



Title	Accountability Processes in Boardrooms: A Conceptual Model of Manager-Non-Executive Director Information Asymmetry
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Publication date	2016-01
Publication information	Brennan, Niamh, Collette E. Kirwan, and John Redmond. "Accountability Processes in Boardrooms: A Conceptual Model of Manager-Non-Executive Director Information Asymmetry." Emerald, January 2016. https://doi.org/10.1108/AAAJ-10-2013-1505 .
Publisher	Emerald
Item record/more information	http://hdl.handle.net/10197/7652
Publisher's statement	This article is (c) Emerald Group Publishing and permission has been granted for this version to appear here (please insert the web address here). Emerald does not grant permission for this article to be further copied/distributed or hosted elsewhere without the express permission from Emerald Group Publishing Limited.
Publisher's version (DOI)	10.1108/AAAJ-10-2013-1505

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Accountability Processes in Boardrooms: A Conceptual Model of Manager-Non-Executive Director Information Asymmetry

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(Published in *Accounting, Auditing & Accountability Journal*, 2016, 29(1): 135-164
<http://dx.doi.org/10.1108/AAAJ-10-2013-1505>)

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Acknowledgments: We gratefully acknowledge helpful comments on earlier drafts of the paper from Shahzad Uddin, Theresa Libby and from participants at the following conferences/seminars: Asia Pacific Interdisciplinary Perspectives on Accounting (APIRA) Conference; Griffith University, Australia, Bond University, Australia, Durham University, UK and the University of Waterloo, Canada.

**Accountability Processes in Boardrooms:
A Conceptual Model of Manager-Non-Executive Director Information Asymmetry**

Abstract

Purpose – Understanding the influence of information and knowledge exchange and sharing between managers and non-executive directors is important in assessing the dynamic processes of accountability in boardrooms. By analysing information/knowledge at multiple levels, invoking the literature on implicit/tacit and explicit information/knowledge, we show that information asymmetry is a necessary condition for effective boards. We introduce a conceptual model of manager-non-executive director information asymmetry as an outcome of our interpretation of information/knowledge sharing processes amongst board members. Our model provides a more nuanced agenda of the management-board information asymmetry problem to enable a better understanding of the role of different types of information in practice.

Design/methodology/approach – Our analysis of information/knowledge exchange, sharing and creation and the resultant conceptual model are based on the following elements: (i) manager-non-executive director information/knowledge, (ii) management-board information/knowledge and (iii) board dynamics and reciprocal processes converting implicit/tacit into explicit information/knowledge.

Findings – Our paper provides new insights into the dynamics of information/knowledge exchange, sharing and creation between managers and non-executive directors (individual level)/between management and boards (group level). We characterise this as a two-way process, back-and-forth between managers/executive directors and non-executive directors. The importance of relative/experienced “ignorance” of non-executive directors is revealed, which we term the “information asymmetry paradox”.

Research implications – We set out key opportunities for developing a research agenda from our model based on prior research of knowledge conversion processes and how these may be applied in a boardroom setting.

Practical implications – Our model may assist directors in better understanding their roles and the division of labour between managers and non-executive directors from an information/knowledge perspective.

Originality/value – We apply Ikujiro Nonaka’s knowledge conversion framework to consider the transitioning from individual implicit personal to explicit shared information/knowledge, to understand the subtle processes at play in boardrooms influencing information/knowledge exchange, sharing and creation between managers and non-executive directors.

Keywords: Corporate governance, Board accountability, Board processes, Information asymmetry, Boards of directors, Non-executive directors

“I know nothing – nobody tells me anything”

(James Forsyte in *The Forsyte Saga* by John Galsworthy, 1906)

1. Introduction

There have been calls for broader research on accountability in corporate governance including consideration of a wider range of accountability mechanisms (Brennan and Solomon, 2008). Roberts *et al.* (2005) distinguish between remote accountability to investors and face-to-face accountability within boards between executive and non-executive directors. They observe that to be accountable for one’s activities is to explain and justify the reasons for them. Roberts *et al.* (2005) observe that open dialogue between executive and non-executive directors can promote reciprocal understanding and creative thought. Forbes and Milliken (1999) state that board effectiveness, and ultimately firm financial performance, depends on the exchange and critical evaluation of information. However, they also observe that to perform their control and advisory tasks effectively, “board members must elicit and respect each others’ expertise, build upon each others’ contributions, and seek to combine their insights in creative, synergistic ways” (Forbes and Milliken, 1999, p. 496). This dialogue, in the form of reciprocal information/knowledge exchange, sharing and creation, is the starting point for our paper.¹

The objective of the paper is to examine information/knowledge exchange, sharing and creation between managers and non-executive directors. Our approach takes a more nuanced perspective than agency theory’s conceptualisation of information asymmetry. By analysing the different information/knowledge sets of managers and non-executive directors, we suggest that information asymmetry in boardrooms is a necessary condition for effective boards. We present a model of manager-non-executive director information asymmetry.

The paper contributes to the broad literature on board processes and, in particular, Forbes and Milliken’s (1999) seminal paper in which they propose that three board processes – effort norms, cognitive conflicts and the use of knowledge and skills – positively influence board task performance. Their propositions are supported by an increasing number of empirical studies (e.g., Bettinelli, 2011; Zattoni *et al.*, 2015). The two board processes, cognitive conflicts and the board’s use of knowledge and skills, are particularly relevant to the exchange, sharing and creation of information/knowledge. Cognitive conflict requires managers to “explain, justify, and possibly modify their positions on important strategic

issues and to entertain alternative perspectives and courses of action” (Forbes and Milliken, 1999, p. 494). The use of knowledge and skills refers to “the board’s ability to tap the knowledge and skills available to it and then apply them to its tasks” (Forbes and Milliken, 1999, p. 495). Thus, both cognitive conflict and the use of knowledge and skills require the exchange and sharing of information/knowledge between managers and non-executive directors. However, although Forbes and Milliken (1999) and others (e.g., Rutherford, 2002; Rutherford *et al.*, 2007; Zhang, 2010) recognise the importance of information/knowledge exchange amongst board members, less attention is given to understanding the processes involved in this exchange and sharing and consequent knowledge creation. Our aim is to open-up this critical aspect of the boardroom “black box”.

Agency theory, which dominates prior research on manager-non-executive director information/knowledge, recognises that managers have more company-specific information/knowledge than non-executive directors (Thomas *et al.*, 2009). Moreover, non-executive directors rely on managers to provide the information/knowledge they need to monitor managers (Porac *et al.*, 1999; Adams *et al.*, 2005; Armstrong *et al.*, 2010). For example, Aguilera (2005, p. S50) suggests that “to obtain adequate information critical for accountability duties, non-executive directors are dependent on executives – those that in turn they are supposed to supervise and be independent from.” Thus, the conventional wisdom assumes that information asymmetry, i.e., “the difference between the information available to management and what is presented to the board” (Thomas *et al.*, 2009, p. 69-70), combined with non-executive directors’ dependency on managers for information/knowledge, limits non-executive directors’ ability to exercise their role effectively. This leads to conceptualisations of non-executive directors as scrutineers of managers (Fama, 1980, p. 294) and of managers as engaging in deception (Eisenhardt, 1989, p. 71).

Conversely, Hermalin and Weisbach (2003, p. 11) ask “why are boards an effective way of supplying information to management?”. They also call for models of the inner workings of boards (2003, p. 20). Nooteboom (1999, p. 852) also argues that there is a different perspective on the role of non-executive directors, characterising them as “hubs of information exchange”.

This paper argues that prior literature takes too narrow a perspective of information asymmetry. We propose that it is by virtue of information asymmetry that non-executive directors can contribute to board meetings and exercise their monitoring and advisory functions. As such, information asymmetry creates the context in which non-executive directors are expected to question and challenge managers. Put another way, if there was no information asymmetry, and non-executive directors had the full information of managers, their contributions to the board would be limited. There would be no important question to ask at board meetings they could not answer themselves. Thus, instead of a barrier to effective board task performance, we propose that information asymmetry is a necessary condition for effective boardroom accountability. We call this the “information asymmetry paradox”.

To examine this alternative perspective on information asymmetry and, more generally, information/knowledge-sharing processes between managers and non-executive directors, we discuss the different information/knowledge sets of managers and of non-executive directors (see Section 4.1). When presenting the information asymmetry problem, agency theory characterises information as an explicit, depersonalised commodity that can be obtained independently of managers. However, scholars have identified that information/knowledge can have explicit (i.e., clearly stated) and implicit/tacit (i.e., implied, understood without being directly expressed) qualities (Dawson *et al.*, 2010). Thus, we contend that the conceptualisation of information under agency theory, particularly its commoditisation, fails to recognise the different types of information/knowledge and the differences between managers’ and non-executive directors’ information/knowledge sets. Consequently, the nuances of information/knowledge exchange, sharing and creation in boardrooms are somewhat overlooked. To explore this further, insights from the work of Nonaka and colleagues on explicit and tacit knowledge sharing are applied to information/knowledge-sharing processes in the boardroom (see Section 4.2). From this analysis, an alternative perspective on information asymmetry is considered and our conceptual model of manager-non-executive director information asymmetry is presented. Having presented the conceptual model, we discuss how this model may be applied in future research and we identify conditions that may influence manager-non-executive directors’ information/knowledge-sharing processes. We also discuss the practical implications of the model and highlight the importance of understanding the distinction between managers’ and non-executive directors’ different information sets when deciding on board composition and processes.

The paper proceeds as follows. Theories that explain the specific nature of information asymmetry are considered in Section 2. Prior conceptual and empirical research is discussed in Section 3. The characteristics of management and board information/knowledge are reviewed in Section 4 to better understand the dynamics of the information asymmetry which can arise between board and management. The characteristics of manager-non-executive director information/knowledge are then examined against a wider consideration of implicit/tacit and explicit information/knowledge. The transition from implicit to explicit in the manager-non-executive director information/knowledge exchange, sharing and creation process is mapped using Nonaka's knowledge conversion framework. Board processes influencing the transition are also considered. Section 5 draws the arguments together to suggest a new way of looking at manager-non-executive director information asymmetry based on the implicit-explicit distinction, culminating in a conceptual model.

2. Theory

Board information can be explained: (i) through agency theory and (ii) from a resource-dependence perspective. Agency theory and resource dependence theory are not mutually exclusive. Hillman and Dalziel (2003) consider agency theory and resource dependence theory to be complementary. They advocate combining the two perspectives which they contend leads to a more fully specified and richer model of board effectiveness. The context in which boards operate influences the perspective taken – from the large and dispersed shareholdings of listed companies, where an agency theory perspective might be more relevant (Jensen and Meckling, 1976); to the largely non-executive boards of state or not-for-profit bodies; to family firm boards where, taking a resource dependence theory perspective, non-executive directors may be recruited for the general business expertise and information/knowledge resources they bring to the board (Bammens *et al.*, 2011). We commence our theoretical discussion by reviewing perspectives on the role of boards and directors.

2.1 Role of boards and importance of board information

Board of directors have been ascribed various roles, often summarised as control, strategy and service roles (Zahra and Pearce, 1989; Hillman and Dalziel, 2003; Roberts *et al.*, 2005; Brennan, 2006). The control role is informed by agency theory. The strategy and service roles are predominantly informed by resource dependence theory (Hillman and Dalziel, 2003).

These roles have implications for the use of board information. Prior research has considered the role of information in controlling and monitoring management, the role of board-level information in strategy formulation and, finally, how non-executive directors can bring information into boardrooms in fulfilment of their service roles.

2.2 Agency theory

Consequent on Berle and Means' (1932) observations on the separation of ownership and control of corporations (particularly where there are dispersed shareholders), managers can gain control because of their superior knowledge (Nicholson and Kiel, 2007). Shareholders are removed from the decision-making process. This remoteness gives rise to information asymmetry which prevents shareholders from fully verifying the actions of managers (Eisenhardt, 1989). The agency theory solution to shareholder-management information asymmetry looks to boards to oversee the verification process on behalf of shareholders:

“The board is viewed as a market-induced institution whose most important role is to scrutinize the highest decision makers within the firm [and] to provide a relatively low-cost mechanism for replacing or reordering top managers” (Fama, 1980, p. 294).

However, the question arises whether boards can perform this verification role given that boards themselves may be characterised by information asymmetry between senior managers and non-executive directors. Management has an intimate knowledge of the business unlike their boards (Hendry and Kiel, 2004). Mace (1971) reflects this managerialist view, finding that many information/knowledge and decision-making roles conventionally ascribed to boards are in fact retained by management. Mizruchi (1983) refers to management power being a function of superior management information/knowledge. Under this perspective, boards, and more specifically non-executive directors, can be rendered ineffective as monitoring devices on behalf of shareholders. In the face of this board-management information asymmetry, one of the few remedies suggested to boards is that they become more active in seeking out and increasing the information/knowledge they possess (Rutherford and Buchholtz, 2007).

In addressing the information asymmetry problem, agency theory treats information as a commodity which has a cost and can be purchased – regarded by Eisenhardt (1989, p. 64-65) as one of agency theory's two specific contributions to organisational thinking. The richer the board information, the greater will be the board's autonomy and the more effective its control

role. However, agency theory's view of information as a commodity can lead to a depersonalised view of information, i.e., that it has an objective existence outside the minds of managers. This tendency to objectify information also derives from agency theory's focus on control mechanisms and verification and from the related assumption that explicit information is the dominant knowledge base (Dawson *et al.*, 2010, p. 151). It is against such a theoretical backdrop of information as a commodity which can be purchased, and of the prioritisation of explicit information/knowledge, that boards are assumed to address information asymmetry by searching out not only more information/knowledge but also that they can do this independently of management (Thomas *et al.*, 2009).

In the context of firm decision making and decision rights vested in boards of directors, Jensen and Meckling (1992) differentiate specific and general knowledge by reference to whether it is respectively costly to transmit/inexpensive to transfer. Non-executive directors typically do not have the same access to company information as managers/executive directors, nor do they have the same company-specific knowledge (Roberts *et al.*, 2005; Rutherford and Buchholtz, 2007; Roy, 2011). Understanding the nature, causes and impact on board effectiveness of information asymmetry is essential. Thomas *et al.* (2009, p. 71) observe that when boards are not properly informed about critical management issues, the resulting information asymmetry can lead to disputes between management and the board. Perhaps even worse, "danger zones" can emerge if the board and management are equally unaware of looming problems.

2.3 Resource dependence theory

Agency theory provides only a partial understanding of the role of boards and the information asymmetry issue. An alternative resource-based perspective is proposed by Pfeffer and Salancik (1978). Huse and Rindova (2001) characterise non-executive directors as information/knowledge resources, highlighting the importance of director connections – the ability of non-executive directors to supply managers with useful and strategically valuable information/knowledge from the external environment and, in turn, to convey to the environment information/knowledge about the company. From a resource dependence perspective, a key board (non-executive) role is to provide advice and information/knowledge which complements management's company-specific focus. Under a resource dependence perspective, if adequate or sufficient trust and effective communication between board and

management are absent, then information asymmetry undermines boards' ability to advise, i.e., one of the core roles of non-executive directors.

Payne *et al.* (2009, p. 709) summarise from a resource dependence perspective how board knowledge has been operationalised in prior research to examine its relationship with board effectiveness. They observe that board knowledge tends to be conceptualised as a “stock of information” or the background expertise of directors. However, Payne *et al.* (2009) argue that knowledge should address the technical expertise that board members need to process the information (data) necessary to make strategic decisions. Forbes and Milliken (1999) differentiate the knowledge and skills possessed by the board (an input variable) and the knowledge and skills used by the board (a process variable), which distinction is empirically tested by Zhang (2010). Zhang (2010) provides evidence to support the argument that possessing diverse information is important for board strategic task performance. However, practices of using diverse information obtained through open discussion and active information searching are more significant to board strategic task performance than possessing diverse information. Irrespective of the theoretical perspective taken, board information/knowledge is central to boards' ability to execute their role tasks and responsibilities effectively.

2.4 Information asymmetry paradox

Given the dual role of non-executive directors as monitors (Fama and Jensen, 1983; Forbes and Milliken, 1999; Minichilli *et al.*, 2009) and as advisors of management (Hung, 1998; Nicholson and Kiel, 2004; Roberts *et al.*, 2005), CEOs face a trade-off in disclosing information to boards. If they reveal their information, they receive better advice. However, informed boards may also monitor management more intensively. Since independent boards are tougher monitors, CEOs may be reluctant to be fully open with them (Adams and Ferreira, 2007). Too much emphasis on monitoring tends to create a rift between non-executive and executive directors, whereas advising on strategy requires close collaboration (Armstrong *et al.*, 2010). In both activities – monitoring and advising – non-executive directors (many of whom have full time positions in other organisations) face the same problem: they depend largely on CEOs and company managers for company-specific information. In practice, there is likely to be a continuum between value-adding board advice on the one hand, and board engagement (viewed positively) or interference (viewed negatively) on the other hand.

For Hooghiemstra and van Manen (2004), the problem of information asymmetry, as it affects boards, gives rise to what they call the “independence paradox”. The paradox arises because non-executive directors are expected to perform their duties independently from management. However, to execute their role, non-executive directors are dependent upon the information provided by the same management. This paradox indicates that non-executive directors are “unable” to monitor managers because the information they need to do so comes from those same managers (Hooghiemstra and van Manen, 2004, p. 317). The conclusions presented by Hooghiemstra and van Manen (2004) reflect the general consensus in the literature and are consistent with an agency theory perspective; that is, boards are at the mercy of managers to provide information (Porac *et al.*, 1999; Adams *et al.*, 2005; Aguilera, 2005; Armstrong *et al.*, 2010). In practice, boards have the power to seek alternate information sources, particularly from those in second- and third-line defence roles such as the head of risk, head of compliance, internal auditors and external auditors. However, there is the practical issue of whether non-executive directors can devote the required amount of time necessary to access the information set available to full-time managers and then assess it. Moreover, to the extent that board members seek to deepen their knowledge of their company, they may stray into another dimension of the independence paradox. This relates to the conflict between good judgement, which requires in-depth knowledge, and independence, which requires a more detached attitude.

Although management information/knowledge inevitably has a depth and scope that non-executive directors cannot equal, most boards are in fact able to monitor managers. This fact of corporate life – namely that in spite of information asymmetry many if not most boards are effective – is the real paradox which needs explanation. Non-executive directors’ role is to scrutinise, verify and advise but – as shall be seen – the more critical information/knowledge is to a company the more personal it is to individual managers (Hendry, 2002). However, the more personal information/knowledge is to individual managers the less amenable it is to the explicit, objective representation which, on the face of it, would appear to be a precondition for its verification and scrutiny by the board.

Agency theory assumes that boards (i.e., non-executive directors) are unable to monitor management because boards are limited by their dependence on management to supply the information required to monitor management. Moreover, managements’ perceived reluctance

to reveal too much information limits boards' ability to execute their advisory role effectively (Adams and Ferreira, 2007). Framing information asymmetry as a limitation to non-executive directors' role effectiveness may be too simplistic. We contend that, notwithstanding the different information sets of management and non-executive directors, boards can/are able to monitor and advise management. Further, it is by virtue of information asymmetry – the different information sets of managers and non-executive directors – that monitoring and advising can take place. In other words, if non-executive directors had the same information set as managers they would be less able to be effective monitors or advisors.

3. Prior empirical research

Measuring information asymmetry between managers and boards of directors is difficult due to challenges in researching the “black box” that is the boardroom. Much prior empirical research does not factor information asymmetry into the research design. Empirical research on board characteristics and board information/knowledge is summarised in Table 1. Most of the research is quantitative, using questionnaires and surveys. Much of the research relates to board information/knowledge and the monitoring role of boards. An alternative perspective is board information/knowledge and the resource role of boards. Table 1 highlights the dominance of agency theory in prior research on management-board information/knowledge, with only one resource-based paper and three papers including a resource dependence as well as agency theory perspective. The five papers based solely on an agency theory perspective find support for the theory in various ways.

Paper	Research methods	Measuring manager-non-executive director information asymmetry	Findings
(i) Agency theory perspective			
Rutherford (2002)	Survey questionnaire: 145 board chairpersons of US listed companies	Quality of information (three constructs): (1) Quality of board information (on a seven-point Likert scale): (i) very reliable; (ii) accessible; (iii) accurate; (iv) relevant; (v) timely; (vi) useful; (vii) suitable for effective decision making (2) Information gathering (on a seven-point Likert scale): (i) time spent searching for information; (ii) actively searching for information before board meetings; (iii) decisions made without requesting additional information; (iv) active probing for information at board meetings (3) Frequency of board interaction: (i) number of board meetings; (ii) number of board committees	Larger firms and firms in certain industries have higher quality information. The more outsiders on the board, the higher the quality of board information.
Nowak and McCabe (2003)	In-depth interviews: 45 directors of Australian listed companies	Grounded theory approach taken, such that questions on directors' access to information emerged during the research, generating the question "How does the independent director access critical information".	CEO and executives control the information to directors, questioning the behavioural assumption of full and free access to information by boards implicit in agency theory.
Rutherford and Buthholtz (2007)	Survey questionnaire: 149 board chairpersons of US listed companies	Quality of information (three constructs): (1) Board information (on a seven-point Likert scale): (i) very reliable; (ii) relevant; (iii) timely (2) Information gathering (on a seven-point Likert scale): (i) active probing for information at board meetings (3) Frequency of board interaction: (i) number of board committees	The proportion of non-executive directors is associated with boards' information quality.
Rutherford <i>et al.</i> (2007)	Survey questionnaire: 149 board chairpersons of US listed companies	Quality of information (three constructs): (1) Board information (on a seven-point Likert scale): (i) very reliable; (ii) relevant; (iii) timely (2) Information gathering (on a seven-point Likert scale): (i) time spent searching for information; (ii) actively searching for information before board meetings (3) Frequency of board interaction: (i) number of board meetings	Increases in boards' information gathering are associated with increases in boards' usage of managerial controls. Information and managerial control mechanisms act as complements in governance.
Johanson (2008)	Case study based on archival board records and unstructured interviews with four boards members and the company secretary	Board accounts – information supplied to boards of directors by top management	A substantial part of the board accounts (i.e., information supplied to boards) was information disclosed in external financial reports (i.e., communicated to outside stakeholders); there was also subjective non-financial information communicated by word of mouth. A weak link was found between content and use of board accounts.

(ii) Resource dependence perspective

Zhang (2010)	Survey questionnaire: 318 Norwegian CEOs	Board information model (four constructs): (1) Information diversity of the board: measured as a single construct based on the functional, industrial and educational backgrounds of board members (2) Open board discussion: measured as a single construct based on directors' willingness to discuss different professional views, willingness to accept the risk of being wrong and to express individual opinions (3) Effective leadership: measured as a single construct based on chairpersons' activities that guide board discussions (4) Active search of information: measured as a single construct based on directors seeking information before meetings and seeking firm-related information in addition to management reports	In the short-term, using diverse information (i.e., open discussion and active searching of information) has a higher impact on board strategic task performance than possessing diverse information.
(iii) Agency theory and resource dependence perspectives			
Roy (2011)	Survey questionnaire: 161 board secretaries of Canadian listed companies	Type of information (on a five-point Likert scale): (i) industry information; (ii) internal information; (iii) strategic plan information; (iv) implementation information; (v) performance information	Greater board expertise is strongly associated with the five types of board information. Greater board independence is only weakly associated with the five types of board information.
Li <i>et al.</i> (2011)	Survey questionnaire: 104 Chinese board chairpersons	Quality of information (on a seven-point Likert scale): Board information: (i) very reliable; (ii) relevant to the board's needs; (iii) timely	Quality of information is significantly related to measures of board monitoring and board advice/counsel.
Zattoni <i>et al.</i> (2015)	Survey questionnaire: 488 Norwegian family firm CEOs	The mediating role of board use of knowledge and skills and board task performance in the relationship between family involvement and firm financial performance: Use of knowledge and skills measured by reference to the extent to which (i) board members know each other's competencies; (ii) division of labour matching board members' knowledge and skills and board tasks; (iii) relevant use of knowledge by board members during board discussions.	Family involvement in the business encourages use of board members' knowledge and skills, which in turn are key antecedents to board task performance.

Table I.
**Measuring manager-non-executive
director information asymmetry in prior
empirical research**

4. Managers' and non-executive directors' information/knowledge

Two dominant theoretical perspectives influence current thinking on board information/knowledge. Agency theory assumes that information asymmetry exists such that managers have more company-specific information/knowledge than non-executive directors. Resource dependence theory assumes that non-executive directors bring additional external information/knowledge to the boardroom, to supplement the internal information/knowledge of management. Common to both perspectives is the assumption that the nature of managerial information/knowledge is different from the nature of non-executive directors' information/knowledge and *vice versa*. While this assumption is widely accepted, understanding the nature and consequences of the inherent differences between managers' and non-executive directors' information/knowledge warrants further consideration. Specifically, this paper considers two research questions:

RQ1. What are the differences between managers' and non-executive directors' information/knowledge?

RQ2. How do board processes influence information/knowledge sharing between managers and non-executive directors?

4.1 Differences between managers' and non-executive directors' information/knowledge (RQ1)

A practical way to investigate the information-as-commodity assumption of agency theory described earlier is to analyse the nature of management information. One explanation for information asymmetry is that non-executive directors, in their part-time role, cannot devote the necessary time required to think about the company's affairs or to collect information/knowledge about the company independently of management (Hart, 1995). This has been addressed in prior research in the form of the busyness hypothesis (Ferris *et al.*, 2003). Managers, in contrast, are always immersed in the company's affairs. In his survey of managers, Mintzberg (1973) found that work takes up almost every minute of the manager's day. In particular, chief executives are unable to escape from the work environment and search continually for new information. The empirical data collected by Mintzberg – in particular, data on the characteristics of management information – helps in our analysis of the information asymmetry paradox.

For Mintzberg (1973, p. 4-5), the manager has

“access to many sources of information, some of them open to no one else in his organizational unit ... unfortunately the manager receives much information verbally²... Managers work ... with verbal information and intuitive (non-explicit) processes”.

Tengblad’s (2006) review of Mintzberg’s research 30 years on finds that these management characteristics are experienced more intensely today than in the 1970s. Tengblad (2006) identifies a greater emphasis now on managers providing information, suggesting that there is a greater preoccupation with information/knowledge exchange between CEOs and subordinates, possibly reflecting the greater decentralisation of business nowadays. Storey and Salaman (2005) find that managerial knowledge is multi-faceted, provisional and subject to change. Senior management teams have unique business knowledge which outsiders do not share, comprising a unique mixture of deeply-embedded knowledge accumulated over decades and not easily changed and other knowledge which they quite readily chop and change as fashion demands. Hendry (2002, p. 101; 104-105) acknowledges this as follows:

“In a management context, knowledge is often tacit and incommunicable ... and information inherently ambiguous ... In a management context, information asymmetries between layers of management are most likely to arise in such areas as research and development (where critical knowledge may be tacit and incommunicable) or in politically sensitive sales negotiations (where the principal may not even want to know what the agent knows).”

What emerges from Mintzberg’s and others’ analyses is the stimulus-response directness in managers’ information/knowledge experience, in contrast with more formal board experiences – rush hour compared with rules of the road. This is captured well by a former CEO of Barclays Bank as follows:

“[CEOs] need to act on the basis of dirty or incomplete knowledge, weighing risks and probabilities, and using intuition as much as deduction. The more senior the job, as a rule, the more uncertain the information on which you have to act. You don’t have the luxury, for competitive reasons, of waiting for certainty” (Martin Taylor, 2013).

The significant difference between management and board information/knowledge is that management information/knowledge is based on primary, direct experience. It is often incommunicable and ambiguous (Hendry, 2002). Board information, on the other hand, is hearsay derived from secondary sources, i.e., papers, reports and presentations. Accepted guidelines suggest that to be effective, board information should be high quality, relevant and clear. It should be distributed in a timely manner to allow non-executive directors to

thoroughly consider the issues in advance of the meeting (Higgs, 2003; Financial Reporting Council, 2014).

The difference between managerial and board information/knowledge is the difference between originating/initiating the information/knowledge and receiving/formally processing that information.³ This view of management as originators and board members as recipients of information/knowledge may provide a framework for resolving the information asymmetry paradox. The difference between the live, primary and personal information/knowledge of management and the processed and collective information/knowledge of boards is essentially the difference between implicit/tacit and explicit information/knowledge.

4.1.1 Implicit/tacit and explicit information/knowledge

Dawson *et al.* (2010) distinguish between two types of knowledge – implicit/tacit and explicit. Smith (2001, p. 314) describes implicit/tacit knowledge as “practical, action-oriented knowledge or ‘know-how’ based on practice, acquired by personal experience, seldom expressed openly, often resembles intuition” and explicit knowledge as “knowledge or ‘know-what’ that is described in formal language, print or electronic media, often based on established ... processes, use people-to-documents approach” (i.e., knowledge is gathered from individuals and is put into documentary format). Although described as two different types of information/knowledge, implicit/tacit and explicit information/knowledge are not totally separate (Leonard and Sensiper, 1998). Information/knowledge exists on a continuum (Nonaka and von Krogh, 2009). At one extreme, it is the almost completely tacit, semi-conscious and unconscious knowledge which is held in people’s heads. At the other end of the continuum, knowledge is almost completely explicit, or codified, structured and open to all (Leonard and Sensiper, 1998). While implicit/tacit information/knowledge can be partially codified, Leonard and Sensiper (1998) consider that it is unlikely to ever be fully so.

For Jones (2005), implicit/tacit knowledge is knowledge that exists within the heads and experiences of individuals and is difficult to separate from those individuals. Managers’ knowledge exhibits these characteristics, as may non-executive directors’ knowledge during informal discussion and debate at board meetings. Managers obtain tacit information/knowledge by virtue of the time they spend in the business and their close association with other managers and employees. In a governance context, Forbes and Milliken (1999, p. 495) acknowledge the importance of “detailed information about the firm and an

intimate understanding of its operations and internal management issues” which they call “tacit knowledge”. The importance of this kind of knowledge has also been acknowledged in the Walker Report (2009, p. 142) as follows:

“The chairman, EDs and NEDs need to be experts in the ability to observe, interpret and draw conclusions about what people are giving clues about, but not talking about: that is, interpreting what lies just below the surface.”

By comparison, explicit knowledge involves systematic expression and collective appropriation (Dawson *et al.*, 2010). It is easily codified and is readily accessible to anyone willing to undertake the time and effort to learn it. Formal board information exhibits these characteristics. The UK Corporate Governance Code (Financial Reporting Council, 2014, Supporting Principle A.3) states that boards require “accurate, timely and clear information”. Implicitly, this recommendation points to explicit information/knowledge that can be communicated through formalised board reporting mechanisms.

While the importance of explicit board information/knowledge is highlighted by codes of best practice, tacit information/knowledge is also significant for effective board task performance (Forbes and Milliken, 1999). Indeed, O’Reilly (1982) considers explicit, documented information to be less useful the more critical or strategic the issues facing the company. Finkelstein (1992) agrees that at times of uncertainty, the implicit/tacit information/knowledge of individual managers, rather than the shared explicit information/knowledge of the organisation, has greater value. For Finkelstein (1992), managers’ power derives from their expertise in an area critical to an organisation. Such expertise is not available to boards independent of management precisely because it is not available as a depersonalised commodity. Much of managerial critical information/knowledge is tacit. However, it does not follow that management’s expertise inevitably gives information/knowledge dominance to management. Uncertainty will not be reduced simply by the personal, inner vision of the manager. The strategic response to uncertainty must be articulated and shared with the organisation as a whole. It is precisely here that boards – with their appetite for explicit, socialised information/knowledge – have a distinctive role to play. It is also here that the clue to resolving the information asymmetry paradox may lie.

4.2 Board processes to convert implicit/tacit into explicit information/knowledge (RQ2)

The analysis presented thus far indicates the primary role of explicit information/knowledge in board processes and of tacit information/knowledge in management processes but it does not establish how these are linked in practice. To develop the link between tacit and explicit information/knowledge, we draw upon the work of Ikujiro Nonaka and his theory of organisational knowledge creation.

4.2.1 Nonaka's knowledge conversion framework

Nonaka's 1994 paper and subsequent collaborative publications have shaped the development of organisational knowledge creation theory since the mid-1990s (Gourlay, 2006; Nonaka and von Krogh, 2009). Nonaka's theory addresses the interaction of tacit and explicit knowledge. The theory is developed on two premises: first, "tacit and explicit knowledge can be conceptually distinguished along a continuum" and second "the concept of 'knowledge conversion' explains how tacit and explicit knowledge interacts" (Nonaka and von Krogh, 2009, p. 635). During the process of knowledge conversion, subjective and tentative knowledge derived from an individual's values and experiences is validated and synthesised with the knowledge of others (Nonaka *et al.*, 2006). To understand the interaction between tacit and explicit knowledge in the boardroom, Nonaka's conceptualisation of organisational knowledge creation has the potential to offer new insights.

Nonaka (1994) posits that organisational knowledge is created through a continuous dialogue between tacit and explicit knowledge. In Figure 1, we present Nonaka's framework by reference to boards of directors, distinguishing the mode of knowledge conversion, the level of knowledge sharing and the boardroom processes exemplifying the knowledge conversion. In Nonaka and Konno's (1998) model, they show knowledge creation as a spiralling process of interactions between explicit and tacit knowledge, thus the spiral in Figure 1. Knowledge creation involves four modes of knowledge conversion:

- (i) **Combination:** Explicit-to-explicit information/knowledge sharing "involves the use of social processes to combine different bodies of explicit knowledge held by individuals. Individuals exchange and combine knowledge through such exchange mechanisms as meetings and telephone conversations. The re-configuration of existing knowledge through the sorting, adding, re-categorising and re-contextualising of explicit knowledge can lead to new [explicit] knowledge" (Nonaka, 1994, p. 19). In a

boardroom setting, this might involve managers providing written board papers to non-executive directors who may in turn provide managers with verbal feedback.

- (ii) Externalisation: Tacit-to-explicit information/knowledge sharing requires the translation of tacit knowledge into “comprehensible forms that can be understood by others” (Nonaka and Konno, 1998, p. 43). It may involve “successive rounds of meaningful ‘dialogue’” (Nonaka, 1994, p. 20). Thus, “tacit ‘field specific’ perspectives are converted into explicit concepts that can be shared beyond the boundary of” management (Nonaka, 1994, p. 25). In a boardroom setting, this might involve managers giving explanations (meaningful dialogue) to the board; and non-executive directors challenging and questioning (meaningful dialogue) those explanations. Such activities are consistent with Forbes and Milliken’s (1999) concept of cognitive conflict.
- (iii) Socialisation: Tacit-to-tacit information/knowledge sharing involves “sharing tacit knowledge among individuals” (Nonaka *et al.*, 2006, p. 1182) and “capturing knowledge through physical proximity” (Nonaka and Konno, 1998, p. 43). Without shared experiences, it is difficult for people to share their thinking processes. Transfer of information/knowledge “often make[s] little sense if it is abstracted from embedded emotions and nuanced contexts that are associated with shared experiences” (Nonaka, 1994, p. 19). In a boardroom setting, such shared experiences are likely to take place outside the formal boardroom such as during board away days and board plant visits. Lengthy tenure/directors’ term of office may enhance tacit-to-tacit information/knowledge sharing. Conversely, lengthy tenure may impair directors’ contribution to the board by reducing information asymmetry over time.
- (iv) Internalisation: Explicit-to-tacit information/knowledge sharing is the process through which information exposed to dynamic cooperating relations such as action, practice and reflection is then converted into individual personal knowledge (Nonaka and von Krogh, 2009, p. 643). “Participants in a ‘field’ of action share explicit knowledge that is gradually translated, through interaction and a process of trial-and-error, into different aspects of tacit knowledge” (Nonaka, 1994, p. 20). In a boardroom setting, prolonged interactions between managers and non-executive directors facilitate the exchange of internally and externally sourced explicit information/knowledge. Strategies and decisions are exposed and tested in the boardroom. Gradually, managers and non-executive directors develop enhanced company-specific tacit knowledge that informs day-to-day activities and board contributions to the benefit of the organisation. This is

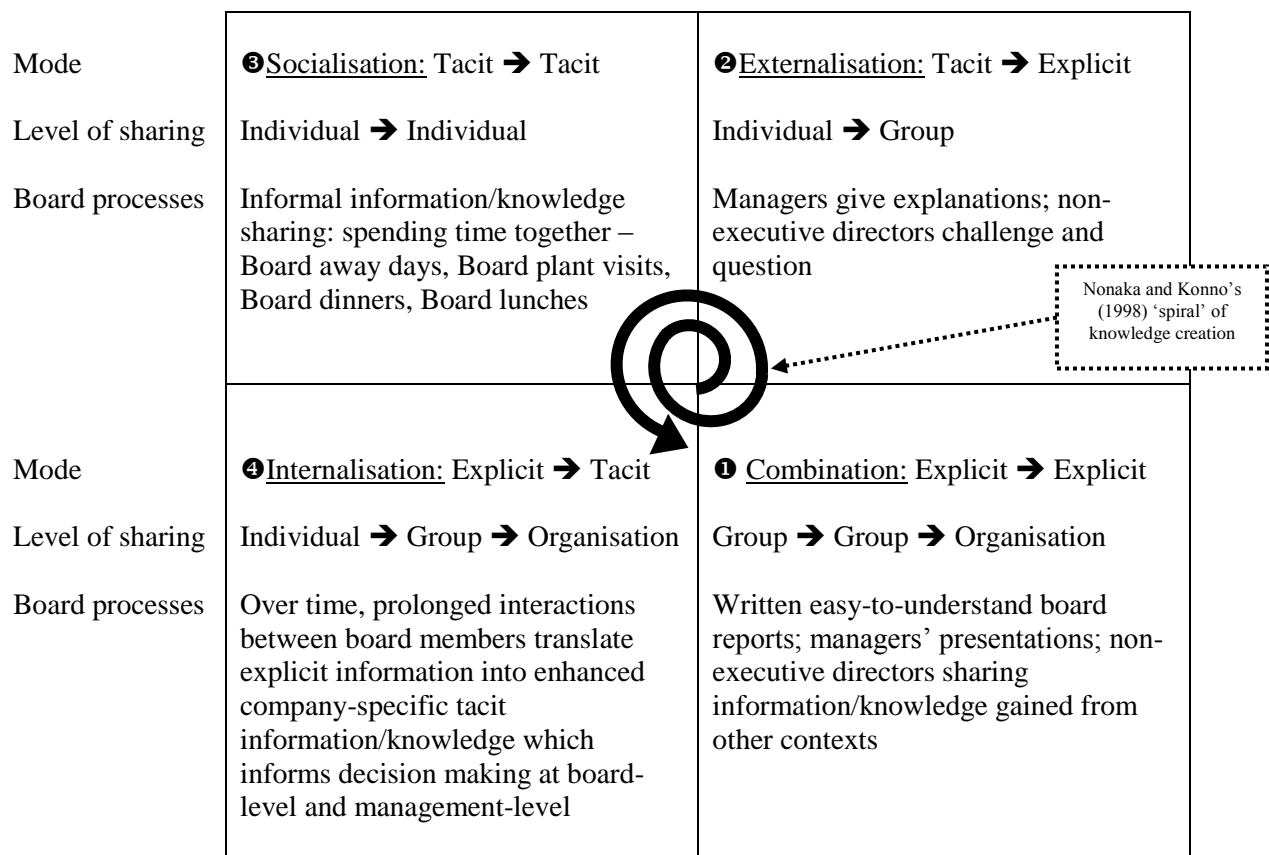
consistent with Pugliese *et al.*'s (2015b, p. 35) conclusion that “a reduction in information asymmetry appears to require more than managers simply ‘reporting to’ or ‘informing’ directors. It requires active director engagement as multiple meeting participants combine and process the information to deliver an effective group decision.”

Figure 1 presents the four modes of knowledge conversion as sequenced by Nonaka (1994, p. 19) in his Figure 1. We number Combination ❶, reflecting our starting point – explicit-explicit information exchange conceptualised under agency theory. Combination is the first stage of information exchange in boardrooms. Stages ❷ to ❹ capture information sharing and knowledge creation processes, going beyond mere information exchange. Thus, what goes on in boardrooms is not merely “bi-directional information asymmetry”⁴. Rather, it is by virtue of reciprocal processes and group interactions that boardroom knowledge is shared and created.

Critical to the knowledge-creation process is the concept of “*ba*”, a Japanese word defined as a “shared space for emerging relationships” (Nonaka *et al.*, 2006, p. 1185). Participating in *ba* involves engaging in dialogue, identifying opportunities to share and create knowledge and being open to transcending the limits of one’s perspectives and knowledge (Nonaka *et al.*, 2006). Arguably, managers and non-executive directors exercise their role functions in a *ba* (i.e., board of directors).

A conceptual model of manager-non-executive director information asymmetry

In Figure 2, we apply Nonaka’s (1994) knowledge conversion framework (see Figure 1) to a boardroom setting, developing a conceptual model of manager-non-executive director information asymmetry. Manager-non-executive director information asymmetry has been characterised as problematic for boards. They have less information/knowledge than management. In addition, they depend on management for that information/knowledge. Taking an agency theoretical view, information/knowledge is a depersonalised commodity that is exchanged through secondary sources (i.e., written easy-to-understand board reports and presentations). As such, information/knowledge exchange in the boardroom is assumed to only involve explicit-to-explicit information/knowledge sharing (see ❶ Combination in Figure 2). However, the realities of boardroom processes are more complex, going beyond agency theory conceptualisations and involving both explicit and tacit information/knowledge sharing and creation.

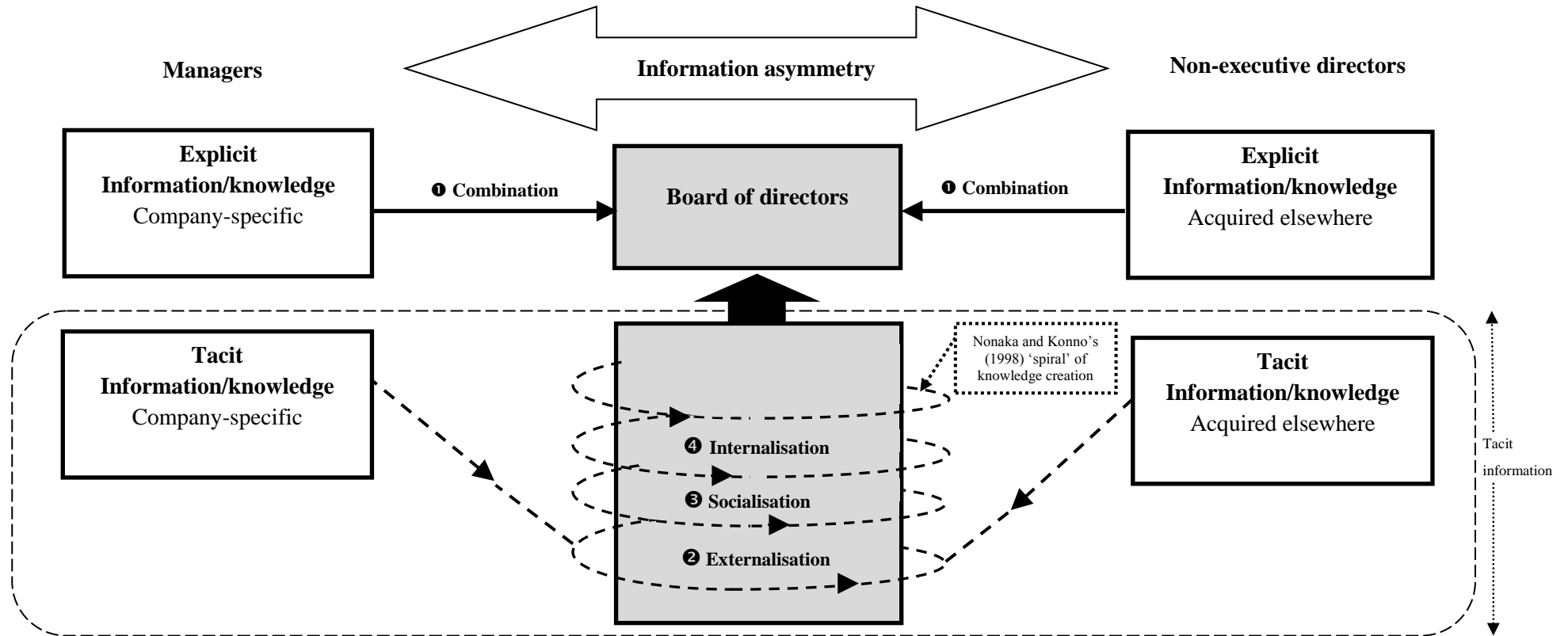


Key: ①②③④: These symbols cross-reference to modes of information exchange/sharing in Figure 2

Source: Adapted from Figure 1 in Nonaka (1994, p. 19) and Figures 1, 2 and 3 in Nonaka and Konno (1998, p. 43-44).

Figure 1.
Applying Nonaka's knowledge conversion framework to a boardroom context

Figure 2. Conceptual model of manager-non-executive director information asymmetry



- Key:
- ➔ ➊➋➌ These symbols cross-reference to modes of information/knowledge exchange and sharing in Figure 1.
 - ➔ ➊ Explicit information/knowledge exchange, communicated through formalised board reporting mechanisms.
 - - ➔ ➋➌ External and internal board processes surface individual tacit information/knowledge, making it explicit, to share and create board-level explicit and tacit information/knowledge.

Reflecting the distinction between explicit and tacit information/knowledge, what emerges from Mintzberg's and subsequent analyses is the radical difference between the types of information/knowledge characteristics of managers and of non-executive directors. For Mintzberg, managers' information/knowledge is not "documented information that is widely available but the current undocumented information transmitted largely by word of mouth This kind of information, not that carried in formal reports, forms the heart of the manager's information system" (Mintzberg, 1973, p. 69). Much of managers' information/knowledge comes from "intuitive (non-explicit) processes" (Mintzberg, 1973, p. 4-5) and results in a deep substratum of implicit/tacit knowledge which "remains only in his natural memory" unless the manager makes "concentrated effort" to disseminate it (Mintzberg, 1973, p. 178). In contrast, board information is typically characterised as written, formal and explicit. For Newman (1901, p. 83) "personal experience ... is proper to the individual ... It shuts itself up as it were, in its own home, or at least is its own witness and its own standard". However, individuals seek to break out of this isolation by analysing thoughts and, as far as possible, rendering explicit what is implicit in them. This transition from personal/implicit to collective/explicit information/knowledge is the challenge that exists for managers – to share their implicit/tacit information with boards by giving an explicit account of it and thereby subjecting it to challenge and review. Our conceptual model in Figure 2 reflects the board processes that convert implicit/tacit information/knowledge into explicit information/knowledge (see ② Externalisation, ③ Socialisation and ④ Internalisation in Figure 2).

Managers' externalisation of tacit information/knowledge involves the exchange and sharing of personal, tacit information/knowledge such that it can be understood by non-executive directors. Nonaka suggests that successive rounds of meaningful dialogue can facilitate the transition of information/knowledge from tacit to explicit. "To be 'accountable' for one's activities, is to explicate the reasons for them and to supply the normative grounds whereby they may be justified" (Roberts *et al.*, 2005, p. S10, quoting Giddens, 1984, p. 30). In a board context, face-to-face interaction "offers an opportunity for active inquiry extended over time, for talking and asking questions, for listening and seeing whether what is said and promised is actually delivered" (Roberts *et al.*, 2005, p. S11). In operationalising accountability, non-executive directors must accept that their "knowledge of a company will never match that [...] of executive colleagues. However, what a non-executive can bring to the relationship is

the objectivity that their relative distance from day-to-day matters allows, along with the experience and knowledge acquired elsewhere” [our emphasis] (Roberts *et al.*, 2005, p. S14). Non-executive directors’ incomplete information is acknowledged by Huse *et al.* (2011, p. 14) when they state: “no board member is likely to possess the full complement of information and knowledge necessary to achieve desired goals.” Rindova (1999, p. 953) also addresses this theme, observing that problems of familiarity can undermine decision effectiveness. Managers mainly recognise habitual information/knowledge and as a result are oriented to look for the familiar. Thus some distance from firm operations, such as the distance experienced by non-executive directors, may increase scanning effectiveness. Outsiders are likely to have different mental models.

Roberts *et al.* (2005) contend that it is specifically the non-initiating role of non-executive directors that gives them their unique value. Independence is not only a control mechanism – it is also a resource. “Relative ignorance” (Roberts *et al.*, 2005, p. S14) or information asymmetry of day-to-day activities is not a disadvantage – in fact, paradoxically, the opposite. “In practice, experienced ignorance can be a very valuable resource for a board” (Roberts *et al.*, 2005, p. S14). We argue that non-executive directors obtaining tacit information/knowledge the way managers do might compromise their independence. Notwithstanding the sheer weight and depth of managers’ tacit information/knowledge, non-executive directors may make their contribution by eliciting explanation and explication. The logical starting point for such questioning is, by definition, “ignorance”, in some sense of the word. It is clearly not general ignorance but rather ignorance of the company-specific, primary information/knowledge of managers. Thus, non-executive directors may not have detailed day-to-day information/knowledge of the business operations and/or detailed knowledge of the industry but through other information/knowledge and points of reference (e.g., professional functional knowledge such as law or accounting) they discharge critical monitoring and advisory roles. This constitutes the secondary information/knowledge we have ascribed to the board: secondary not because it is inferior but because it is information/knowledge “acquired elsewhere” (Roberts *et al.*, 2005, p. S14), as complemented by the company-specific explicit and tacit information/knowledge of managers. From this standpoint of “experienced ignorance” (Roberts *et al.*, 2005, p. S14), non-executive directors will seek explanations, which, left to their own devices, managers might have avoided. However, in a board context, managers must engage in “open dialogue [which] can promote reciprocal understanding and ... dialogue through which the often tacit assumptions [our

emphasis] that inform plans and proposals are challenged, developed and refined” (Roberts *et al.*, 2005, p. S19).

Nonaka contends that in the knowledge conversion process, some degree of socialisation and shared experiences are necessary to facilitate tacit-to-tacit information/knowledge exchange and sharing. For Nonaka, socialisation involves obtaining information/knowledge through physical proximity with individuals and context. It involves “being together, spending time, living in the same environment” (Nonaka and Konno, 1998, p. 42). In the context of boards of directors, any suggestion of non-executive directors’ socialisation is often interpreted negatively by the media and others. However, Samra-Fredericks (2000) acknowledges that a lot of directors’ talk takes place outside boardrooms, locating information/knowledge sharing in various formal and informal settings. Moreover, Zhang (2010) observes that prior research (Forbes and Milliken, 1999; Westphal, 1999) identifies the benefits of social integration and social ties between management and board members and argues that socialisation supports information/knowledge sharing and open discussion.

Just as at the level of the individual there is a natural transition from implicit/tacit to explicit information/knowledge, so too the manager-non-executive director information/knowledge dynamic is a transition from the individual and implicit to the collective and explicit. Board processes serve to create new information/knowledge by surfacing tacit information/knowledge, making it explicit, which in turn generates board implicit information/knowledge. These processes contribute to the quality of board decision making through collective judgement. This is the *raison d’être* of the board (Forbes and Milliken, 1999, p. 490):

“the very existence of the board as an institution is rooted in the wise belief that the effective oversight of an organisation exceeds the capabilities of any individual and that collective knowledge [our emphasis] and deliberation are better suited to this task”.

As such, it is boards’ collective knowledge that allows them to exercise their control, strategy and advisory roles. The board’s relationship with the organisation is consistent with Nonaka’s concept of internalisation which involves actualising newly created information/knowledge for the benefit of the organisation (Nonaka and Konno, 1998). Managers are delegated the day-to-day responsibility of operationalising the decisions and strategies collectively ratified

by boards of directors. Managers, and by extension the organisation, benefit from access to the newly created knowledge of the group.

We acknowledge that the conceptual model presented in Figure 2 is an abstraction of the complexities that underpin manager-non-executive director information asymmetry. It focuses on the four modes of knowledge conversion identified by Nonaka: combination, externalisation, socialisation and internalisation. Presented in this way, we begin to uncover the nuances involved in the processes of information/knowledge exchange, sharing and creation in boardrooms, teasing out the distinctiveness and relevance of managers' information/knowledge and non-executive directors' information/knowledge.

5. Implications derived from the conceptual model

This paper commenced by articulating and challenging agency theory's view of boardroom information/knowledge as a depersonalised commodity. Drawing on prior research on how human beings cognitively share information/knowledge, we have theorised information/knowledge as being a personalised item – a cognitive problem. In practice, boardroom information/knowledge is likely to fall somewhere in a continuum between these two extremes. Our conceptual model presented in Figure 2 is an idealised representation, implying equal exchange and sharing of information/knowledge between managers and non-executive directors. Characterising the boardroom as a place of open dialogue with both sides exchanging and sharing information/knowledge freely is a somewhat utopian view. This perspective does not take into account the capacities of human agencies or the influence of contextual contingencies. If boardrooms are assumed to be places of open dialogue with the perfect opportunity for frank exchange of views, why does this not happen in practice in many cases?

Modes of knowledge conversion**Research questions for data collection**

① Combination
(Explicit to Explicit)

- To what extent do managers/non-executive directors bring explicit existing data into boardrooms, and in what format (written versus verbal)?
- How do managers gather management and financial information from all over the company to prepare board reports, board papers, etc?
- How are board reports, papers, documents etc. distributed amongst board members?
- How do managers present board reports, board papers, etc. at board meetings?
- How do board members bring explicit information from outside the company to the board, (i) in written form, (ii) in verbal form, (iii) expressed during formal board meetings, and (iv) expressed outside board meetings?
- To what extent, as a result of ideas contributed by a board member (individual level), does the board generate related new ideas that it had never considered before, and which management goes on to action?
- To what extent, as a result of discussion / suggestions / debate / challenges at board meetings (group level), does the board generate new ideas that it had never considered before, and which management goes on to action?
- To what extent, collectively, as a result of discussion / suggestions / debate / challenges at board meetings, does the board develop / generate ideas / make suggestions:
 - for improving the company's future prospects that have changed the long-term strategy of the company?
 - that subsequently lead to improvement in how the company operates on a day-to-day basis?
 - that subsequently lead to improvement in how the company is governed?
 - that subsequently lead to improvement in the company's relationships with its shareholders?

② Externalisation
(Tacit to Explicit)

- How do non-executive directors question, comment on, critique, and challenge the viewpoints of managers?
- How do managers respond to, question, comment on, critique, and challenge the viewpoints of non-executive directors?
- Do managers/non-executive directors engage in substantive meaningful dialogue or in ritualistic, ceremonial dialogue during and outside board meetings?
- What linguistic devices (e.g., metaphors), language games and/or recounting of prior experiences and real-world examples / anecdotes (which we call "boardroom accounts") do managers/non-executive directors use to communicate their viewpoints?

Modes of knowledge conversion**Research questions for data collection**

**③ Socialisation
(Tacit to Tacit)**

- To what extent do non-executive directors obtain information informally outside boardrooms, both within the company and outside the company, from individuals who are not board members (e.g., internal auditors, external auditors, managers who do not serve on the board, significant suppliers/customers, etc.)?
- To what extent do non-executive directors get ideas, insights, expertise from their working life and experiences outside the company, which they bring back into the boardroom/company?
- To what extent do non-executive directors spend time in the company, visiting plants/operations and attending company events, talking to staff?
- To what extent do senior managers (e.g., the CEO) manage / reduce non-executive directors' opportunities to gather intra-firm informal information?
- What opportunities exist for non-executive directors and managers to socialise (e.g., board lunches, board dinners, board away-days), in an informal setting? (*Intra-board social information*).
- What opportunities exist for non-executive directors to socialise in an informal setting (e.g., board plant visits, employee strategy days attended by board members) with individuals who are not board members (e.g., managers who do not serve on the board, other employees, shareholders, significant suppliers/customers etc.)? (*Extra-board social information*).
- To what extent is intra-board, intra-company or extra-board communication between non-executive directors and others controlled by the CEO facilitating/preventing transfer of tacit knowledge?

**④ Internalisation
(Explicit to Tacit)**

- To what extent are there opportunities for non-executive directors to share their personal experiences and expertise from outside the business so that managers can take advantage of the knowledge and expertise of non-executive directors?
- To what extent do non-executive directors actively participate in strategy development, suggesting new ideas, discussing and testing alternative strategies, challenging and amending existing strategies?
- To what extent do non-executive directors actively participate in strategy development intra-board, or extra-board with a wider group of company managers?
- To what extent are there opportunities for managers to share their personal experiences, expertise and knowledge of the business so that non-executive directors better understand the real world of managers, thereby deepening their understanding of the business?
- To what extent are there opportunities for managers to share their personal experiences, expertise and knowledge from outside the business and internalise that knowledge into the company?

Table II.
**Operationalising the four modes of
knowledge conversion**

5.1 Applying the conceptual model in future research

Our conceptual model may inform future research and stimulate empirical investigation of information/knowledge exchange, sharing and creation between managers/management and non-executive directors/boards. To this end, Table 2 offers suggestions for empirically examining the conceptual model. Here we draw on Nonaka *et al.*'s (1994) measurement of the four modes of knowledge conversion. They designed and administered a questionnaire which included 184 items, 38 of which were designed to operationalise the four modes of knowledge conversion. The questionnaire items/statements were measured/ranked on a five-point Likert-type scale intended to measure the amount of time respondents spent on specific knowledge conversion activities. We have adapted their approach to a boardroom setting in Table 2.

Future research on boards could empirically examine the four modes of knowledge conversion by asking questions of non-executive directors and managers using surveys (e.g., Tuggle *et al.*, 2010) and in-depth interviews to collect the data. Alternatively, the data addressing the questions could be gathered from participant-observer studies (e.g., Parker 2008), ethnographic research (e.g., Samra-Fredericks, 2000), tape recordings (e.g., Samra-Fredericks, 2000) and video recordings (e.g., Pugliese *et al.*, 2015a; 2015b) of board meetings. The manner of expression of the questions would depend on whether testable propositions are to be addressed using quantitative survey-based data collection methods or using more qualitative approaches. We have chosen the latter approach in Table 2 to identify some research questions to be asked of directors and managers to examine each of the four knowledge conversion modes.

5.2 Conditions under which the conceptual model may vary

Our conceptual model assumes managers' and non-executive directors' willingness to share information. In practice, conditions at the level of the organisation, the board and the individual director may influence the exchange and sharing of information/knowledge amongst board members resulting in a more skewed model better representing reality. Prior studies have considered the conditions that influence the exchange and sharing of information/knowledge between board members (Forbes and Milliken, 1999; Bettinelli, 2011; Zattoni *et al.*, 2015; Pugliese *et al.*, 2015a; 2015b).

Forbes and Milliken (1999) propose that aspects of board demography (i.e., job-related

diversity, proportion of non-executive directors on the board, board size and board tenure), influence board processes, including the exchange of information/knowledge and cognitive conflict amongst board members. They propose that job-related diversity and board size increase the presence of functional area knowledge and skills on the board and are positively related to cognitive conflict. Long-tenured boards are expected to have higher levels of firm-specific knowledge. Focusing on individual-level and board-level behaviours, Forbes and Milliken (1999) contend that high-effort norms will increase board members' participation. This, in turn, stimulates cognitive conflict amongst board members and encourages board members to use their knowledge and skills. However, they propose that job-related diversity, the proportion of non-executive directors on the board and board size are negatively related to the board's cohesiveness and board members' willingness to use their knowledge and skills. They also suggest that job-related diversity may lead to lower levels of interpersonal attraction, differences in attitudes and language. Moreover, because boards do not meet frequently, opportunities to resolve these differences are limited. Forbes and Milliken (1999) also highlight the dangers associated with too much cohesiveness, in particular, the dangers of group-think. They suggest that although long-tenured boards will be more cohesive, they are also less likely to engage in cognitive conflict. Over time, board members will develop a shared understanding and knowledge of the issues that face the company and the remedies open to the company. Put another way, the impact of information asymmetry is diminished. Forbes and Milliken (1999, p. 496) state that for group-think to occur "cohesiveness ... must be accompanied by an absence of cognitive conflict". We propose that the presence of information asymmetry, as a result of the different information sets of managers and non-executive directors, facilitates cognitive conflict and therefore reduces the risk of group-think.

Other scholars have examined team dynamics and its impact on information/knowledge sharing. Zárraga and Bonache (2005) identify that a high-care atmosphere (i.e., mutual trust, active empathy, lenience in judgement, courage to express opinions and access to help) between the members of a team positively impacts on the transfer and creation of knowledge. Similarly, Boxer *et al.* (2013) demonstrate that power, trust, achievement motive and face-saving mechanisms influence the sharing and hiding of information/knowledge amongst members of a top management team. Such drivers of knowledge transfer and learning have been shown to be relevant to board members (Westphal, 1999; Roberts *et al.* 2005).

A number of papers have empirically tested some of Forbes and Milliken's conjectures. For

example, in a survey of CEOs, Minichilli *et al.* (2009, p. 61) examine what they call “board critical debate” (i.e., conflict). They asked the CEOs to evaluate the effect of board disagreements on decisions, on stakeholders, on the company’s general purposes, on board working styles and on decision processes. They also enquired about intra-board conflict amongst board members. They find critical debate is positively associated with board effectiveness. Bettinelli (2011) administered a questionnaire to CEOs and board members to *inter alia* collect data on the use of knowledge and skills on family firm boards. She asked board members to assess awareness of each other’s expertise, the influence of the most knowledgeable board members, matching of board task and knowledge, free exchange of information at board level and application of knowledge and skills for constructive discussion. Older family firms with outside non-executive directors are perceived as most effective in using knowledge and skills. Also administering a survey to CEOs of family businesses, Zattoni *et al.*, (2015) examine the use of knowledge and skills and cognitive conflict on family firm boards. In relation to knowledge and skills, they ask CEOs about board members’ knowledge of each others’ competencies, match of division of labour on the board with board members’ knowledge/competencies and the use of knowledge when an issue is discussed. In relation to cognitive conflict, they ask CEOs about conflicts and disagreements during decisions taken at board meetings, in defining what is best for the firm, on decision processes and in respect of owners’ and stakeholders’ interests. They find family involvement in the business increases the use of knowledge and skills and reduces cognitive conflict.

Tuggle *et al.* (2010) examine how board heterogeneity and meeting context influence boardroom discussions of entrepreneurial issues. Adopting quite a different approach, they measure boardroom discussions of entrepreneurial issues as a percentage of time spent, using content analysis of keywords concerning entrepreneurial issues as a proportion of total words in board minutes. In a conceptual paper, Shropshire (2010) discusses the individual characteristics of interlocking directors that influence their motivations to transfer knowledge and the organisational characteristics that influence a board’s receptiveness to knowledge transfer from directors. There is little discussion of how knowledge transfer would be measured empirically.

In addition to the social-psychological processes that influence board effectiveness (Zattoni *et al.*, 2015), academics and practitioners point to the important role of the board chairman. For

example, the UK Corporate Governance Code (Financial Reporting Council, 2014, Supporting Principle B.5) states that “The chairman is responsible for ensuring that the directors receive accurate, timely and clear information”. Zhang (2010) reiterates that chairmen have an important role in motivating discussions and facilitating the utilisation and integration of information to create new knowledge. The UK Corporate Governance Code (Financial Reporting Council, 2014, Supporting Principle A.3) also refers to the role of the chairman in creating the appropriate environment for the exchange and sharing of information/knowledge: “The chairman should also promote a culture of openness and debate by facilitating the effective contribution of non-executive directors in particular and ensuring constructive relations between executive and non-executive directors”. In this role, chairmen can be considered the “knowledge activists” of the board (von Krogh *et al.*, 1997, p. 475). Knowledge activists are responsible for “energising and coordinating knowledge creation” (von Krogh *et al.*, 1997, p. 475). They enable rather than control the knowledge conversion processes and the exchange/sharing of explicit and implicit/tacit information/knowledge.

Based on video recordings of six board meetings, Pugliese *et al.* (2015a) find information exchange and information sharing depends on which board members are most knowledgeable on a topic. Consistent with our model, Pugliese *et al.* (2015b) observe that board-level information infrastructure is associated with better board functioning. Their analysis of boardroom communication patterns reveals that, in addition to the information provision activity, an information processing activity is required to ensure effective board functioning.

Our conceptual model complements the aforementioned prior studies. While prior studies have considered the drivers or motivations of information/knowledge exchange/sharing amongst board members, this paper addresses the information/knowledge-sharing processes. Perfect information/knowledge sharing will not solve all problems as the reference to “danger zones” (Thomas *et al.*, 2009, p. 71) earlier in the paper suggests – where the board and management are equally unaware of looming problems. However, recognising the distinction between tacit and explicit information/knowledge and examining the processes for unlocking tacit information/knowledge, will strengthen boards’ ability to exercise their monitoring and advisory roles posited under agency and resource dependence theories.

5.3 Practical implications of the model

The conceptual model may assist in the induction, education and on-going development of managers and non-executive directors. Moreover, when used to evaluate boards, the model may provide a framework for establishing and assessing boards' information/knowledge-sharing processes. The model has implications for understanding the types of information/knowledge used by boards and the processes involved in information/knowledge exchange/sharing and creation. The model also has implications for board composition, specifically the mix of executive and non-executive directors. It provides a framework for better understanding the roles of managers and non-executive directors on boards and the distinction/difference between their roles. The model may assist in explaining that it is not the job of non-executive directors to equal the lifelong level of information/knowledge of managers and it is not non-executive directors' job to second guess management. The model also supports the idea of a diverse board – that having company managers on boards is not sufficient. It also supports the importance of a mixture of professional backgrounds on boards as such diversity is expected to be better at creating explicit information/knowledge and creating the conditions under which tacit information/knowledge is surfaced. Our model illustrates the boundary between information/knowledge levels and the advantages in some board members not having too much company-specific information/knowledge. Against the conventional wisdom, this assertion seems counter-intuitive.

6. Conclusions

The paper contributes to the literature by examining information/knowledge exchange, sharing and creation between managers and non-executive directors, by challenging the conventional wisdom on information asymmetry and by reconceptualising information asymmetry away from what is/is not known by managers/non-executive directors to the nature of the information sets of the two groups. Taking an alternative perspective on information asymmetry leads to an appreciation that it is by the nature of their different information sets that non-executive directors can make a contribution.

By analysing the nature of information/knowledge, taking into consideration Nonaka's knowledge conversion processes, we reconceptualise the nature of board information/knowledge in the form of a conceptual model. The model provides a richer understanding of this aspect of the "black box" of the boardroom. The model has a dual

purpose: to provide a more nuanced agenda of the management-board information asymmetry problem, and to better understand the role of different types of information in practice.

For some commentators, to be truly effective, directors should overcome information asymmetry so that they will have a firm grasp of the business and its risks (Thomas *et al.*, 2009). However, any demand for information/knowledge equivalence between boards and management fails to recognise that much of the valuable information/knowledge in organisations is specific to individuals and is tacit and is not readily communicable (Leonard and Sensiper, 1998). Further, it is precisely this failure which gives rise to the independence paradox and which also obscures rather than illuminates the manager-non-executive director information/knowledge dynamic.

Manager-non-executive director information asymmetry refers to the perception that boards have less information/knowledge than the management which they are meant to monitor. On the face of it this is alarming. It is less so when board and management information/knowledge are considered to be different but complementary. Analysis in this paper leads to the belief that management information/knowledge is primarily tacit or implicit and board information/knowledge is primarily explicit and that the one complements the other. Ultimately this belief is a matter for empirical testing. The “independence paradox” refers to the apparent contradiction of boards depending on management for the information/knowledge they need to monitor that same management. Such a characterisation misses the point. Accountability, involving the process of transition from the individual judgements of managers to the collective judgements of boards, is the real manager-non-executive director information/knowledge dynamic.

Some solutions to manager-non-executive director information asymmetry are based on increasing the amount of board information and doing this independently of management. This purported solution perceives information as a tradable, depersonalised commodity. This perspective – in our view – is mistaken. Management information/knowledge is largely tacit or implicit and board information/knowledge is largely explicit. The tacit-explicit information/knowledge distinction in contemporary business literature and in the works of Nonaka provides an explanatory framework for the differences and the inter-dependence between management and board information/knowledge. The paradox is that, contrary to agency theory conceptualisations, information asymmetry is a necessary condition for

effective boards. Thus, information asymmetry cannot be addressed with more information. Rather, better processes of information/knowledge exchanging, sharing and creation are required, which accept and exploit the opportunities presented by the “information asymmetry paradox”.

Based on the foregoing, management information/knowledge is primary and direct; board information/knowledge is secondary and mediated. By engaging with boards, managers are required to account for their actions and to make explicit what otherwise would be implicit and inaccessible. Information asymmetry between boards and management is a fact. Management has more company-specific information. Boards depend on management for much of their information. We must accept these realities of individual experience and group dynamics as we find them rather than seek to invent some idealised governance process. Some commentators, however, have adopted a different approach. They regard information asymmetry as a serious threat to board effectiveness.

This paper has questioned these views, arguing that care is needed in drawing such adverse conclusions from the facts as stated. Instead, it proposes that a more benign information/knowledge paradigm can be deduced from the same facts; namely that manager-non-executive director information processes, while different, are complementary. The largely implicit information/knowledge of managers finds its confirmation and validation in the accountability discourse of the boardroom. Our conceptual model portrays a more nuanced approach to boardroom dynamics for an enhanced understanding of the complexities of the underlying relationships. The two distinct information/knowledge streams join in a common outcome and a shared judgement as expressed in the time-honoured minute of decision: “It was resolved...”.

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¹ Following from Huber (1991, page 89, footnote 1), we use the terms "information" and "knowledge" interchangeably.

² Mintzberg (1973) uses the term "verbally" to mean "orally" or "not in writing".

³ Such a division of information roles is consistent with an "effective system for decision control [which] implies, almost by definition, that the control (ratification and monitoring) of decisions is to some extent separate from the management (initiation and implementation) of decisions" (Fama and Jensen, 1983, p. 304).

⁴ We thank one of the reviewers for this phrase.