignoring the mitigating effects of time. Mohammed and Angell (2004) looked at (student) teams with a longitudinal design to investigate the moderating effects of time on diversity, both surface and deep level. A smaller number of boards could be examined via case studies to relate changes in process such as trust and conflict to tenure and / or changes in the personality diversity of the board. However, individual personality trait profiles are unlikely to change within an experimental time frame (Matthews et al., 2003; Cooper 2010).

## **8.5 Conclusion**

If the results presented in this thesis are descriptions of the typical situation in UK boards and “birds of a feather do flock together” at the personality trait level then it could be argued that much board-room potential is wasted. More might therefore need to be done to improve the access to diversity at surface (age, gender, ethnicity) levels by establishing homogeneity at the deeper level (i.e. in behavioural characteristics such as personality). Current governance theory and consequent regulation alone has failed to optimise board processes and output; it appears that boards are more comfortable working as homogenous teams at the personality level and have not learned to function well with imposed or accidental personality heterogeneity. Hobman et al.

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<sup>44</sup> This would add more substance to the findings and is an example of triangulation (Webb et al., 1966) which is derived from the navigational technique of using multiple reference points to fix a position. The more different research traditions agree on the nature of the phenomenon the more likely it is that a “real” world is being observed (Deacon, et al, 1998). Bryman and Bell (2011) define the term to mean the use of different research strategies to add confidence to the findings. Morgan (1990, p.13) states: “the interpretation of (paradigm) diversity, ....celebrates the possibility of obtaining new insights and understanding”. The approach can access what Bryman and Bell (2011, p. 398) refer to as “different levels of reality” which complement the understandings from different research traditions.



(2003) explored the effect of value dissimilarity in Australian public service teams, finding a positive association with relationship conflict and a negative association with work group involvement. They urged for such diversity to be better managed, perhaps by the chair highlighting common goals, as well as encouraging openness among teams regarding understanding of diversity. It could be argued that the present study aligns in the same direction. As demographic diversity inevitably increases from social change - including a (reasonable) belief by top management that demographic diversity provides a competitive advantage (Richard et al., 2002), the consequences of any deeper personality diversity also need to be understood and managed. This could be achieved via more routine psychometric profiling of director candidates and the sharing of such data amongst the team. Understanding and productivity could both be improvements on this basis. The imposition of further governance regulation is, of itself, unlikely to produce the required improvements in board function. Governance theories will explain some variances in director behaviour, but it is clearly necessary to look further into the deeper causes. The idea that all diversity may not always be beneficial might sometimes be unwelcome, but it requires an understanding of the relationship between (and facilitating access to) the benefits of surface diversity and achieving the greater personal working harmony from deeper personality trait congruence.

Scholars and practitioners might look at these results and ask what are the practical uses of the data. The answer relates to the proposal that it is important for the UK economy to continually improve corporate board processes and outcomes. The evidence in this thesis concurs with the views of many authors (Amason and Sapienza, 1997; Forbes and Milliken, 1999; Mooney et al. 2007) that the missing component on boards tends to be cognitive conflict. There are many social pressures on boards to conform (Mace, 1971; Janis 1972; Westphal and Khanna, 2003) and that

encourage, perhaps often prematurely, a quick consensus on key decisions. Mooney et al.'s (2007) important contribution to this debate was their finding that the conversion of cognitive conflict to affective conflict is moderated by "behavioural integration"- represented in this study as cohesiveness. This current study also evidences that personality trait homogeneity will stimulate positive cognitive conflict, whereas personality trait diversity will stimulate negative affective conflict. It may not be easy or practicably possible for a board to retrospectively change the personality diversity on the board in the short term. However, on being made aware of these phenomena, boards could actively encourage more cohesiveness to mitigate any negative effects of PTD whilst increasing cognitive conflict. It is suggested that it could be useful to invest in a reliable and validated psychometric profile of all the directors on a board as part of a board development program. If the PTD (as measured here by mean Euclidean distancing, MED) is considered significant then extra effort to increase cohesiveness could allow the positive promotion of cognitive conflict without over increasing affective conflict and improve board outcomes. This study did find that cohesiveness positively mediated the negative effects of PTD and affective conflict mediated PTD negatively. Without productive cognitive conflict there is little point in constructing a diverse board team since it would find it difficult to access the benefits of demographic diversity (Mooney et al., 2007). The item questions asked in the cohesiveness construct of this study indicate practical ways to do this.

Thus it could be argued that measuring the PTD of a board could facilitate improvements in process and outcomes. Despite the un-evidenced bias by authorities such as the Financial Reporting Council (2015), all diversities are not necessarily beneficial to board function, especially deep cognitive diversities (Harrison et al., 2002). It would be of practical utility for boards to appreciate this and attempt when recruiting to decrease PTD of the team. Undoubtedly

demographic diversity (Hambrick and Mason 1984) can bring new knowledge, experience and skills to a board. However, Tajfel (1978) and Harrison et al (2002) showed that there is a danger of consequent stereotyping that can lead to “in-group” and “outgroup” fracturing on a board, which in turn could damage board functioning. As Harrison et al. (2002) demonstrate, the eventual discovery by the actors of personality trait deep diversity will help overcome these initial prejudices. This will normally take some time and may be a partial explanation of the beneficial and positive effects of tenure homogeneity (Wan and Ong, 2005). Measuring and sharing PTD data on a board could surface personality trait homogeneity more quickly. This could lead to a redefinition of the “in-group” to be more inclusive of surface demographics (Gaertner and Dovidio, 2000). It would also enable the board to confront any issues encouraging fracture or director isolation. If significant PTD exists on a board and is exposed it can be managed. If it remains hidden it can silently sabotage the efforts to create an effective team. Thus the results have practical utility for UK boards.

This study has offered a unique insight into the effect of personality diversity on UK board processes and outcomes. As such, it represents a real contribution to knowledge. As Mintzberg (2005) pointed out, a single insight does not usually in itself create a theory; instead the weaving together of many creative leaps, whether small or large are critical to the process. It is suggested here this thesis offer a significant new part of that endeavour, i.e. increased understanding of the rich and complex way in which modern boards function.

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## **Appendices**

## Appendix 6.1

## Invitation Letter



Dear .....,

**Board Workshop, Valuable and Totally FREE**

Date

I am writing to offer my **Board Team Workshop**. The Board Teamwork Appraisal gets the input from a simple on-line questionnaire taking each director only less than 30 minutes in total to complete.

It is useful and it's enjoyable. It's confidential to you and will measure the director personality inputs, board processes such as levels of debate, and cohesiveness and outputs such as strategy and control. I present the team result to the board by power point at your convenience. It takes about 45 minutes depending upon discussion time. **Totally confidential to your board**. Each director gets a confidential personal personality profile, the whole thing free of charge. You can help me with my research project and in return I can help you. The IoD is charging about £3,000 for a similar service.

I am doing this to gather anonymous data for my PhD project at Wolverhampton. I have completed 29 boards already and they have found it to be very helpful. These give useful benchmark data for your report. I just need one more to complete and the project is done. Your board could be one of these.

**No individual responses are identified except in the optional confidential one to one personality trait profiles.** Many directors find this additional confidential personal personality profile very insightful and useful. I include a Belbin type analysis in the board review, pointing out any strengths and gaps on team. It's enjoyable and informative. **All this at no charge, all I get is the anonymous data for my academic thesis.** That's it, there or no hidden extras or other sales propositions.

For this project I have qualified as a psychometric tester. I also have a recent MSc in Company Direction. I Chair a board myself, and I am Chief Executive of another small pharmaceutical research company, Ectopharma. I hold a Chartered Director qualification and have been a main board director of an LSE listed company. So I have very relevant experience on board functions. I know how they work. Which means I approach this from a practical, business point of view. I have a power point presentation which I would be pleased to send you. I can e-mail it or present it to your board in person. I hope to hear from you soon.

Yours Sincerely,

Alan Walker MSc C.Dir Flod  
alan@walkerglobal .com

## Appendix 6.2

## Participant Instructions e-mail

Dear *name*,

Thankyou for participating in this *Company Name* board teamwork workshop. It was good to meet you all *date*.

Please try to complete the survey in the next two weeks or so, it only takes about 30 minutes from start to finish. You should complete the questionnaire in the context of a board director, reacting as you would in that environment (not for example as you might with your family or on holiday). Remember it is **Confidential and Personal**. Your colleagues will not see the individual responses. There is no need to "improve the data", it's all anonymous to you and myself. It's of more interest and personal value to you that way if you have been honest in your responses. Likewise the functioning of the board team will benefit if your anonymous input is frank.

If you want an **individual feedback** I will include it in the service, it takes about 30 minutes one to one. It's not essential though. So far many directors have taken up this option and found it of interest.

It is of most value to you and the team if you are accurate. There are measures in the analysis to identify attempts to create artificially "good" personal scores. Of course as you now know actually there are no "good" scores since we are looking for diversity within the team. There is no good or bad, the results are a group profile.

Thank-you in advance, I think you will find the consolidated report interesting and if the input truly reflects your beliefs then it should be very helpful for the board's development plan. It should improve your teamwork and help if ever looking towards team expansion.

You will get an e-mail from **Genesys** very shortly. Open it when you have the 30 minutes and follow the instructions. There are **two** surveys, the second follows automatically from the second. Enjoy, I am told it's quite fun to do. I am sending the Genesys e-mail immediately after this one. Let me know if it is not there within 15 minutes after reading this and I will send again.

I will analyze the data when they are all in and have agreed to come and present the group results to you all on *date*. You may withdraw your data at anytime until the identification is destroyed, normally three months after the survey, by e-mailing this address.

Thankyou.

Best Regards, Alan Walker.

## Appendix 6.3 Board Process and Outcomes Questionnaire Items

75 Questions randomly presented to participant directors on-line.

### Scoring

Each scored on a 5 box Likert Scale

Strongly Disagree	Partially Disagree	Neither Agree or Disagree	Partially Agree	Strongly Agree
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### BOARD PROCESSES

#### Competiveness (5)

Item 1.

Before the board meeting I worry about not performing well personally (*Martens, 1977*)

Item 2

I do not worry about making personal mistakes at the board meeting (reverse coded) (*Martens, 1977*)

Item 3

I am confident I can meet my own personal challenge at the board meeting (*Martens et al, 1990*)

Item 4

I am concerned that others will be disappointed with my performance at the board meeting (*Martens et al, 1990*)

Item 5

I am not concerned about losing in a board decision (reverse coded) (*Martens et al, 1990*)

#### Use of Knowledge and Skills (5)

Item 1.

People on this board are aware of each other's areas of expertise (*Forbes and Milliken, 1999*)

Item 2

When an issue is discussed, the most knowledgeable people generally have the most influence (*Forbes and Milliken, 1999*)

Item 3

Task delegation on this board represents a good match between knowledge and responsibilities (*Forbes and Milliken, 1999*)

Item 4

Important information often gets withheld on this board (reverse coded) (*McGrath, 1995; Forbes and Milliken, 1999*)

Item 5

Information flows quickly among board members (*Forbes and Milliken, 1999*)

### **Effort Norms (5)**

Item 1

Directors on this board have usually researched the key issues before the board meeting (*Forbes and Milliken, 1999*)

Item 2

Nearly all directors actively participate in board discussions (*no reference*)

Item 3

Directors on this board take notes during meetings (*no reference*)

Item 4

Directors carefully scrutinize the information provided by the company before the board meeting (*Minichilli et al, 2009*)

Item 5

Directors on this board are diligent about attending most meetings (*no reference*)

## **Trust (10)**

Item 1.

If you make a mistake on this board it is often held against you (reverse coded) (*Edmonson, 1999*)

Item 2

People on this board are able to bring up problems and tough issues (*Edmonson, 1999*)

Item 3

It is safe to take a risk on this board (*Edmonson, 1999*)

Item 4

No one on this board would deliberately act in a way that undermines my efforts (*Edmonson, 1999*)

Item 5

It is difficult to ask other directors for help (reverse coded) (*Edmonson and Wolley, 2003*)

Item 6

I can depend on this board to handle an important issue on my behalf (*Gillespie in press*)

Item 7

I can depend on this board to back me up in difficult situations (*Gillespie in press*)

Item 8

I can rely on this board's collective work-related judgements (*Gillespie in press*)

Item 9

I am not willing to discuss work related problems or difficulties with this board that could potentially be used to my disadvantage (reverse coded) (*Gillespie in press*)

Item 10

I am willing to share my personal feelings with this board (*Gillespie in press*)

## **Cognitive Conflict (10)**

Item 1

There is often disagreement amongst members of this board on their opinions about an issue (*Jehn, 1995; Pearson et al, 2002*)

Item 2

There is often disagreement over different ideas at the board meeting (*Jehn, 1995; Pearson et al, 2002*)

Item 3

It is often true that differences about the contents of decisions have to be worked through in detail (*Jehn, 1995; Pearson et al, 2002*)

Item 4

It is common for the directors of this board to have differences of opinion (*Jehn, 1995; Pearson et al, 2002*)

Item 5

Directors will often hold back their opinions in the interest of consensus (reverse coded) (*Whetsthal and Kanna, 2003*)

Item 6

Directors will usually consider the viewpoint of the other directors (*Wan and Ong, 2005*)

Item 7

The discussions on board decisions are open and candid (*Wan and Ong, 2005*)

Item 8

The board atmosphere encourages critical thinking (*Wan and Ong, 2005*)

Item 9

Differences of opinion on the board are usually related to the tasks in hand (*mooney et al, 2007*)

Item 10

Usually different ideas and opinions are expressed on a particular project discussed by this board (*Mooney et al, 2007*)

### **Relationship Conflict (10)**

Item 1

Emotional Conflict is often evident on this board (*Jehn, 1995; Pearson et al, 2002*)



Item 2

Anger occurs amongst some members of the board at most meetings (*Jehn, 1995; Pearson et al, 2002; Mooney et al, 2007*)

Item 3

There is rarely any personal friction between directors at the board meeting (reverse coded) (*Jehn, 1995; Pearson et al, 2002*)

Item 4

Personality clashes between directors are not evident at board meetings (reverse coded) (*Wan and Ong, 2005; Mooney et al, 2007*)

Item 5

There is usually tension at the board meetings (*Wan and Ong, 2005; Mooney et al, 2007*)

Item 6

The board directors are not ready to cooperate (*Wan and Ong, 2005*)

Item 7

Usually at least one director is unhappy with the board decision (*Wan and Ong, 2005*)

Item 8

There is often personal rivalry between the directors (*Mooney et al, 2007*)

Item 9

Directors get along very well (reverse coded) (*Wan and Ong, 2005*)

Item 10

Directors see win / lose situations on the board (*Wan and Ong, 2005*)

### **Cohesiveness (5)**

Item 1

This board is ready to defend each other from criticism from outsiders (*O'Reilly and Caldwell, 1989 after Seashore, 1954*)

Item 2

This board helps each other on completing the board tasks (*O'Reilly and Caldwell, 1989 after Seashore, 1954*)

Item 3

This board gets along well with each other (*O'Reilly and Caldwell, 1989 after Seashore, 1954*)

Item 4

This board "sticks together" (*O'Reilly and Caldwell, 1989 after Seashore, 1954*)

Item 5

This board presents a unified face to the outsider (*Stiles and Taylor, 2002*)

## **OUTPUTS**

### **Strategy (5)**

Item 1

This board stimulates strategic planning from the company's management (*Stiles and Taylor, 2002*)

Item 2

This board does not actively contribute to strategy formulation (reverse coded) (*Minichilli et al, 2009*)

Item 3

This board has a clear business strategy (*Wan and Ong, 2005*)

Item 4

Strategy is reviewed by this board with a timely response to external change (*Stiles and Taylor, 2002; Wan and Ong, 2005*)

Item 5

This board is not actively involved in promoting strategic initiatives (reverse coded) ( *Minichilli, 2009*)

### **Control (10)**

Item 1

This board has good control over the financial performance of the company (*Stiles and Taylor, 2002*)

Item 2

This board is not well informed about the cash position of the company (reverse coded) (*no reference*)

Item 3

This board is easily able to monitor senior management performance (*Kakabadse and Kakabadse, 2008; Minichilli, 2009*)

Item 4

This board takes appropriate action quickly if executive action fails to meet plan (*tiles and Taylor, 2002*)

Item 5

This board is not well informed about management succession (reverse coded) (*Kakabadse and Kakabadse, 2008*)

Item 6

This board approves critical press statements (*Kakabadse and Kakabadse, 2008*)

Item 7

This board monitors and reviews risk by setting review protocols (*Kakabadse and Kakabadse, 2008*)

Item 8

This board does not regularly analyze performance v.s. budget allocation (reverse coded) (*Wan and Ong, 2005*)

Item 9

This board is actively involved in supervising the CEO (*Minichilli, 2009*)

Item 10

The individual performance of each of the board directors is evaluated annually (*Wan and Ong, 2005*)

**Service (10)**

Item 1

Directors on this board add considerable technical expertise which is used by the company (*Wan and Ong, 2005; Minichilli, 2009*)

Item 2

The directors of this board bring networking skills to the company which add value to the management's marketing operations (*Minichilli, 2009*)

Item 3

The directors of this board do not have the necessary experience to add value to the management's technical knowledge (reverse coded) (*Stiles and Taylor, 2002; Minichilli, 2009*)

Item 4

Each of the directors of this board bring different strengths to the board meetings (*Stiles and Taylor, 2002*)

Item 5

The directors of this board do not know senior executives in supplier companies such as banks or other services which could help facilitate business deals (reverse coded) (*Stiles and Taylor, 2002*)

Item 6

Top managers do not solicit assistance from the board (reverse coded) (*Wan and Ong, 2005*)

Item 7

The directors on this board are not chosen for their external influence in the community (reverse coded) (*Wan and Ong, 2005*)

Item 8

The directors of this board provide channels of communication between the firms (*Wan and Ong, 2005*)

Item 9

The board of directors do not serve as a link to government agencies (reverse coded) (*Wan and Ong, 2005*)

Item 10

The board provides the firm with external legitimacy and reputation (*Minichilli, 2009*)

## Appendix 6.4

## Profiles of Participating companies

Co. no.	Industry	Annual T/o	T/o growth	Industry growth	No. employees
1	Heating engineering	£1-5m	static	static	11-100
2	Garden centres	£5-10m	5-7.5%	1-5%	101-500
3	Marketing consultants	£5-10m	decline	static	11-100
4	Banking	£50m plus	5-7.5%	Decline	500-5000
5	Biotechnology	£1-5m	static	5-7.5%	≤10
6	Advertising	£1-5m	≥ 10%	decline	≤10
7	Pharmaceutical	£50m plus	≥ 10%	5-7.5%	500-5000
8	Entomology control	£1-5m	static	5-7.5%	≤10
9	Call centre	Less than £1m	≥ 10%	decline	11-100
10	Pharmaceutical	£1-5m	≥ 10%	1-5%	11-100
11	Biotechnology	Less than £1m	static	≥ 10%	≤10
12	Venture capital	£10-50m	1-5%	decline	≤10
13	Computer consultants	£1m-5m	≥ 10%	≥ 10%	11-100
14	House builders	£10-50m	decline	decline	11-100
15	Contract laboratory	£1-5m	7.5-10%	1-5%	11-100
16	Vegetable growers	£10-50m	1-5%	decline	101-500
17	Medical diagnostics	£50m plus	≥ 10%	1-5%	500-5000
18	Laser applications	Less than £1m	≥ 10%	5-7.5%	≤10
19	Telephone technology	Less than £1m	≥ 10%	≥ 10%	≤10
20	Retail fashion	£50m plus	≥ 10%	1-5%	500-5000
21	Research laboratory	£50m plus	static	1-5%	101-500
22	Statistics consultants	Less than £1m	1-5%	static	≤10
23	Biotechnology	Less than £1m	static	5-7.5%	≤10
24	Engineering	£1-5m	≥ 10%	static	11-100
25	IT consultants	£10-50m	≥ 10%	decline	101-500
26	Rope makers	£10-50m	7.5-10%	decline	101-500
27	Steel products	£50m plus	≥ 10%	decline	101-500
28	Electronics	£10-50m	≥ 10%	1-5%	101-500
29	Computer engineers	£10-50m	≥ 10%	1-5%	101-500
30	IT consultants	£10-50m	≥ 10%	≥ 10%	101-500

## Appendix 6.5 Exploratory Factor Analyses of the Constructs

### Factor Analysis Effort Norms

**KMO and Bartlett's Test**

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	.741
Bartlett's Test of Sphericity	Approx. Chi-Square
	158.237
	Df
	10
	Sig.
	.000

The KMO test shows how effectively the variables can be grouped into a smaller number of factors. Max value 1.0, the larger the better (Acton and Miller, 2009). Bartlett's test of sphericity tests whether the correlation matrix is significant. The more significant, the greater the likelihood of a successful factor analysis (Acton and Miller, 2009). Both measures are satisfactory in this table and indicate a factor analysis is likely to be successful.

**Component Matrix**

**Eigenvalues**

	Component
	1
Effort Norms 1	.793
Effort Norms 2	.440
Effort Norms 3	.582
Effort Norms 4	.799
Effort Norms 5	.662

Extraction Method: Principle Component Analysis. 1 component extracted. The solution cannot be rotated. Items 1, 3, 4 and 5 first selected.



**Rotated Component Matrix Eigenvalues**

	Component	
	1	2
Cognitive Conflict 1	-.352	.712
Cognitive Conflict 2	-.235	.741
Cognitive Conflict 3	.180	.510
Cognitive Conflict 4	-.077	.786
Cognitive Conflict 5	.213	-.107
Cognitive Conflict 6	.736	-.028
Cognitive Conflict 7	.803	-.027
Cognitive Conflict 8	.777	-.054
Cognitive Conflict 9	.438	.240
Cognitive Conflict 10	.377	.572

Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.  
Rotation converged in 2 iterations. Items 1,2,3,4 and 10 first selected.

<b>Cronbach's Alpha</b>	<b>Number of Items</b>
0.527	10



Item	Cronbach's Alpha if item deleted
Cognitive Conflict 1*	0.512
Cognitive Conflict 2*	0.498
Cognitive Conflict 3	0.478
Cognitive Conflict 4*	0.456
Cognitive Conflict 5	0.584
Cognitive Conflict 6	0.510
Cognitive Conflict 7	0.496
Cognitive Conflict 8	0.511
Cognitive Conflict 9	0.496
Cognitive Conflict 10*	0.457

\*Items first selected by Factor analysis have an alpha of 0.697. With item 3 deleted the alpha increases to 0.711. Item 3 was therefore excluded.

### Factor Analysis Knowledge and Skills

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.698
Bartlett's Test of Sphericity	Approx. Chi-Square	108.311
	Df	10
	Sig.	.000

Both tests indicate factor analysis should be successful (Acton and Miller, 2009).

**Rotated Component Matrix Eigenvalues**

	Component	
	1	2
Use Knowledge & Skills 1	.791	-.034
Use Knowledge & Skills 2	.662	.009
Use Knowledge & Skills 3	.695	.288
Use Knowledge & Skills 4	-.058	.913
Use Knowledge & Skills 5	.504	.537

Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.

Rotation converged in 2 iterations. Items 1, 2, 3 and 5 selected

<b>Cronbach's Alpha</b>	<b>Number of Items</b>
0.580	5

<b>Item</b>	<b>Cronbach's Alpha if item deleted</b>
<b>Use of Knowledge and Skills 1 *</b>	0.507
<b>Use of Knowledge and Skills 2 *</b>	0.534
<b>Use of Knowledge and Skills 3 *</b>	0.471
<b>Use of Knowledge and Skills 4</b>	0.634
<b>Use of Knowledge and Skills 5 *</b>	0.474

\*Items selected after Factor analysis, 1,2,3 and 5 have an alpha of 0.634

Since it proved impossible to obtain a Chronbach alpha  $\geq 0.7$  this construct was not analysed further.

## Factor Analysis Trust

### KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	.874
Bartlett's Test of Sphericity	Approx. Chi-Square
	588.184
	Df
	45
	Sig.
	.000

Both tests indicate factor analysis should be successful (Acton and Miller, 2009).

### Component Matrix

#### Eigenvalues

	Component
	1
Trust 1	.617
Trust 2	.775
Trust 3	.518
Trust 4	.616
Trust 5	.691
Trust 6	.629
Trust 7	.578
Trust 8	.647
Trust 9	.727
Trust 10	.679

Extraction Method: Principle Component Analysis. 1 component extracted. The solution cannot be rotated. All items selected.

Cronbach's Alpha	Number of Items
0.844	10

Item	Cronbach's Alpha if item deleted
Trust 1*	0.832
Trust 2*	0.818
Trust 3*	0.840
Trust 4*	0.832
Trust 5*	0.826
Trust 6*	0.832
Trust 7*	0.836
Trust 8*	0.830
Trust 9*	0.822
Trust 10*	0.826

\*Items selected for Factor analysis have an alpha of 0.844

### Factor Analysis Competiveness

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.679
Bartlett's Test of Sphericity	Approx. Chi-Square	229.169
	Df	10
	Sig.	.000

Both tests indicate factor analysis should be successful (Acton and Miller, 2009).

**Component Matrix Eigenvalues**

	Component
	1
Competitiveness 1	.832
Competitiveness 2	.682
Competitiveness 3	-.464
Competitiveness 4	.842
Competitiveness 5	.527

Extraction Method: Principle Component Analysis. 1 component extracted. The solution cannot be rotated. Items 1, 2, 4 and 5 selected.

<b>Cronbach's Alpha</b>	<b>Number of Items</b>
0.598	5

<b>Item</b>	<b>Cronbach's Alpha if item deleted</b>
<b>Competitiveness 1 *</b>	0.373
<b>Competitiveness 2 *</b>	0.483
<b>Competitiveness 3</b>	0.724
<b>Competitiveness 4 *</b>	0.432
<b>Competitiveness 5 *</b>	0.548

\*Items selected after Factor analysis, 1, 2, 4, and 5 have an alpha of 0.724

## Factor Analysis Cohesiveness

**KMO and Bartlett's Test**

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.796
Bartlett's Test of Sphericity	Approx. Chi-Square	243.612
	Df	10
	Sig.	.000

Both tests indicate factor analysis should be successful (Acton and Miller, 2009).

**Component Matrix Eigenvalues**

	Component
	1
Cohesiveness 1	.646
Cohesiveness 2	.675
Cohesiveness 3	.741
Cohesiveness 4	.804
Cohesiveness 5	.756

Extraction Method: Principle Component Analysis. 1 component extracted. The solution cannot be rotated. All items selected.

Cronbach's Alpha	Number of Items
0.771	5

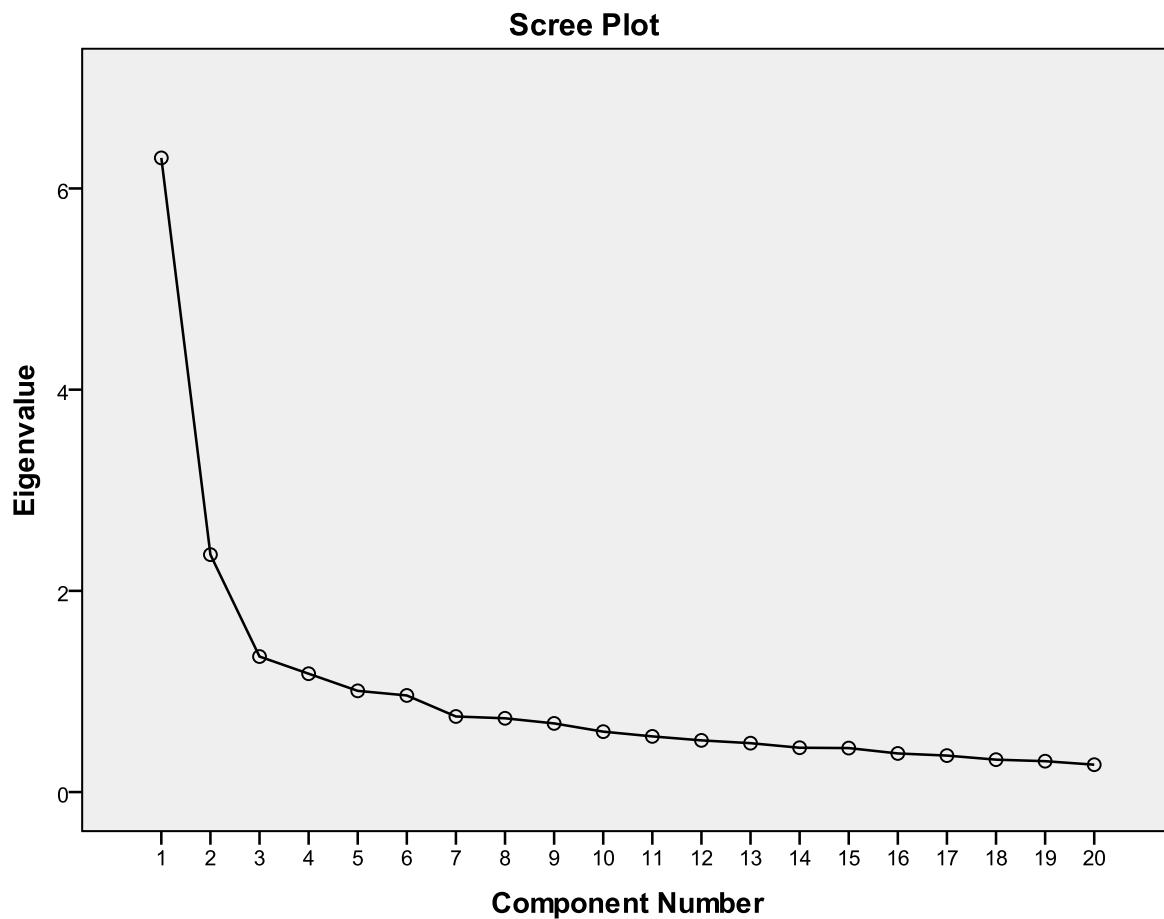
Item	Cronbach's Alpha if item deleted
Cohesiveness 1*	0.753
Cohesiveness 2*	0.746
Cohesiveness 3*	0.726
Cohesiveness 4*	0.698
Cohesiveness 5*	0.719

\*Items selected by Factor analysis have an alpha of 0.771

#### Factor Analysis Affective Conflict

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.901
Bartlett's Test of Sphericity	Approx. Chi-Square	770.462
	Df	45
	Sig.	.000

Both tests indicate factor analysis should be successful (Acton and Miller, 2009).



Two principal components indicated

**Rotated Component Matrix Eigenvalues**

	Component	
	1	2
Affective Conflict 1	.775	.085
Affective Conflict 2	.692	.178
Affective Conflict 3	.827	.040
Affective Conflict 4	.776	-.046
Affective Conflict 5	.794	.071
Affective Conflict 6	.513	.383
Affective Conflict 7	.561	.445
Affective Conflict 8	.653	.284
Affective Conflict 9	.652	.263
Affective Conflict 10	-.040	.902



Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.

Rotation converged in 2 iterations. Items 1, 2, 3, 4, 5, 6, 7, 8 and 9 selected.

<b>Cronbach's Alpha</b>	<b>Number of Items</b>
0.861	10

<b>Item</b>	<b>Cronbach's Alpha if item deleted</b>
<b>Affective Conflict 1*</b>	0.839
<b>Affective Conflict 2*</b>	0.842
<b>Affective Conflict 3*</b>	0.836
<b>Affective Conflict 4*</b>	0.843
<b>Affective Conflict 5*</b>	0.839
<b>Affective Conflict 6*</b>	0.854
<b>Affective Conflict 7*</b>	0.847
<b>Affective Conflict 8*</b>	0.846
<b>Affective Conflict 9 *</b>	0.849
<b>Affective Conflict 10</b>	0.880

\*Items selected by Factor analysis have an alpha of 0.880

## Factor Analysis Cognitive and Affective Conflict

There have been some comments (Williams and O'Reilly, 1998) as to whether these conflicts are discrete constructs, so the data were tested to investigate whether they extract as separate factors.

**KMO and Bartlett's Test**

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.893
Bartlett's Test of Sphericity	Approx. Chi-Square	1037.962
	Df	78
	Sig.	.000

Both tests indicate factor analysis should be successful (Acton and Miller, 2009).

**Component Matrix Eigenvalues**

	Component	
	1	2
Cognitive Conflict 1	.672	.389
Cognitive Conflict 2	.557	.502
Cognitive Conflict 4	.453	.613
Cognitive Conflict 10	.085	.728
Affective Conflict 1	.741	-.216
Affective Conflict 2	.701	.004
Affective Conflict 3	.792	-.097
Affective Conflict 4	.731	.011
Affective Conflict 5	.772	-.094
Affective Conflict 6	.562	-.381
Affective Conflict 7	.689	.079
Affective Conflict 8	.675	-.273
Affective Conflict 9	.642	-.372

Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.

**Conclusion** Component 1 gives the maximum nine affective conflict items with two loadings of cognitive conflict items. Component 2 shows no loadings for affective conflict, but loads for items 2, 4 and 10 cognitive conflict. Whilst there is some overlap of cognitive conflict, the conflict constructs clearly separate.

## Board Task Outputs

There may be dual loading of service and strategy items. An exploratory factor analysis was calculated to explore this possibility.

### KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	.893
Bartlett's Test of Sphericity    Approx. Chi-Square	1037.962
Df	78
Sig.	.000

Both tests indicate factor analysis should be successful (Acton and Miller, 2009).

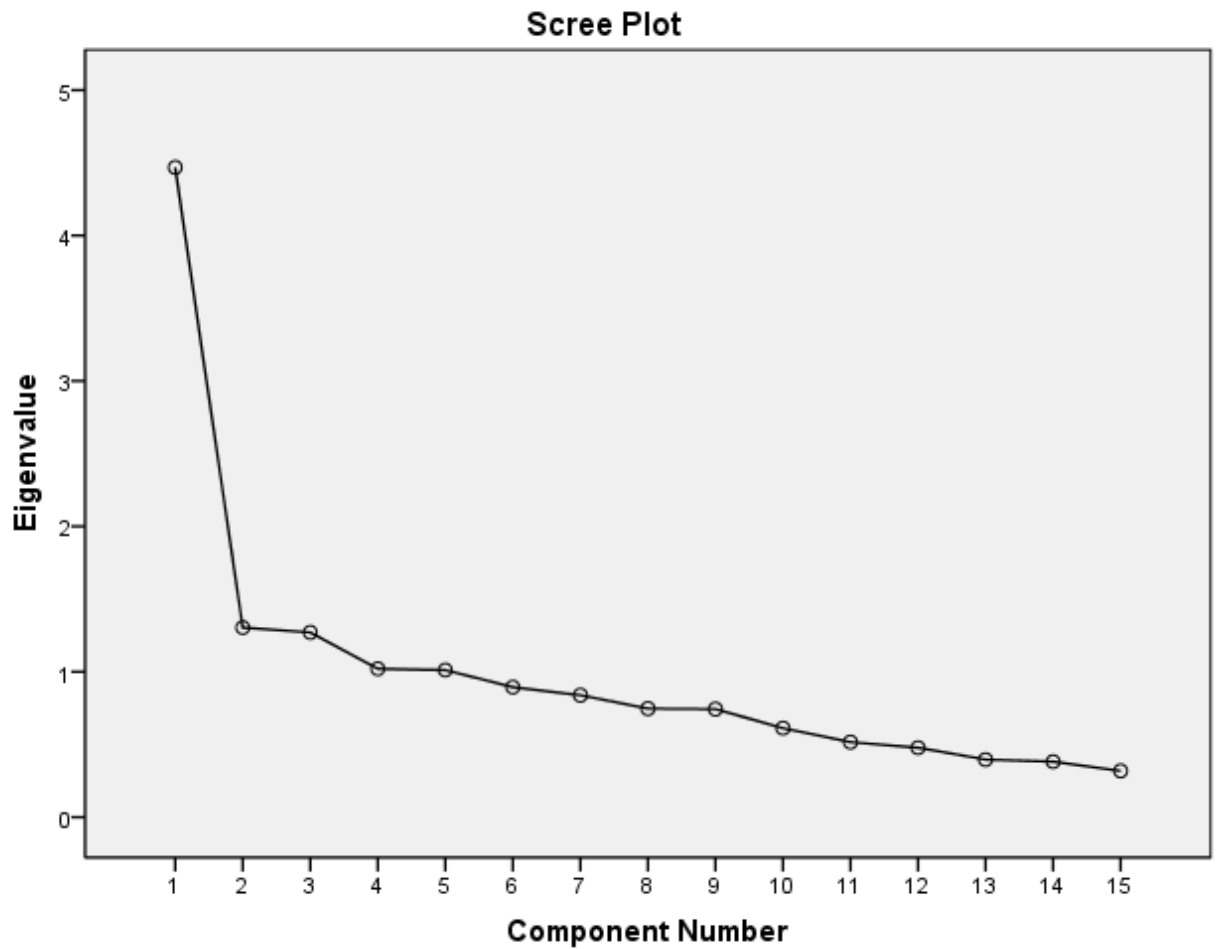
### Rotated Component Matrix Eigenvalues

	Component				
	1	2	3	4	5
Strategy 1	.647	.194	.268	.119	-.293
Strategy 2	.742	.344	.060	.109	-.043
Strategy 3	.586	.098	.181	.006	.118
Strategy 4	.729	.045	.181	-.004	.184
Strategy 5	.778	.122	-.014	.110	-.049
Service 1	.211	.790	.158	-.146	-.009
Service 2	.274	.404	.457	.375	-.074
Service 3	.134	.782	.061	.083	.288
Service 4	.180	.415	.638	-.022	-.069
Service 5	.075	.162	.048	.128	.850
Service 6	.295	.064	.398	-.327	.315
Service 7	-.064	-.130	.279	.709	.049
Service 8	.560	.021	.242	-.144	.218
Service 9	.154	.074	-.143	.680	.073
Service 10	.220	.015	.787	.091	.105

Extraction Method: Principal Component Analysis. Rotation Method:

Varimax with Kaiser Normalization.

Rotation converged in 5 iterations.



One principal factor extracted.

Clearly the strategy items 1-5 are loading on component 1. The service items are loading across five components and in only one component do two items occur. It was therefore decided (plus see service factor extractions and reliability alpha below) not to proceed with service as an output construct.

## Factor Analysis Strategy

### KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	.821
Bartlett's Test of Sphericity	Approx. Chi-Square
	277.242
	Df
	10
	Sig.
	.000

Both tests indicate factor analysis should be successful (Acton and Miller, 2009).

### Component Matrix

#### Eigenvalues

	Component
	1
Strategy 1	.725
Strategy 2	.815
Strategy 3	.648
Strategy 4	.756
Strategy 5	.775

Extraction Method: Principle Component Analysis. 1 component extracted. The solution cannot be rotated. All items selected.

Cronbach's Alpha	Number of Items
0.798	5

Item	Cronbach's Alpha if item deleted
Strategy 1*	0.767
Strategy 2*	0.729
Strategy 3*	0.790
Strategy 4*	0.757
Strategy 5*	0.749

\*Items selected by Factor analysis have an alpha of 0.798

#### Factor Analysis Control

##### KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	.784
Bartlett's Test of Sphericity    Approx. Chi-Square	360.301
Df	45
Sig.	.000

Both tests indicate factor analysis should be successful (Acton and Miller, 2009).

**Component Matrix Eigenvalues**

	Component		
	1	2	3
Control 1	.704	-.194	.046
Control 2	.277	-.265	.750
Control 3	.764	.027	.126
Control 4	.642	-.278	.192
Control 5	.305	.522	.070
Control 6	.503	.405	.165
Control 7	.716	.091	-.280
Control 8	.509	-.164	-.558
Control 9	.387	.677	.015
Control 10	.514	-.466	-.167

Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.

Rotation converged in 3 iterations. Items 1, 3, 4, 6, 7, 8 and 10 selected.

<b>Cronbach's Alpha</b>	<b>Number of Items</b>
0.712	10





**Rotated Component Matrix Eigenvalues**

	Component		
	1	2	3
Service 1	.326	.699	-.154
Service 2	.503	.349	.419
Service 3	.123	.845	.057
Service 4	.634	.293	.092
Service 5	.056	.496	.119
Service 6	.613	.112	-.245
Service 7	.063	-.088	.755
Service 8	.603	.121	-.097
Service 9	-.084	.160	.643
Service 10	.727	.000	.264

Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.

Rotation converged in 3 iterations. Items 2,4,6,8 and 10 selected.

<b>Cronbach's Alpha</b>	<b>Number of Items</b>
0.639	10

Item	Cronbach's Alpha if item deleted
Service 1	0.602
Service 2*	0.567
Service 3	0.590
Service 4*	0.598
Service 5	0.629
Service 6*	0.622
Service 7	0.659
Service 8*	0.611
Service 9	0.664
Service 10*	0.596

\*Items selected by Factor analysis have an alpha of 0.641

Since it proved impossible to obtain a Cronbach alpha  $\geq 0.7$  this construct was not analysed further

## Appendix 7.1

Use of Knowledge and Skills construct was rejected, the following multiple regression calculations were therefore deleted from results.

### Testing Hypothesis 3 (PTD has a negative relationship with use of knowledge and skills)

Hypothesis 3	Board Mean Use of Knowledge and Skills	
(standardized beta coefficients)	Model 1	Model 2
<b>Board and firm characteristics</b>		
Company size (turnover band)	.036	.091
Company growth	-.112+	-.172
Board size (ln)	-.511***	-.526***
% non-executive directors	-.246+	-.317**
Duality	-.154	-.164+
<b>Personality trait diversity</b>		
Diversity Factor A (Empathy)		-.298***
Diversity Factor $\beta$ (Intellectance)		-.080
Diversity Factor C (Emotional stability)		1.119
Diversity Factor E (Dominance)		.098
Diversity Factor F (Sober-enthusiasm)		.190**
Diversity Factor G (Conscientious)		.020
Diversity Factor H (Retiring-bold)		-.123+
Diversity Factor I (Hard-headedness)		-.016
Diversity Factor L (Trusting)		-.118+
Diversity Factor M (Concrete-abstract)		.068
Diversity Factor N (Direct-restrained)		.128+
Diversity Factor O (Confidence)		-.015
Diversity Factor Q1 (Conventional-radical)		.035
Diversity Factor Q2 (Group-orientation)		-.007
Diversity Factor Q3 (Informal)		.027
Diversity Factor Q4 (Composed)		-.068
Adjusted R <sup>2</sup>	.261	.359
F (sign) full model	14.919***	6.256***
F change	14.919***	2.836***

Note: This table shows the multiple regression scores of controls and PTD against the board process of knowledge and skills. The columns show the standardised coefficients ( $\beta$ ), the adjusted R<sup>2</sup> and the value of the F change.

\*/\*\*/\*\* indicates significance at the 5%/1%/0.1% level.

## Appendix 7.2

Use of Service construct was rejected, the following multiple regression calculations were therefore deleted from results.

### Testing Hypothesis 10 (PTD has a negative relationship to service)

<b>Hypothesis 10</b>	<b>Board Mean</b>	<b>Service</b>
(standardized beta coefficients)	Model 1	Model 2
<b>Board and firm characteristics</b>		
Company size (turnover band)	-.209*	-.215*
Company growth	-.081	-.226**
Board size (ln)	-.184*	-.188*
% non-executive directors	.092	-.006
Duality	.226*	.238*
<b>Personality trait diversity</b>		
Diversity Factor A (Empathy)		-.216**
Diversity Factor $\beta$ (Intellectance)		-.059
Diversity Factor C (Emotional stability)		-.171*
Diversity Factor E (Dominance)		.158*
Diversity Factor F (Sober-enthusiasm)		.119
Diversity Factor G (Conscientious)		-.079
Diversity Factor H (Retiring-bold)		-.042
Diversity Factor I (Hard-headedness)		.052
Diversity Factor L (Trusting)		-.107
Diversity Factor M (Concrete-abstract)		-.024
Diversity Factor N (Direct-restrained)		.173*
Diversity Factor O (Confidence)		-.130
Diversity Factor Q1 (Conventional-radical)		-.010
Diversity Factor Q2 (Group-orientation)		.024
Diversity Factor Q3 (Informal)		-.162*
Diversity Factor Q4 (Composed)		-.089
Adjusted R <sup>2</sup>	.093	.202
F (sign) full model	5.051***	3.374***
F change	5.051***	2.634***

Note: This table shows the multiple regression scores of controls and PTD against the board output task of service. The columns show the standardised coefficients ( $\beta$ ), the adjusted R<sup>2</sup> and the value of the F change. \*/\*\*/\*\*\*/ indicates significance at the 5%/1%/0.1% level.