An examination of management control systems from an organisational life cycle perspective and their association with employee organisational commitment

by

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CERTIFICATE OF ORIGINALITY

I hereby certify that this thesis is the result of my own research and that it has not, nor has any part of it, been submitted for a higher degree to any other university or institution. The sources of information used and the extent to which the work of others has been utilized, are acknowledged in the thesis. The thesis has also received the approval of the Ethics Review Committee (Human Research) at Macquarie University.

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ABSTRACT

The thesis examines the use of specific types of controls, the approaches to using controls, and their association with employee organisational commitment (EOC) from an organisational life cycle (OLC) perspective. Data were collected by a survey questionnaire from a random sample of 343 general managers in Australian manufacturing organisations.

The thesis employs the "thesis by publication" format and comprises three academic papers. Paper One examines the association between the use of Snell's (1992) three types of controls (input, behaviour and output) and four of Miller and Friesen's (1984) OLC stages (birth, growth, maturity, revival)[1]. These results indicate that both behaviour and input controls are used to a significantly greater extent than output controls in both the birth stage and the growth stage, while all three types of controls are used to a similar extent in the maturity and revival stages. The results also reveal that each type of control is used to a significantly greater extent in the growth and revival stages than the birth and maturity stages.

Paper Two examines the association between the approaches to using controls (interactive and diagnostic) and four of Miller and Friesen's (1984) OLC stages. The results show that the interactive and diagnostic approaches are used to a similar extent in each of the four OLC stages. In addition, each approach is found to be used to a greater extent in the growth and revival stages than the birth and maturity stages.

Paper Three examines the association between the three types of controls and the two approaches to using controls with the level of EOC. The results indicate that the use of input controls and the interactive approach to using controls are significant determinants of the

[1] Decline stage is not included as previous studies have found that it is difficult to obtain data from decline stage organisations.

level of EOC. Such associations were also explored from an OLC perspective, with the results revealing that the use of input controls is positively associated with the level of EOC in the birth and revival stages.

The thesis contributes to the management control system (MCS) literature by adopting the configuration approach to examine MCSs from an OLC perspective. The findings provide Australian manufacturing organisations with an insight into the suitability of specific types of controls and approaches to using controls in different stages of the OLC. The findings also highlight the importance for organisations to adjust the emphasis placed on each type of control and each approach to using controls as they move from one stage to another. The thesis further contributes to the MCS literature examining the effectiveness of MCSs in respect to a behavioural outcome, EOC. In particular, given that there has been no empirical evidence provided in the literature in respect to the association between the types of controls and approaches to using controls with the level of EOC, the identified associations can assist organisations in understanding how the application of their MCSs can be used to enhance their employees' organisational commitment.

CHAPTER ONE

INTRODUCTION

1.1 Background

Management control systems (MCSs) are defined by Anthony (1965, p.17) as "the process by which managers ensure that resources are obtained and used effectively and efficiently in the accomplishment of the organisation's objectives". There have been two main streams of research on MCSs, one focusing on the effect of contingent factors on MCSs and the other which examines the effectiveness of MCSs. The first stream, contingency theory, suggests that managers seek to attain a fit between contextual factors and MCSs within organisations so as to achieve superior performance (Govindarajan and Gupta, 1985; Langfield-Smith, 1997; Chenhall, 2003). Previous studies have examined the effect of various contingent factors on MCSs, namely strategy (Govindarajan, 1988; Chenhall and Morris, 1995; Gosselin, 1997; Van de Ven, 2000; Baines and Langfield-Smith, 2003; Auzair and Langfield-Smith, 2005; Lillis and Van Veen-Dirks, 2008), organisational environment (Otley, 1978; Imoisili, 1985; Chenhall and Morris, 1986; Ezzamel, 1990; Merchant, 1990; Gupta and Chin, 1993; Libby and Waterhouse, 1996; Moores and Sharma, 1998; Mia and Clarke, 1999; Hill, 2000; Hoque et al., 2001; Gosselin, 2005), organisational structure (Bruns and Waterhouse, 1975; Merchant, 1981; Chenhall and Morris, 1986; Morrow and Connolly, 1994; Chia, 1995; Gosselin, 1997; Landry et al., 1997; Abernethy et al., 2004; Lee and Yang, 2011), culture including national culture (Frucot and Shearon, 1991; Ueno and Wu, 1993; Harrison et al., 1994; Merchant et al., 1995; Sivakumar and Nakata, 2001; Efferin and Hopper, 2007) and organisational culture (O'Connor, 1995; Goddard, 1997; McKinnon et al., 2003; Baird et al., 2004; Henri, 2006a), and contemporary technologies (Foster and Horngren, 1988; Banker et

al., 1993; Ittner and Larcker, 1995; Kalagnanam and Lindsay, 1999; Fullerton and McWatters, 2002; Lee and Whang, 2005).

However, since each organisation is located within a specific configuration of different contingent variables, a concern has been raised in regard to these contingency based studies as they examine different contingent factors in isolation. For instance, Fisher (1998) pointed out that the examination of single contingent factors ignores the possibility that their influence on MCSs may differ when the effect of multiple contingent factors are considered simultaneously. Similarly, Gerdin (2005) suggested that there is a gap in the MCS literature where the influence of multiple contingent factors on MCSs is investigated simultaneously.

Consequently, researchers began to introduce the concept of an organisational life cycle (OLC) in the MCS literature to ensure that due consideration was given to multiple contingent factors simultaneously. In particular, the OLC classifies organisations into different stages based on the simultaneous consideration of multiple contingent variables. Studies by Moores and Yuen (2001), Auzair and Langfield-Smith (2005), Davila (2005), Kallunki and Silvola (2008), Silvola (2008) and Kober (2010), have examined MCSs from an OLC perspective, mainly focusing on specific control mechanisms. For instance, Moores and Yuen (2001) reported that there were significant differences in the level of MCS formality across OLC stages, while Auzair and Langfield-Smith (2005) found that the level of bureaucracy of MCSs varied across OLC stages. In addition, Kallunki and Silvola (2008) identified significant differences in the use of activity-based costing across OLC stages, and Silvola (2008) indicated that the use of budgeting, earnings management and the control of profit centers differed across OLC stages.

While Davila (2005) examined the types of controls across OLC stages, and Kober (2010) linked the approaches to using controls to OLC stages, both studies only focused on the first two OLC stages, birth and growth. Specifically, Davila (2005) examined Merchant's (1998) three types of controls (results, action and personnel controls)[2] across the birth and growth stages, while Kober (2010) examined Simons' (1995) interactive and diagnostic approaches to using controls across the birth and growth stages. This study examines the association between MCSs and OLC stages by focusing on two different MCS aspects, namely the types of controls used (input, behaviour and output controls), based on Snell's (1992) control model, and the approaches to using controls (interactive and diagnostic approaches), based on Simons' (1995) levers of control model. This study also aims to extend the current MCS literature by incorporating a wider range of OLC stages, including the birth, growth, maturity and revival stages of Miller and Friesen's (1984) OLC model[3].

The second stream of MCS research examines the effectiveness of MCSs, with the majority of studies focusing on organisational outcomes such as organisational performance (Merchant, 1981; Abernethy and Guthrie, 1994; Snell and Youndt, 1995; Chenhall, 1997; Abernethy and Brownell, 1999; Hoque and James, 2000; Abernethy and Lillis, 2001; Baines and Langfield-Smith, 2003; Maiga and Jacobs, 2005; Abernethy et al., 2007; Sandino, 2007; Jermias and Setiawan, 2008; Lee and Yang, 2011) and organisational learning (Simons, 1995, 2000; Kloot, 1997; Makhija and Ganesh, 1997; Driver, 2001; Henri, 2006b; Abernethy et al., 2007; Batac and Carassus, 2009). MCS effectiveness has also been examined in respect to behavioural outcomes, such as job-related stress (Hopwood, 1972; Imoisili, 1989; Shields and

[2] Davila (2005) did not include a measure of these three types of controls, but rather used them to classify specific MCS attributes.

[3] While Miller and Friesen's (1984) OLC model consists of five OLC stages including the birth, growth, maturity, revival and decline stages, the decline stage was not included as previous studies (Silvola, 2008; Kallunki and Silvola, 2008; Auzair and Langfiled-Smith, 2005) have found that it is difficult to obtain data from decline stage organisations.

Shields, 1998; Shields et al., 2000; Gillespie et al., 2001), and job satisfaction (Chenhall, 1986; Frucot and Shearon, 1991; Banker et al., 1993; Oliver and Anderson, 1994; Fletcher and Williams, 1996; Kim, 2002; Leach-Lopez et al., 2008; Lautizi et al., 2009).

While employee organisational commitment (EOC), as a behavioural outcome, has also been used to assess MCS effectiveness (Caldwell et al., 1990; Wallace, 1995; Fletcher and Williams, 1996; Mallak and Kurstedt, 1996; Russell, 1996; Rodwell et al., 1998; Metcalfe and Dick, 2001), such studies have tended to focus on the association between specific control mechanisms and the level of EOC. For instance, Caldwell et al. (1990), Wallace (1995) and Mallak and Kurstede (1996) focused on the link of performance to rewards, while Fletcher and Williams (1996) examined the characteristics of performance measurement systems. Russell (1996) investigated the effect of the level of information sharing and Rodwell et al. (1998) researched the association between the level of communication amongst employees and the level of EOC. Further, Metcalfe and Dick (2001) investigated how employees' participation in decision making and the feedback they received on their job performance affected the level of EOC. Therefore, this study aims to contribute to the MCS literature by examining the association between two different aspects of MCSs, namely the types of controls and the approaches to using controls, with the level of EOC.

This thesis employs the "thesis by publication" format. This entails inclusion of three separate, but interrelated research papers. Specifically, Paper One examines the association between Snell's (1992) three types of controls (input, behaviour and output controls) and Miller and Friesen's (1984) four OLC stages (birth, growth, maturity and revival stages). Paper Two examines the association between Simons' (1995) two approaches to using controls (interactive and diagnostic approaches) and Miller and Friesen's (1984) four OLC

stages. Paper Three examines the association between the three types of controls and the two approaches to using controls with the level of EOC. These associations are also examined from an OLC stage perspective. Data to test the hypotheses were collected from a random sample of 343 general managers in Australian manufacturing organisations. The business unit is chosen as the unit of analysis since different business units in an organisation may fall into different OLC stages, making it difficult to complete the survey at the corporate level.

The remainder of this chapter is organised as follows. Section 1.2 presents the motivation of the thesis. Sections 1.3, 1.4 and 1.5 provide details of each of the three papers respectively, and Section 1.6 provides the overall structure of the remainder of the thesis.

1.2 Motivation

The motivation for this study is to: (1) address a gap in the MCS literature by examining MCSs from an OLC perspective; (2) address a deficiency in the number of studies examining the effectiveness of MCSs in respect to the behavioural outcome EOC.

1.2.1 Addressing a gap in the MCS literature by examining MCSs from an OLC perspective

Gerdin and Greve (2004) classified contingency based research into two categories, namely the cartesian approach which focuses on how single contingent factors affect MCSs, and the configuration approach which focuses on how multiple contingent factors (configurations) affect MCSs.

The configuration approach suggests that organisational configurations represent alignments of distinct characteristics that occur together, and therefore allows for the investigation of

multiple contingent variables simultaneously (Gerdin and Greve, 2004). This approach is in line with the concept of an OLC, a dynamic form of configuration which classifies organisations based on their development stages. These development stages are referred to as OLC stages and are determined based on the simultaneous consideration of multiple contingent factors.

Compared to the cartesian approach which only provides a partial analysis of the association between single contingent variables and MCSs, the configuration approach is considered to provide a more holistic understanding of the relationship between organisations and their environment (Drazin and Van de Ven, 1985). In a similar vein, Auzair and Langfield-Smith (2005) argued that an effective MCS is a result of the simultaneous consideration of multiple contingency variables. Hence, it has been argued that the adoption of the configuration approach can offer a more accurate reflection of the association between contingency factors and MCSs. Accordingly, this study contributes to the MCS literature by examining the association between MCSs and OLC stages.

In examining MCSs the majority of studies have focused on the use of MCSs within organisations. Accordingly, there is an increasing call to differentiate the use of MCSs from the manner in which they are used. For instance, Abernethy et al. (2010) argued that what differentiates one control from another is not their technical characteristics but the way in which management use them. Similarly, Langfield-Smith (1997) asserted that it is not sufficient to merely investigate the existence of MCSs without examining how they are used. Despite these claims, only a limited number of studies have focused on the manner in which MCSs are used (Kober et al., 2007; Naranjo-Gil and Hartmann, 2007; Widener, 2007; Abernethy et al., 2010; Bobe and Taylor, 2010; Kober, 2010). Therefore, in examining the

association between MCSs and OLC stages, this study aims to examine both the types of controls (Paper 1) and the approaches to using controls (Paper 2).

1.2.2 Addressing a deficiency in the number of studies examining the effectiveness of MCSs in respect to the behavioural outcome EOC

The importance of behavioural outcomes was recognised by Merchant and Van der Stede (2007), who argued that MCSs focus on dealing with employees' behaviour and are used to shape this behaviour to ensure employees act in the best interests of their organisations. While a number of studies have examined the effectiveness of MCSs in terms of their association with behavioural outcomes, Meyer and Smith (2000) argued that more attention needs to be placed on EOC as it is positively associated with job performance (Chan, 2006; Sahoo and Das, 2011), employee retention (Stallworth, 2004; Sahoo and Das, 2011) and the acceptance of organisational change (Yousef, 2000; Vakola and Nikolaou, 2005). Accordingly, this study aims to address the deficiency in the MCS literature by examining the effectiveness of MCSs in terms of their association with the level of EOC.

In addition, while a limited number of studies have examined the association between MCSs and the level of EOC (Caldwell et al., 1990; Wallace, 1995; Mallak and Kurstedt, 1996; Fletcher and Williams, 1996; Russell, 1996; Rodwell et al., 1998; Metcalfe and Dick, 2001), these studies have focused on specific control mechanisms. This study therefore will extend the current MCS literature by focusing on two different aspects of MCSs, namely the types of controls and the approaches to using controls. Consistent with Paper One and Two, the associations between the types of controls and the approaches to using controls with the level of EOC will be also explored from an OLC perspective (Paper 3).

1.3 Paper One: Management control systems: the role of input, behaviour and output controls from an organisational life cycle perspective

This paper applies the configuration approach to examine the association between Snell's (1992) three types of controls (input, behaviour and output controls) and Miller and Friesen's (1984) four OLC stages (birth, growth, maturity and revival stages). Specifically, the study investigates the extent to which Snell's (1992) input, behaviour and output controls are currently used in each OLC stage. The results indicate that both behaviour and input controls are used to a significantly greater extent than output controls in both the birth and the growth stage, while all three types of controls are used to a similar extent in the maturity and revival stages. The study also examines the emphasis placed on each type of control as organisations move from one OLC stage to another. The results reveal that each type of control is used to a significantly greater extent in the growth and revival stages than in the birth and maturity stages.

While OLC stages have been extensively examined in the organisational literature, only a limited number of studies have investigated the association between MCSs and OLC stages in the MCS literature (Moores and Yuen, 2001; Auzair and Langfield-Smith, 2005; Davila, 2005; Kallunki and Silvola, 2008; Silvola, 2008; Kober, 2010). Accordingly, this study contributes to the MCS literature by linking MCSs to OLC stages, with the findings reinforcing those of Moores and Yuen (2001) and Davila (2005). While the findings were not intended to provide an insight into the success of the use of specific controls in different OLC stages, the observance of current practices does however provide managers with an insight into the suitability of specific types of controls for business units in different stages of the OLC. The findings also highlight the importance for managers to adjust their emphasis on each type of control as organisations moves from one OLC stage to another.

1.4 Paper Two: Management control systems: the role of interactive and diagnostic approaches to using controls from an organisational life cycle perspective

This paper examines the association between Simon's (1995)'s two approaches to using controls (interactive and diagnostic) and Miller and Friesen's (1984) four OLC stages. While a significant body of management control system (MCS) literature has focused on examining the existence of controls, less emphasis has been placed on examining the manner in which controls are used (Ferreira, 2002; Ferreira and Otley, 2009; Abernethy et al., 2010). The study therefore fills in a gap in the MCS literature by examining the association between approaches to using controls (i.e. interactive and diagnostic) and OLC stages. First, the study examines how organisations adjust their emphasis on the interactive and diagnostic approaches as they move from one OLC stage to another. The results reveal that both the interactive and the diagnostic approach are used to a greater extent in the growth and revival stages than in the birth and maturity stages. Secondly, the study examines the extent to which the interactive and diagnostic approaches are used in each of Miller and Friesen's (1984) four OLC stages, with the results indicating that the interactive and diagnostic approaches are used to a similar extent in each OLC stage.

The findings provide managers with an insight into the prevalence of approaches to using controls within and across OLC stages. Specifically, the findings highlight the importance for managers to adjust the emphasis on the extent to which controls are used interactively and diagnostically as organisations moves from one OLC stage to another. The findings also indicate that managers need to focus on both approaches to a similar extent within each individual OLC stage.

1.5 Paper Three: Management control system effectiveness: the association between types of controls and approaches to using controls with employee organisational commitment

Adopting Snell's (1992) three component control model and Simons' (1995) framework regarding the approaches to using controls, this study examines the association between i) the extent to which input, behaviour and output controls are used and the level of EOC; and ii) the extent to which the interactive and diagnostic approaches to using controls are employed and the level of EOC. The results reveal that the use of input controls and the interactive approach to using controls are significant determinants of the level of EOC. Such associations were also explored from an OLC perspective, with the results showing that the use of input controls is positively associated with the level of EOC in the birth and revival stages.

The study contributes to the MCS literature by addressing a deficiency in the number of studies examining the effectiveness of the types of controls and the approaches to using controls in respect to a behavioural outcome, EOC. The study also provides additional insights into the association between the three types of controls and the two approaches to using controls with the level of EOC by exploring such associations from an OLC perspective. The findings have important implications for Australian manufacturing organisations. In particular, by providing an insight into the factors affecting the level of EOC, the results suggest that more emphasis needs to be placed on input controls and the interactive approach to using controls.

1.6 Organisation of the thesis

The remainder of the thesis is organised as follows. Chapter Two provides a review of the MCS literature. Chapters Three, Four and Five contain the three self-contained papers, with separate references, appendices, tables and figures presented at the end of each paper.

Chapter Six summarizes the findings of each of the three papers, and provides an overall conclusion. The limitations and suggestions for future studies are also discussed in Chapter Six.. The survey questionnaire used for all three papers is provided in the appendix at the end of the thesis.

CHAPTER TWO

LITERATURE REVIEW

This chapter provides a comprehensive literature review of management control system (MCS) studies. First, Section 2.1 provides an overview of the different definitions of MCS in the literature. Section 2.2 then reviews the two main types of MCS studies, those examining how contingency factors affect MCSs and those examining the effectiveness of MCSs. Section 2.3 focuses on the role of organisational life cycle (OLC) stages as a recently developed contingency-based factor associated with MCSs. Section 2.4 then discusses the effectiveness of MCSs in respect to a particular behavioural outcome, employee organisational commitment (EOC). Finally, Section 2.5 provides a summary of the chapter and details regarding the organisation of the remainder of the thesis.

2.1 Definitions of MCSs

MCSs have been conceptualized in various ways in the literature. Some studies define MCSs in respect to goal congruence and objective accomplishment. For instance, separating management control from strategic planning and operational control, Anthony (1965) defined a MCS as “the process by which managers ensure that resources are obtained and used effectively and efficiently in the accomplishment of the organisation’s objectives” (p.17). Flamholtz et al. (1985) regarded MCSs as the means to achieve goal congruence and defined them as “techniques and processes to achieve goal congruence which may be designed for all levels of behavioural influence: individual, small groups, formal subunits and the organisation as a whole” (p.36). Similarly, Otley and Berry (1994) referred to an MCS as a set of procedures and processes applied by managers to achieve their goals and the goals of their organisations.

Simons (1987a), from a different perspective, defined an MCS as "the formalized routines and procedures that use information to maintain or alter patterns in organisational activity" (p.358). Simons' (1987a) definition focuses on the manner in which MCSs are used, with information-based systems only referred to as MCSs when they are used to maintain or alter patterns in organisational activities (Simons, 1987a).

Other studies define MCSs based on the assumption that superiors are seeking to control subordinates' behaviour (Euske and Riccaboni, 1999; Horngren et al., 2002; Merchant and Van der Stede, 2007; Malmi and Brown, 2008). For instance, Merchant and Van der Stede (2007) defined an MCS as dealing with employee's behaviour, maintaining that "it is people in the organisation who make things happen. Management controls are necessary to guard against the possibilities that people will do something the organisation does not want them to do or fail to do something they should do" (p.8). Similarly, Malmi and Brown (2008) suggested that "those systems, rules, practices, values and other activities management put in place in order to direct employee behaviour should be called management controls. If there are complete systems, as opposed to a simple rule, then they should be called MCSs" (p.290).

While there are various definitions of MCSs, the majority of previous studies examining MCSs within organisations have focused on specific aspects of MCSs (Merchant and Otley, 2007). For example, some studies have focused on specific control mechanisms such as budgeting (Merchant, 1981; Abernethy and Stoelwinder, 1991; Abernethy and Brownell, 1999; Shields et al., 2000; Chong and Chong, 2002), activity-based accounting (Foster and Swenson, 1997; Gosselin, 1997; Driver, 2001; Baird et al., 2004, Kallunki and Silvola, 2008), performance evaluation (Porter, 1980; Ittner and Larcker, 1997; Hoque and James, 2000; Abernethy and Lillis, 2001; Baines and Langfield-Smith, 2003; Henri, 2006a; Lee and Yang,

2011), and reward systems (Govindarajan and Gupta, 1985; Snell and Dean, 1994; Ittner and Larcker, 1995; Ittner et al., 2003). Other studies have developed various control typologies to examine the use of different types of controls within organisations (Rockness and Shields, 1984; Eisenhardt, 1985; Govindarajan and Fisher, 1990; Abernethy and Stoelwinder, 1995; Snell and Youndt, 1995; Abernethy and Brownell, 1997; Cardinal, 2001; Cardinal et al., 2004; Bonner, 2005; Davila, 2005; Abernethy et al., 2007; Sandelin, 2008). There are also studies that have focused on the manner in which controls are used (Simons, 1990, 1991, 1994; Abernethy and Brownell, 1999; Bisbe and Otley, 2004; Henri, 2006b; Kober et al., 2007; Moulang, 2007; Naranjo-Gil and Hartmann, 2007; Widener, 2007; Abernethy et al., 2010; Bobe and Taylor, 2010; Kober, 2010). This thesis places emphasis on the types of controls and the approaches to using controls with a detailed explanation of these concepts provided in subsections 2.3.2.1 and 2.3.2.2 respectively.

2.2 A review of MCS studies

A review of the literature on MCSs reveals that there are two main types of research in this area. First, there are the contingency based studies which examine the association between specific contingent factors and MCSs. Section 2.2.1 provides an overview of these contingency-based MCS studies. Secondly, there are the studies examining the effectiveness of MCSs in terms of either organisational or behavioural outcomes. These are reviewed in Section 2.2.2.

2.2.1 Contingency based MCS studies

Contingency theory suggests that managers seek to attain a fit between contextual factors and MCSs within organisations to achieve superior performance (Govindarajan and Gupta, 1985;

Langfield-Smith, 1997; Chenhall, 2003). This section provides an overview of the research examining the association between contingency factors and MCSs, with the following subsections focusing on the most widely examined contingent factors: strategy, organisational environment, structure, culture, and contemporary technologies. Finally, a preliminary discussion of the association between MCSs and OLC stages, the focus of this thesis, will be provided in subsection 2.2.1.6.

2.2.1.1 Strategy

Strategy is defined as "the plan of action that prescribes resource allocation and other activities for dealing with the environment and helping the organisation attain its goals" (Samson and Daft, 2005, p.821). Most studies examining the association between organisational strategy and MCSs have categorized strategies using one of the following four models: Miles and Snow's (1978) prospector, analyser, defender and reactor strategies (Gosselin, 1997); Miller and Friesen's (1982) entrepreneurial and conservative strategies (Chenhall and Morris, 1995); Porter's (1980) differentiation, focus, and cost leadership strategies (Govindarajan, 1988; Van de Ven, 2000; Baines and Langfield-Smith, 2003; Auzair and Langfield-Smith, 2005; Lillis and van Veen-Dirks, 2008); or Gupta and Govindarajan's (1984) build, hold, and harvest strategies (Govindarajan and Gupta, 1985; Guilding, 1999).

Adopting Miles and Snow's (1978) strategy typologies, Gosselin (1997) reported that firms following a prospector strategy were more likely to adopt simple forms of activity management such as activity analysis and activity cost analysis[4]. Applying Miller and

[4] Gosselin (1997) classified activity management into three levels: activity analysis, activity cost analysis, and activity based costing.

Friesen's (1982) typologies, Chenhall and Morris (1995) concluded that while tight control was used in firms pursing either a conservative strategy or an entrepreneurial strategy, it was more suitable for those following a conservative strategy.

Govindarajan (1988) applied Porter's (1980) strategy typologies, and identified a negative association between the adoption of a differentiation strategy and the emphasis on the achievement of budget targets. Similarly, Van de Ven (2000) found that a differentiation strategy was negatively associated with a rigid style of budgetary control and positively associated with budgetary slack. In addition, Baines and Langfield-Smith (2003) concluded that a change towards a differentiation strategy lead to a greater extent of use of advanced control mechanisms such as activity management and quality improvement programs, while Auzair and Langfield-Smith (2005) reported that firms pursuing a cost leadership strategy placed more emphasis on bureaucratic MCSs than those pursuing a differentiation strategy.

Lillis and van Veen-Dirks (2008) examined the effect of joint strategies (cost leadership and differentiation) on the design of manufacturing performance measurement systems (the reliance on efficiency, financial and customer-focused performance measures), and found a positive association between the joint use of cost leadership and differentiation strategies with the reliance on efficiency-focused performance measures.

Using Gupta and Govindarajan's (1984) typologies, Govindarajan and Gupta (1985) concluded that firms following a build strategy relied more on long-term measures such as market share and market development in the determination of managers' incentive bonuses than firms following a harvest strategy. Similarly, Guilding (1999) found that compared to

firms pursuing a harvest strategy, firms pursuing a build strategy placed more emphasis on long term performance.

2.2.1.2 Organisational environment

The organisational environment comprises "all elements existing outside the organisation's boundaries that have the potential to affect the organisation" (Samson and Daft, 2005, p.819). Many studies have examined how specific attributes of the organisational environment affect MCSs. These include environmental uncertainty (Chenhall and Morris, 1986; Ezzamel, 1990; Merchant, 1990; Moores and Sharma, 1998; Gosselin, 2005), environmental hostility (Otley, 1978; Imoisili, 1985; Gupta and Chin, 1993), and market competition (Libby and Waterhouse, 1996; Mia and Clarke, 1999; Hill, 2000; Hoque et al., 2001). For example, Chenhall and Morris (1986) found that static budgets were not suitable for firms with high levels of environmental uncertainty, while Merchant (1990) and Otley (1978) reported that environmental uncertainty and environmental hostility were positively associated with managers' pressure to meet financial budgets. In addition, Ezzamel (1990) provided support for a positive relationship between environmental uncertainty and the use of accounting performance measures. In a similar vein, Gosselin (2005) found a positive association between the level of environmental uncertainty and the use of both financial and non-financial measures, while Moores and Charma (1998) reported that environmental uncertainty is positively associated with the use of more subjective performance evaluation measures.

A number of studies have focused on the association between market competition and MCSs. For instance, Imoisili (1985) found that the intensity of market competition was positively related to the reliance on formal controls. Libby and Waterhouse (1996) identified a

significant relationship between the level of market competition and the extent of changes in MCSs, while Mia and Clarke (1999) found that firms with a higher level of market competition use MCS information to a greater extent than those exhibiting a lower level of market competition. Hill (2000) examined the effect of market competition on the use of costing systems, and reported a positive association between the level of market competition and the demand for accounting information to manage costs. Finally, Hoque et al. (2001) concluded that the intensity of market competition is positively associated with the use of multiple performance evaluation measures.

Chenhall (2007) summarized the research findings in regard to organisational environment, proposing that "the more uncertain the external environment, the more open and externally focused the MCS; the more hostile and turbulent the external environment, the greater the reliance on formal controls and an emphasis on traditional budgets" (p.173).

2.2.1.3 Organisational structure

Organisational structure is "the framework in which the organisation defines how tasks are divided, resources are deployed and departments are coordinated" (Samson and Daft, 2005, p.819). Burns and Stalker (1961) classified organisational structure into two general categories, namely the mechanistic structure characterized by a high level of centralization, formal rules, and a reliance on communication across vertical levels; and the organic structure characterized by a high level of decentralization, few formal rules, and a reliance on communication across horizontal levels.

A number of studies have examined the association between organisational structure and MCSs (Bruns and Waterhouse, 1975; Merchant, 1981; Chenhall and Morris, 1986; Morrow

and Connolly, 1994; Chia, 1995; Gosselin, 1997; Landry et al., 1997; Abernethy et al., 2004; Lee and Yang, 2011). For example, the level of decentralization, one of the main characteristics of an organic structure, was found to be positively associated with: (i) an emphasis on formal MCSs (Bruns and Waterhouse, 1975); (ii) an emphasis on formal communications and participation in budgets (Merchant, 1981); (iii) the adoption of activity analysis and activity cost analysis (Landry et al., 1997); and (iv) the demand for integrated and aggregated information from MCSs (Chenhall and Morris, 1986; Chia, 1995; Abernethy et al., 2004). Further, Gosselin (1997) and Morrow and Connolly (1994) found that an organic structure was more conducive to the adoption of activity analysis and activity cost analysis, while a mechanistic structure was more suitable for the adoption of activity based costing. In addition, Lee and Yang (2011) found that compared to mechanistic structured organisations, organisations with an organic structure relied more on integrated measures, including both financial and non-financial measures.

2.2.1.4 Culture

Scupin (1998) defined national culture as "a shared way of life that includes values, beliefs, and norms transmitted within a particular society from generation to generation" (p.36). The majority of studies focusing on national culture have applied either Hofstede's (1983) four dimension cultural model including power distance, individualism versus collectivism, uncertainty avoidance, and masculinity versus femininity, or Hofstede and Bond's (1988) five dimension model with the fifth dimension referred to as the Confucian dynamism (Frucot and Shearon, 1991; Ueno and Wu, 1993; Harrison et al., 1994; Merchant et al., 1995; Sivakumar and Nakata, 2001; Efferin and Hopper, 2007).

Assuming that Mexican firms have a larger power distance and stronger uncertainty avoidance than American firms, Frucot and Shearon (1991) reported no significant difference in the use of budgetary participation between Mexican and American firms. However, Sivakumar and Nakata (2001) found that participatory management techniques were used to a greater extent in Mexican firms than in American firms, due to the difference between the collectivism exhibited in Mexican firms and the individualism exhibited in American firms. In addition, Ueno and Wu (1993) examined the differences in the design of MCSs between American and Japanese firms, and concluded that compared to Japanese firms which exhibit a collectivism culture, American firms exhibit a individualist culture and therefore have a higher level of communication and coordination amongst employees, less emphasis on long term performance evaluation measures, and use budgetary slack to a greater extent.

Harrison et al. (1994) examined the importance of national culture in affecting organisational design and management planning and control systems, and reported that compared to Anglo-American society (America and Australia), East-Asian countries (Singapore and Hong Kong) placed a greater emphasis on long term planning and group-centred decision making. This was attributed to the difference in power distance, individualism and the Confucian dynamism. Similarly, Merchant et al. (1995) found that Taiwanese firms use long term performance incentives to a greater extent than American firms. Finally, Efferin and Hopper (2007) found that Chinese Indonesian firms, dominated by the Confucian culture, have a low level of budget participation and a high level of centralisation, use subjective rather than objective controls, have few rewards tied to results and have a high focus on the use of group-based rewards.

Some studies have examined the effect of organisational culture on MCSs (O'Connor, 1995; Goddard, 1997; McKinnon et al., 2003; Baird et al., 2004; Henri, 2006a), with O'Reilly and Chatman (1996) describing organisational culture as "a system of shared values and norms that define appropriate attitudes and behaviours for organisational members" (p.160). For instance, arguing that Hofstede's (1983) cultural dimension 'power distance' can be also used to compare organisational culture between local and foreign companies, O'Connor (1995) examined whether the difference in the organisational culture of local Singaporean firms (high power distance) and foreign firms (low power distance) affected the effectiveness of budgetary participation. The results indicated that the increase in budget setting participation resulted in a lower level of role ambiguity and improved superior and subordinate relationships in foreign firms, while such a relationship was not identified in local Singaporean firms. Goddard (1997) investigated the effect of organisational culture on budgetary control systems, with the results showing that a 'humanist culture' which focuses on organisations' social aspects and valuing people and relationships, is associated with a participative budgetary style, while a 'managerialist culture' which focuses on acceptance of uncertainty and is associated with a managerial budgetary style.

McKinnon et al. (2003) used O'Reilly et al.'s (1991) Organisational Culture Profile instrument and found that four organisational culture factors, namely innovation, respect for people, stability and aggressiveness, were associated with the extent of information sharing within organisations, while Baird et al. (2004) examined the association between three cultural factors (innovation, outcome orientation and tight versus loose control) and the adoption of activity management practices, reporting that all three cultural factors were significantly related to the extent of adoption of activity analysis and activity cost analysis. In addition, Henri (2006a) examined the effect of organisational culture (flexibility dominant

versus control dominant) on two attributes of performance measurement systems (diversity of measurement and the nature of use), and concluded that compared to control dominant firms, flexibility dominant firms applied a broader range of performance measures, and used performance measurement systems to emphasize organisational attention and to support strategic decision-making and legitimise actions to a greater level.

2.2.1.5 Contemporary technologies

Over the last two decades, various contemporary technologies, such as Total Quality Management (TQM), Just in Time (JIT) and Flexible Manufacturing Systems (FMSs), have also been considered as contingent factors associated with MCSs (Foster and Horngren, 1988; Banker et al., 1993; Ittner and Larcker, 1995; Kalagnanam and Lindsay, 1999; Fullerton and McWatters, 2002; Lee and Whang, 2005). For instance, Foster and Horngren (1988) found that firms which adopted FMSs focused more on timeliness, quality, operating efficiency and flexibility related performance measures, while Banker et al. (1993) reported that both JIT and TQM were associated with the use of non-financial, quality and productivity measures. Similarly to Banker et al. (1993), Ittner and Larcker (1995) reported that firms adopting TQM placed more emphasis on non-financial performance measures in their reward systems. In addition, Lee and Whang (2005) suggested that TQM played a significant role in supply chain management. Furthermore, Kalagnanam and Lindsay (1999) reported that JIT is best suited to informal, open and organic forms of controls, while Fullerton and McWatter (2002) concluded that the adoption of JIT was associated with the design of reward systems, with greater emphasis being placed on non-traditional performance measures such as quality-related measures.

2.2.1.6 OLC stages

As discussed in Chapter One there are two forms of fit which have been used in the contingency research literature, namely the cartesian approach and the configuration approach. While the cartesian approach focuses on how single contingent factors affect MCSs, the configuration approach suggests that organisational configurations represent alignments of distinct characteristics that occur together, and therefore allow for the investigation of multiple contingent variables simultaneously (Gerdin and Greve, 2004). Miller and Friesen (1984) used the configuration approach classifying organisations based on the simultaneous consideration of four organisational contingent variables: organisational situation, strategy, structure and decision-making style. Based on the consideration of these variables, organisations were classified into five development stages (birth, growth, maturity, revival and decline stages), with these stages referred to as organisational life cycle (OLC) stages.

While compared to the cartesian approach the configuration approach allows a more holistic understanding of organisations and their environment by examining multiple contingent factors simultaneously, only a limited number of MCS studies have adopted the configuration approach, examining MCSs from an OLC perspective (Moores and Yuen, 2001; Auzair and Langfield-Smith, 2005; Davila, 2005; Kallunki and Silvola, 2008; Silvola, 2008; Kober, 2010). This thesis therefore contributes to the MCS literature by incorporating the concept of OLC stages to examine the association between MCSs and OLC stages. In particular, the first paper in the thesis examines the use of Snell's (1992) three types of controls (input, behaviour and output) both within and across each of Miller and Friesen's (1984) four OLC stages (birth, growth, maturity and revival)[5], while the second paper examines Simons'

[5] While Miller and Friesen's (1984) OLC model consists of five OLC stages including the birth, growth,

(1995) two approaches to using controls (interactive and diagnostic) within and across each of Miller and Friesen's (1984) four OLC stages. A full explanation of the role of OLC stages as a contingent based factor associated with MCSs will be provided in Section 2.3.

2.2.2 Studies examining the effectiveness of MCSs

The effectiveness of MCSs has been extensively examined in the MCS literature, with the majority of studies focusing on the association between MCSs and organisational outcomes. There are also a number of studies examining the effectiveness of MCSs in respect to behavioural outcomes. Section 2.2.2.1 provides an overview of the studies which have examined the association between MCSs and organisational outcomes, while Section 2.2.2.2 discusses the literature examining the association between MCSs and behavioural outcomes.

2.2.2.1 Organisational outcomes

Studies examining the association between MCSs and organisational outcomes have mainly focused on organisational performance (Merchant, 1981; Abernethy and Guthrie, 1994; Snell and Youndt, 1995; Chenhall, 1997; Abernethy and Brownell, 1999; Hoque and James, 2000; Abernethy and Lillis, 2001; Baines and Langfield-Smith, 2003; Maiga and Jacobs, 2005; Abernethy et al., 2007; Sandino, 2007; Jermias and Setiawan, 2008; Lee and Yang, 2011) and organisational learning (Simons, 1995, 2000; Kloot, 1997; Makhija and Ganesh, 1997; Driver, 2001; Henri, 2006b; Abernethy et al., 2007; Batac and Carassus, 2009). Merchant (1981), for example, provided evidence of a significant positive association between participative budgeting and organisational performance, while Jermias and Setiawan (2008)

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maturity, revival and decline stages, the decline stage is not included as previous studies (Silvola, 2008; Kallunki and Silvola, 2008; Auzair and Langfiled-Smith, 2005) have found that it is difficult to obtain data from decline stage organisations.

found that such a relationship only exists within organisations with a higher number of hierarchical levels. In addition, Abernethy and Guthrie (1994) identified an association between the use of broad scope management accounting information and organisational performance. This is consistent with Hoque and James (2000) who found that a greater use of the Balanced Scorecard enhanced organisational performance.

Baines and Langfield-Smith (2003) reported that a greater reliance on non-financial management accounting information resulted in enhanced organisational performance, while Abernethy and Lillis (2001) found that qualitative aspects of organisational performance were more affected by non-financial performance measures, and quantitative aspects of organisational performance were more affected by financial performance measures. Chenhall (1997) examined the joint effect of the adoption of TQM and the emphasis on non-financial measures of performance, reporting that enhanced performance was associated with the interaction between the adoption of TQM and a greater emphasis on non-financial measures. Lee and Yang (2011) concluded that the association between the use of integrated performance measures and organisational performance was stronger in organisations with mechanistic structures than those with organic structures. In addition, Sandino (2007) investigated the MCSs that early-stage firms introduced, and found that early-stage firms with a better fit between their initial MCS and their strategy exhibited a better performance. Maiga and Jacobs (2005) reported that control mechanisms in relation to quality goal, quality feedback and quality incentives are positively associated with improved quality performance, which subsequently leads to better organisational performance in terms of increased sales and profits.

Snell and Youndt (1995) examined the effect of three types of controls (i.e. input, behaviour and output controls) on organisational performance, with the results indicating that input controls enhanced performance if the availability of output measures was low, while behaviour controls enhanced performance if the knowledge of transformation processes was complete. No association between output controls and organisational performance was identified. Alternatively, Abernethy et al. (2007) found that the combined use of input and output controls is positively associated with organisational performance such as increased profits. In addition, Abernethy and Brownell (1999) examined the effect of the manner in which budgets are used on organisational performance, and found that the diagnostic use of budgets can enhance organisational performance if strategic change is low while the interactive use of budgets can enhance organisational performance if strategic change is high.

In regard to organisational learning, Driver (2001) reported a positive association between the use of activity-based costing and organisational learning. Kloot (1997) found that the use of control mechanisms, such as performance measurement, participative decision making, personnel controls and the use of both internal and external information, enhanced organisational learning. Batac and Carassus (2009) argued that different types of controls had a different impact on organisational learning. Specifically, some controls, like cultural and bureaucratic controls, hindered organisational learning, while controls like budgetary control and operational controls facilitated organisational learning. In a similar vein, Makhija and Ganesh (1997) suggested a positive association between informal controls and organisational learning and a negative association between formal controls and organisational learning. In addition, Simons (1995, 2000) proposed that the interactive approach to using controls facilitates organisational learning while the diagnostic approach to using controls stifles organisational learning. This proposition was supported by Henri's (2006b) findings that the

interactive approach to using controls is positively associated with organisational learning, while the diagnostic approach to using controls is negatively associated with organisational learning.

Some studies argued that MCSs can not only affect organisational learning, but also be affected by organisational learning (Gray, 1990; Otley and Berry, 1994). For instance, Abernethy et al. (2007) explored the effect of organisational learning on input and output controls, with the results showing that organisational learning is positively related to the use of both input and output controls.

There are also some studies which have focused on a specific aspect of organisational learning, product innovation (Amabile, 1988; Davila, 2000; Cardinal, 2001; Bonner et al., 2002; Bisbe and Otley, 2004). For example, Amabile (1988) reported that the diagnostic approach to using controls restricted employees' creativity, and therefore stifled product innovation. Cardinal (2001) investigated the factors affecting technological innovation in the pharmaceutical industry and concluded that the use of input and output controls enhanced both incremental and radical innovation, while the use of behaviour controls only enhanced radical innovation. Davila (2000) found that the use of non-financial measures was more important than the use of financial measures in product innovation.

Furthermore, Bonner et al. (2002) reported that the interactive approach to using controls played an important role in the early stage of new product development, while the effect of the interactive approach on new product development was negative when projects had reached the design stage. Similarly, Bisbe and Otley (2004) examined the effect of the interactive use of MCSs on product innovation with the results dependent on the

organisations' current innovation level. Specifically, the interactive use of MCSs was positively associated with product innovation in less innovative firms, while negatively associated with product innovation in high innovative firms.

2.2.2.2 Behavioural outcomes

A number of studies have investigated the association between MCSs and behavioural outcomes, such as job-related stress (Hopwood, 1972; Imoisili, 1989; Shields and Shields, 1998; Shields et al., 2000; Gillespie et al., 2001), job satisfaction (Chenhall, 1986; Frucot and Shearon, 1991; Banker et al., 1993; Oliver and Anderson, 1994; Fletcher and Williams, 1996; Kim, 2002; Leach-Lopez et al., 2008; Lautizi et al., 2009), and employee organisational commitment (EOC) (Caldwell et al., 1990; Wallace, 1995; Fletcher and Williams, 1996; Mallak and Kurstedt, 1996; Russell, 1996; Rodwell et al., 1998; Metcalfe and Dick, 2001).

Hopwood (1972) and Imoisili (1989) found that a budget-constrained performance evaluation style was positively associated with employees' stress, while Shields and Shields (1998) identified a negative association between participative budgeting and job-related stress. Similarly, Shields et al. (2000) reported that employees' participation in standard setting can reduce their stress due to their increased feeling of control. In addition, Gillespie et al. (2001) demonstrated that the recognition and rewarding of employees' achievement contributed to reducing work-related stress.

Chenhall (1986) reported that budgetary participation was positively associated with job satisfaction. Similarly, Kim (2002) demonstrated that participative management enhanced job satisfaction. Leach-Lopez (2008) examined the association between budgetary participation and job satisfaction for both Mexican and US employees, with significant results identified

only for the Mexican sample. Furthermore, Fletcher and Williams (1996) found that participation in goal setting, feedback on goal achievement and performance, and linking performance with rewards were all positively associated with job satisfaction. The association between the provision of performance information and job satisfaction was also supported by Banker (1993). Finally, Lautizi et al. (2009) found that employee empowerment was significantly related to their job satisfaction, while Oliver and Anderson (1994) identified a positive association between behaviour controls and job satisfaction.

A limited number of studies have also examined the association between MCSs and the level of EOC. For example, the level of EOC was found to be significantly associated with performance management systems (Fletcher and Williams, 1996), reward systems (Caldwell et al., 1990; Wallace, 1995; Mallak and Kurstedt, 1996), organisational communication and information sharing (Rodwell et al., 1998; Russell, 1996), participative decision making and feedback on job performance (Metcalfe and Dick, 2001).

2.2.3 Summary

Section 2.2 has provided a literature review on the two main types of MCS studies. Specifically, Section 2.2.1 discussed the studies examining the association between different contingency factors and MCSs, including strategy, organisational environment, structure, culture, and contemporary technologies. OLC stages, as a recently new contingency factor, was also briefly discussed. The following section 2.3 will provide an extensive discussion of OLC stages and its relevance in MCS research.

Section 2.2.2 reviewed the studies examining the effectiveness of MCSs, in terms of organisational outcomes such as organisational performance and organisational learning, and

behavioural outcomes such as job-related stress, job satisfaction and EOC. Section 2.4 will focus on a specific behavioural outcome, EOC, as a measure of the effectiveness of MCSs.

2.3 Organisational life cycle (OLC) stages

The biological concept of an OLC suggests that organisations are born, attempt to grow and develop in different forms, and eventually die (Haire, 1959; Kimberly and Miles, 1980; Mintzberg, 1989). OLC stages are subsequently used to reflect the various stages of the development of organisations. Each stage implies integral complementarities amongst a diverse array of characteristics, and exhibits certain significant differences from all other stages (Miller and Friesen, 1984). While OLC stages have been extensively examined in the organisational literature, only a limited number of studies have investigated the association between MCSs and OLC stages in the MCS literature (Moores and Yuen, 2001; Auzair and Langfield-Smith, 2005; Davila, 2005; Kallunki and Silvola, 2008; Silvola, 2008; Kober, 2010). Accordingly, as indicated in Chapter One, this study is motivated to fill this gap in the MCS literature by examining the association between two MCS components, the types of controls (Paper One) and the approaches to using controls (Paper Two), with OLC stages. The remainder of this section is structured as follows. Section 2.3.1 reviews the different OLC stage models developed and provides the justification of the model selected in this study. Section 2.3.2 provides an overview of the studies which have examined the association between MCSs and OLC stages.

2.3.1 OLC stage models

The OLC has been categorized into different stages, varying from three to ten, with a summary of the models provided in Figure 1. Models with more stages break the general

FIGURE 1. A summary of OLC stage models[1]

Model	Start-up stage	Expansion stage	Maturity stage	Diversification stage	Decline stage
Lippitt and Schmidt (1967)	1. Birth	2. Youth	3. Maturity		
Smith et al. (1985)	1. Inception	2. High growth	3. Maturity		
Kimberly and Miles (1980)	1. Start-up	2. Growth	3. Maturity		4. Decline
Quinn and Cameron (1983)	1. Entrepreneurial	2. Collectivity	3. Formalization	4. Elaboration of structure	
Kazanjian (1988)	1. Conception & Development 2.Commercialization	3. Growth 4. Expansion	4. Stability		
Greiner (1972)	1. Creativity	2. Direction	3. Delegation	4. Coordination 5.Collaboration	
Churchill and Lewis (1983)	1. Existence 2. Survival 3a. Success-disengagement	3b. Success-Growth 4. Take-off	5. Resource Maturity		
Miller and Friesen (1984)	1. Birth	2. Growth	3. Maturity	4. Revival	5. Decline
Lester et al. (2003)	1. Existence	2. Survival	3. Success	4. Renewal	5. Decline
Adizes (1979)	1. Courtship 2. Infancy	3. Go-Go 4. Adolescence	5. Prime 6. Mature		7. Aristocracy 8. Early Bureaucracy 9. Bureaucracy 10. Death
Flamholtz (1990)	1. New Venture	2. Expansion	3.Professionalization 4. Consolidation	5. Diversification 6. Integration	7. Decline

[1]While the number of stages are different across different OLC models, this diagram was developed using five major stages in the interest of parsimony.

stages into more specific stages while models with fewer stages combine similar stages into more general stages (Lester et al., 2003). A model which contains only three stages is that of Lippitt and Schmidt (1967), who classified the OLC into the birth, youth and maturity stages. The critical concerns in the birth stage are to create a new organisation and survive as a viable system, while the critical concerns in the youth stage are to gain stability, reputation and develop pride. The critical concerns in the maturity stage are to achieve uniqueness and adaptability, and to contribute to society. A similar three-stage model was developed by Smith et al. (1985) who categorized the OLC into the inception, high growth and maturity stages in terms of an organisation's key functional characteristics. The inception stage starts when managers try to run their organisation by seeking support from suppliers of resources, while the growth stage arrives when managers focus on dealing with the demands that expansion brings. Organisations reach the maturity stage when managers reserve support for current business operations or future new growth.

One of the earliest four-stage models was developed by Kimberly and Miles (1980) with the stages distinguished based on the dimensions of age, size, growth rate, structural form, formalization, centralization and business tasks. This model consists of the start-up, growth, maturity and decline stages. The start-up stage is the period in which organisations concentrate on securing financial resources and attracting customers, while the growth stage is the period in which organisations actively seek expansion opportunities such as increasing market share and geographic coverage. In the maturity stage, there is formalization and stability with specific rules and procedures in place, while diversification and innovation are limited by rigid organisational structures. Finally, in the decline stage, organisations experience over-conservatism, little communication between different levels, and high employee turnover rates which generally leads to poor organisational performance.

Quinn and Cameron (1993) summarized the previous OLC literature and developed a four stage OLC model including the entrepreneurial stage, the collectivity stage, the formalization and control stage, and the elaboration of structure stage. In the entrepreneurial stage organisations are owner-controlled and there is minimal planning and coordination. A niche strategy prevails due to the limited resources available. In the collectivity stage employees are highly committed and the extent of informal communication and innovation increases. The emphasis then shifts from innovation to conservatism in the formalization and control stage. Stable structures and formal rules are in place and organisations focus on efficiency. Finally, in the elaboration of structure stage organisations attempt to expand their domain with a renewal strategy, and the structure becomes more decentralized compared with other stages.

Kazanjian (1988) used two case studies to study the growth pattern of organisations, focusing on the dominant problems faced by organisations in their development. A four stage model was subsequently developed. The first stage in this model is the conception and development stage whereby the focus is on invention and the development of a product or a technology. Structure and formality barely exist in this early stage as most issues are defined and directed by owners. In the second stage, the commercialization stage, organisations concentrate on learning how to make the product work successfully in the market after going through the product development stage. Subsequently, in the growth stage, organisations strive to increase product sales and avoid being driven out of the market. More formalized structures are introduced as the number of employees increases, and managers start to think of how to

balance profits and increase growth. Finally, as the growth rate decreases to the market growth rate, organisations enter the stability stage in which the focus is on maintaining current growth and market position.

Greiner (1972) developed a five OLC stage model based on the dominant management style used to achieve growth. The five stages consist of the creativity, direction, delegation, coordination and collaboration stages. In the creativity stage, organisations emphasize building a market and obtaining customers. Communication amongst employees is informal and there is no formal control system in place. Organisations which survive the first stage move to the direction stage in which functional structures are introduced. Communication amongst employees becomes formal and impersonal as hierarchical structures are established. In the delegation stage, low-level managers are given more authority, allowing them to penetrate larger markets and respond more quickly to customers' needs. However, with a greater extent of decentralization, high-level managers realize that low-level managers focus on their own fields without coordination throughout the organisation. Therefore, high-level managers try to regain control and the coordination stage is reached. In this stage staff personnel are hired to review the performance of low-level managers and to encourage them to consider the whole organisation rather than their own fields. Many systems and policies are introduced which subsequently results in a red-tape crisis. Finally, in the collaboration stage, in order to overcome the red-tape crisis and to solve problems timely, organisations

simplify their formal control systems and shift their emphasis to interpersonal collaboration. Teams are widely used across different functional departments so as to handle multiple tasks.

Churchill and Lewis (1983) also developed a five stage OLC model based on five management factors: managerial style, organisational structure, the extent of formal systems, major strategic goals, and the owner's involvement in the business. This model classifies organisations into the existence, survival, success, take-off and resource maturity stages. In the existence stage organisations are concerned with attracting customers and delivering products and services. When organisations attract a certain number of customers and are capable of providing products and services to them, the survival stage is reached. The major concern in the survival stage shifts from pure existence to being profitable. When organisations have grown in both size and market share and have attained the industry average profit level or above, they subsequently move to the success stage. The key issue is whether organisations should stay in this stage indefinitely or pursue further growth. If organisations choose to expand further, they move into the take-off stage, where they focus on how to grow rapidly and how to finance growth. In the last stage, the resource maturity stage, organisations have both sufficient staff and financial resources to engage in detailed strategic and operational planning. Formal systems, including rules and procedures, are well developed and extensive.

Based on the simultaneous consideration of organisational situation, strategy, structure and decision-making style, Miller and Friesen (1984) also developed a five stage OLC model consisting of the birth, growth, maturity, revival and decline stages. Birth-stage firms are small and owner controlled. The structures are simple and centralized while the decision-making style is intuition based without detailed analyses. Due to the focus on a narrow product scope, birth-stage firms pursue a niche strategy. In the growth stage, the emphasis moves to growth and early diversification. Compared to the birth stage, markets become more heterogeneous and structures become more complicated and less centralized. More factors and data analysis is taken into consideration in making decisions. In the maturity stage a conservative strategy is applied with a relatively stable organisational environment. Organisational structures are more centralized with less empowerment than in the growth stage, and the decision-making style is more risk averse than in any other stage. Revival-stage firms experience significant diversification and innovation in their products and markets and maintain a differentiation strategy. Environmental dynamism and hostility are higher than in any other stage, and divisional structures are adopted in order to cope with a very heterogeneous market. A high level of risk taking is involved in the decision-making process. Finally, in the decline stage the market scope is quite narrow. Organisations struggle to conserve resources due to the significant waste caused by poor performance. The strategy is extremely conservative with little innovation and risk taking and even routine operation decisions are made by top management. Based on Miller and Friesen's (1984) OLC stage model, Lester et al. (2003) also developed a five-stage OLC model, consisting of the

existence, survival, success, renewal and decline stages. While the five stages developed in Lester et al. (2003) are similar to the five stages incorporated in Miller and Friesen's (1984) OLC model, Lester et al.'s (2003) OLC model has not been widely used.

Flamholtz (1990) classified organisations into seven OLC stages based on the extent of development of six key areas (corporate culture, management systems, operational systems, resource management, products and services, and markets). The seven OLC stages include the new venture, expansion, professionalization, consolidation, diversification, integration and decline stages. The first stage, the new venture stage, involves the identification of the targeted market and the subsequent development of appropriate products. Organisations then pursue rapid growth in terms of the number of employees and sales in the expansion stage. In the professionalization stage, there is a need for formal controls such as specified organisational roles and responsibilities, performance evaluation systems and regular scheduled meetings. When organisations reach the consolidation stage, the major concern is the management of corporate culture, which is intangible but a significant organisational asset. In the diversification stage, the basic task is to diversify organisations by introducing one or more new products that will foster further growth. At the end of this stage, organisations will most likely be divisionalised with different business units and therefore integration is required. In the integration stage, the key challenge is to balance the degree of centralized control and the degree of divisional managers' freedom. Managers have to integrate different business units into an operating whole. However, due to the increasing

competition, complacency, and the erosion of leadership, organisations ultimately reach the decline stage.

The OLC stage model with the most stages was developed by Adizes (1979) who identified ten stages: courtship, infancy, go-go, adolescence, prime, mature, aristocracy, early bureaucracy, bureaucracy and the death stage. The description of the ten stages was based on the emphasis placed on the following four activities: producing results, acting entrepreneurially, administering formal rules and procedures, and integrating individuals into the organisation. In the courtship stage, the organisation is not yet established and the founders are engaged in a process of selling their ideas. Organisations will be born as long as the founders' commitment is solidified and they therefore enter the infancy stage. In the infancy stage, due to a lack of formal control systems organisations are highly centralized, and the focus is on producing results relating to various aspects such as product design, sales and service. The next stage is the go-go stage in which organisations take all opportunities as priorities. The high commitment of the founders allows organisations to survive in a competitive environment with limited capital. In the adolescence stage, more time is spent on planning and training due to the growth in administration tasks. Organisations are more short-term oriented rather than long-term oriented.

The next stage is the prime stage where results orientation plays a major role. The rates of growth in sales and profits are stable and predictable, and the focus is on the achievement of

efficiency. In the mature stage, results orientation is still dominant, and the culture becomes more formal with procedures and policies put in place and more frequent communication amongst employees. When organisations enter the aristocratic stage, they are inclined to maintain growth in revenues by increasing prices as opposed to developing new products or exploring new markets. Hence, organisations eventually lose their market share and revenues and the early bureaucracy stage arrives. In the early bureaucracy stage, instead of developing a better market strategy and solving existing problems, managers spend most of their time avoiding the responsibility for the organisations' declining performance and building coalitions within organisations to ensure their personal survival. This eventually leads to the arrival of the bureaucracy stage where organisations overemphasize systems, rules, procedures and forms. The worship of the written word results in high levels of inflexibility and inefficiency, and organisations subsequently enter the last stage, the death stage where organisations cease to exist and are dissolved.

While a number of different OLC models have been developed, Moores and Yuen (2001) argued that an acceptable OLC stage model must meet two criteria. First, a complete biological cycle of organisational development from birth to death should be covered in the model. Secondly, the model should have been examined empirically. Amongst the OLC models discussed, models which cover a complete biological cycle of organisational development from birth to death are limited to Adizes (1979), Kimberly and Miles (1980), Miller and Friesen (1984), Flamholtz (1990) and Lester et al. (2003). However, the models

developed by Adizes (1979), Kimberly and Miles (1980) and Flamholtz (1990) were considered inappropriate for use in the thesis as they did not provide a comprehensive quantitative approach to ascertain OLC stages. In addition, while Lester et al. (2003) provided a comprehensive measure of the OLC stages, the validity and reliability of this model has not been widely tested (Lester et al., 2003). Accordingly, Miller and Friesen's (1984) OLC model was considered to be the most appropriate model and is adopted in the thesis. This model has been empirically supported and has been widely used in recent MCS studies by Moores and Yuen (2001), Auzair and Langfield-Smith (2005), Davila (2005), Kallunki and Silvola (2008), Silvola (2008) and Kober (2010).

2.3.2 The link between MCSs and OLC stages

Studies examining the association between OLC stages and MCSs include Moores and Yuen (2001), Auzair and Langfield-Smith (2005), Davila (2005), Silvola (2008), Kalluki and Silvola (2008), and Kober (2010), with Miller and Friesen's (1984) OLC stage model applied in each of these studies. Auzair and Langfield-Smith (2005) investigated the level of bureaucracy of MCSs for organisations in the growth and maturity stages. The results from this study indicated that maturity stage organisations focus on bureaucratic MCSs more than growth stage organisations.

While studies by Moores and Yuen (2001), Kallunki and Silvola (2008) and Silvola (2008) incorporated more than two OLC stages, these studies focused on different aspects of MCSs.

For example, Moores and Yuen (2001) reported that the level of formality of MCSs was higher in the growth and revival stages than in the birth, maturity and decline stages, while Kallunki and Silvola (2008) found that the use of activity based costing was used to a greater extent in the maturity and revival stages than in the growth stages[6]. Silvola (2008) collected data from growth, maturity and revival stage firms, concluding that the top-down budgeting was applied to the greatest extent in the maturity stage, while earnings management and the control of profit centres was applied to a greater extent in the revival stage than in the growth and maturity stages.

The first paper in this thesis contributes to the MCS literature by examining the association between a different MCS aspect, the types of controls used, and OLC stages. While Davila (2005) examined the types of controls across OLC stages, using Merchant's (1998) control typology of results, action and personnel controls[7], he only examined firms in transition from the birth to growth stage. Paper One provides a more comprehensive analysis of the association between the types of controls and OLC stages by focusing on four stages (birth, growth, maturity and revival stages) of Miller and Friesen's (1984) OLC model. Furthermore, Paper One examines this relationship using a different model, Snell's (1992) three types of controls (input, behaviour and output controls). A review of the different control models and

[6] Only one birth-stage firm and only one decline-stage firm were obtained and they were combined with the growth-stage and maturity-stage firms respectively.

[7] Davila (2005) did not include a measure of these three types of controls, but rather used them to classify specific MCS attributes.

the justification for the adoption of Snell's (1992) model in Papers One and Three will be provided in Section 2.3.2.1.

In addition, the thesis will examine the association between another MCS aspect, the approaches to using controls, and OLC stages. While recent MCS studies have tended to shift the focus from examining the use of different types of controls to examining the manner in which controls are used (Langfield-Smith, 2007), Kober (2010) is the only study which has examined the association between the approach to using controls and OLC stages. Specifically, Kober (2010) undertook a retrospective longitudinal case study of a New Zealand company, and found that the interactive approach to using controls was introduced in the growth stage while the diagnostic approach to using controls was introduced at the end of the birth stage and became prevalent in the growth stage. However, Kober (2010) only focused on the birth and growth stages of Miller and Friesen's (1984) five OLC model. Accordingly, the second paper in this thesis aims to extend the current MCS literature by investigating how the adoption of Simons' (1995) interactive and diagnostic approaches to using controls may differ across four stages (birth, growth, maturity and revival stages) of Miller and Friesen's (1984) OLC model. A review of the different models in regard to the approaches to using controls and the justification for adopting Simon's model in Papers Two and Three is provided in Section 2.3.2.2.

2.3.2.1 Types of controls

Figure 2 provides a summary of the different control typologies developed in the literature. For example, Kober et al. (2003) categorized controls into the following nine groups: results monitoring, cost controls, bureaucratic controls, communications/integrative mechanisms,

FIGURE 2. A summary of control types

Source	**Models of controls**
Kober et al. (2003)	Result monitoring, cost control, bureaucratic controls, communications/integrative mechanisms, resource sharing, tightness of controls, professional controls, organisational culture and tailoring of controls to specific user needs.
Macintosh (1994)	Bureaucratic, charismatic, market, tradition and collegial controls
Whitley (1999)	Bureaucratic, output, delegated and patriarchal controls
Anthony and Govindarajan (2001)	Formal and informal controls
Gerdin (2005)	Rudimentary, broad scope and traditional (narrow) controls
Snell (1992)	Input, output and behaviour controls
Merchant (1998)	Result, action and personnel/culture controls
Abernethy and Brownell (1997)	Accounting, behaviour and personnel controls
Ouchi (1980)	Market, bureaucratic and clan controls

resource sharing, tightness of controls, professional controls, organisational culture and tailoring of controls to specific user needs. Results monitoring emphasizes outputs, with performance measured against preset standards; Cost controls are financial measures applied to ensure the efficient and effective execution of operations such as variance analysis;

Bureaucratic controls involve the close supervision and direction of subordinates; Communication/integrative mechanisms are formal or informal horizontal and vertical communications across different levels; Resource sharing refers to controls resulting from the working relationships with other divisions/sections; Tightness of controls refers to the extent of monitoring and supervision; Professional controls refer to the values, judgment and ethics internalized by members of the same profession; Organisational culture refers to a system of shared values and norms that guide employees' attitudes and behaviour; and tailoring of controls to specific user needs refers to the presentation of information content which is tailored to meet division/section requirements.

Macintosh (1994) categorized controls into five groups (bureaucratic, charismatic, market, controls by tradition and collegial). Bureaucratic controls focus on rules, procedures and written records. Subordinates are directly observed by their superiors to ensure that work is completed following the prescribed procedures. Opposite to bureaucratic controls, charismatic controls place little emphasis on rules and regulations. Such controls mainly rely on employee's personal loyalty to their superiors to guarantee compliance. Market controls focus on the achievement of pre-set results, with little attention placed on the process of achieving such results. Controls by tradition focus on socializing individual employee's objectives in alignment with organisational objectives. Goal congruence is achieved through shared values, belief structures and cultural norms. Collegial controls allow authority to be delegated to a particular group, who are usually experts in their field, and/or of high social

status. The group creates rules and policies to ensure that subordinates behave in a desired way.

Whitley (1999) developed a four category model (bureaucratic, output, delegated and patriarchal systems). Bureaucratic controls refer to the formal specification of the manner in which tasks and activities are to be performed. With output controls there is a much lower specification of how activities are to be performed, and employees generally have little involvement in setting performance standards and monitoring outputs. Under delegated controls employees are involved in performance standard setting and output monitoring to a moderate extent, with considerable power delegated to them; and with patriarchal controls there is a low level of reliance on formal rules and procedures, and a high level of emphasis on direct supervision and personal contacts in monitoring and controlling subunit activities.

Anthony and Govindarajan (2001) categorized controls as formal and informal. Formal controls are more objective by containing written rules and operating procedures, while informal controls are unconsciously designed and often have no written processes or policies.

Gerdin (2005) classified controls based on the level of detail and the frequency of reporting. Three categories of controls were identified: rudimentary, broad scope and traditional controls. Rudimentary controls are characterized by less detailed accounting information.

Broad scope controls entail frequent issues of detailed non-financial information, and traditional controls are characterized by frequent issues of financially oriented information.

Snell (1992) also developed a three component control model, consisting of input, behaviour and output controls. With input controls the degree and variety of employees' knowledge, skills and attitudes to their jobs can be manipulated; while with behaviour controls employees' ongoing behaviour can be observed and the way in which tasks are completed can be regulated. Output controls focus on the achievement of desired outcomes regardless of the means to achieve the targets. This model is similar to other three component models developed by Merchant (1998) (result, action and personnel/culture controls), Abernethy and Brownell (1997) (accounting, behaviour and personnel controls) and Ouchi (1980) (market, bureaucratic and clan controls)[8].

While there are a number of different control models, Paper One in this thesis applies Snell's (1992) three component model for several reasons. First, Walsh and Seward (1990) argued that an ideal MCS model should regulate both ability and motivation. Specifically, the ability of employees to accomplish tasks can be influenced through input controls, while their motivation can be influenced by using behaviour controls (such as standard operating procedures) and output controls (such as the use of incentives). Secondly, since input controls manage the drivers of performance such as employee knowledge and skills, while behaviour

[8] The terms result, accounting, output and market have been used interchangeably in the literature. Also, personnel, culture, clan and socialization have been used interchangeably in the literature.

and output controls manage the performance process and results respectively, the notion of input controls provides a 'symmetrical counterpart' to behaviour and output controls. The control model developed by Snell (1992) is therefore considered to provide a full range of organisational formal controls (Cardinal, 2001). Finally, Snell's (1992) three component model has been widely used in the MCS literature (Snell and Youndt, 1995; Cardinal, 2001, Cardinal et al., 2004; Abernethy et al., 2007; Johnson, 2011).

2.3.2.2 Approaches to using controls

Ferreira and Otley (2009) argued that the only two well-known models in regard to the approaches to using controls were Hopwood's (1972) three style model (budget-constrained, profit-conscious and non-accounting styles), and Simons' (1995) four lever framework (belief, boundary, interactive and diagnostic). Hopwood's (1972) model was used to examine the manner in which performance evaluation is conducted. Specifically, applying the budget-constrained style, performance is mainly evaluated based on the achievement of short term budgets regardless of other considerations; while the profit-conscious style focuses on performance assessment in terms of long run financial performance. In addition, compared to the budget-constrained style which only focuses on budget information, the profit-conscious style focuses on both budget information and other accounting information. Under the non-accounting style accounting information is regarded as insignificant in the process of performance evaluation.

In regard to Simons' (1995) four lever framework, the belief lever focuses on defining, communicating and reinforcing the basic values, purpose and direction for the organisation. It is used to motivate employees to search for and create opportunities to achieve the organisational mission. The Boundary lever focuses on specifying formal rules and limits, and communicating the actions that employees should avoid. The main purpose of the boundary lever is to allow employees' creativity and innovation within defined areas.

The interactive lever encourages managers to be regularly involved in the decision activities of subordinates. These ongoing decision making activities highlight the changing conditions of organisations and the need for adjusting existing control mechanisms. The interactive lever also encourages face-to-face dialogue and debate across different hierarchical levels, which facilitates organisational learning and innovation. The diagnostic lever aims to monitor outcomes and correct any deviations from preset performance standards. It links organisational strategy with critical performance variables and therefore conserves management attention and helps with the implementation of strategies. Managers only get involved in subordinates' activities when there are significant variances between actual and expected outcomes.

Since the second paper in the thesis focuses on examining the manner in which controls are used, Hopwood's (1972) model is considered inappropriate as it is used to examine how performance evaluation is conducted. In regard to Simons' (1995) four levers of controls, it is

argued that compared to belief and boundary levers, interactive and diagnostic levers place more attention on the relevance of the manner in which controls are used (Bisbe and Otley, 2004), and are therefore considered more appropriate as the focus of Paper Two. This is consistent with Langfield-Smith (1997), Ramos and Hidalgo (2003) and Merchant and Otley (2007) who suggested that the interactive and diagnostic levers allow a comparison of different controls in terms of the way they are used rather than their technical design characteristics. Furthermore, most previous studies examining the approach to using controls have focused on Simons' (1995) interactive and diagnostic levers (Abernethy and Brownell, 1999; Davila, 2000; Bisbe and Otley, 2004; Henri, 2006b; Kober et al., 2007; Ferreira and Otley, 2009; Bobe and Taylor, 2010). Accordingly, Paper Two adopts Simons' (1995) interactive and diagnostic levers, which are referred to as the interactive and diagnostic approaches to using controls respectively.

2.4 The effectiveness of MCSs: employee organisational commitment

Given that MCSs focus on managing employees' behaviour to ensure they act in the best interests of their organisations (Merchant and Van der Stede, 2007), the assessment of the effectiveness of MCSs in respect to a behavioural outcome such as EOC is extremely important. However, Meyer and Smith (2000) argue that EOC has received insufficient attention in the MCS effectiveness literature. Accordingly, this study aims to contribute to the literature by examining the MCS effectiveness in respect to the level of EOC. In particular,

the study will contribute to the literature by examining the association between both the types of controls and the approaches to using controls with the level EOC.

In today's tight labour market, Australian organisations have increasingly made great efforts in attracting, motivating and retaining their employees (Samson and Daft, 2005). EOC has therefore become extremely important for organisations, especially given its potential impact on employees' job performance (Mathieu and Zajac, 1990; MacKenzie et al., 1998; Ketchand and Strawser, 2001; Riketta, 2002), employee turnover (Mathieu and Zajac, 1990; Ketchand and Strawser, 1998; Stallworth, 2004) and the acceptance of organisational change by employees (Lau and Woodman, 1995; Iverson, 1996; Yousef, 2000; Vakola and Nikolaou, 2005).

While a limited number of studies have examined the association between specific control mechanisms with the level of EOC (Caldwell et al., 1990; Wallace, 1995; Fletcher and Williams, 1996; Mallak and Kurstedt, 1996; Russell, 1996; Rodwell et al., 1998; Metcalfe and Dick, 2001), there is no published study to date which has examined the association between the types of controls and the approaches to using controls with the level of EOC. Accordingly, the third paper in the thesis aims to contribute to the MCS literature by examining the association between the types of controls and the approaches to using control with the level of EOC. In addition, this study further explores such associations from an OLC

perspective. The following subsection 2.4.1 reviews the different definitions of EOC and provides justification of the definition adopted for the thesis.

2.4.1 The definition of EOC

There are various definitions of EOC. Some studies define EOC from an attitude perspective (Mowday et al., 1982; O' Reilly, 1989; Elizur and Meni, 2001), while others define EOC from a behavioural perspective (Meyer and Allen, 1997; Ingersoll et al., 2000). Morris et al. (1993) proposed that EOC is more likely to be a multidimensional concept incorporating both attitude and behavioural perspectives.

Definitions of EOC from an attitude perspective are provided by Mowday et al. (1982) who defined EOC as an attitude that presents the nature and quality of the relationship between an organisation and an employee. O'Reilly (1989) defined EOC as an employee's psychological attachment to the organisation such as their loyalty and value congruency with the organisation. Similarly, Elizur and Meni (2001) regarded EOC as an employee's emotional and functional bond to the organisation. Other studies have emphasized the behavioural perspective of EOC. Meyer (1997), for instance, defined EOC as an employee's willingness to continue working in the organisation, while Ingersoll et al. (2000) suggested that EOC represents an employee's intention to make a substantial effort on behalf of the organisation and to pursue the organisation's values and goals.

In Paper Three, the definition of EOC is adopted from Porter et al. (1974, p.604) who defined EOC as "(a) a strong belief in and acceptance of the organisation's goals and values; (b) a willingness to exert considerable effort on behalf of the organisation; (c) a definite desire to maintain organisational membership". This definition is preferred as it defines EOC from both the attitudinal and behavioural perspectives and it has also been widely adopted in the organisational behaviour literature (Steers, 1977; Bateman and Strasser, 1984; Chow, 1994; Varona, 1996; Metcalfe and Dick, 2002; Foote and Seipel, 2005).

Meyer and Allen (1987) classified EOC into three components consisting of affective, continuance and normative commitment. Affective commitment is defined as employees' emotional identification and attachment to their organisation. Continuance commitment refers to employees' perception of the costs associated with leaving their organisation. Meyer et al. (1990) identified two sub-dimensions of continuance commitment: the low alternatives commitment and the high sacrifice commitment. The low alternatives commitment refers to the fact that employees are more likely to stay with an organisation if there is a shortage of viable job alternatives. The high sacrifice commitment refers to the fact that employees are more likely to stay with an organisation if there is high personal sacrifice accompanied with leaving the organisation. Normative commitment refers to employees' feeling of moral obligation to stay within their organisation (Meyer and Allen, 1987).

Amongst the three types of commitment, both continuance and normative commitment are considered beyond the control of management. For instance, with regard to continuance commitment, employees who are provided a significant amount of bonuses may have a higher level of continuance commitment compared to those who are not given any bonus from the organisation, while employees with more extensive and/or diversified work experience may have a lower level of continuance commitment to the organisation because they are able to move to other organisations easily. Similarly, Wiener (1982) suggested that normative commitment may result from employees' internalization of norms and values before they enter into their organisations. For example, employees who have been educated believe that being committed to their organisation is the right thing to do and may exhibit a higher level of normative commitment than those who have not received such moral education.

While continuous and normative commitment are both beyond the control of management, the degree of an employee's affective commitment is dependent upon their attitude towards the organisation which may be influenced by their organisational environment. Accordingly, only affective commitment, which is under the control of management, will be considered in Paper Three.

2.5 Summary

This chapter has provided a comprehensive review of MCS studies, examining the contingency factors affecting various MCS components and the studies examining the effectiveness of MCSs. The chapter also discussed the role of OLC stages as a new contingency factor associated with MCSs. In particular, a discussion of the association between two specific aspects of MCSs, the types of controls and the approaches to using controls, with OLC stages was provided. These associations will be examined in Papers One and Two respectively. An explanation of the operationalization of the effectiveness of MCSs in respect to the behavioural outcome EOC was also provided. EOC will be used in Paper Three to examine the association between the types of controls and approaches to using controls with the level of EOC.

The remaining chapters are structured as follows. Chapters Three, Four and Five provide the three self-contained papers. Each paper is in an academic journal format and includes tables, figures and references. Chapter Six then summarizes the findings of each of the three papers, discusses the contributions to both the relevant literature and practice, identifies the limitations and provides suggestions for future research.

CHAPTER THREE

PAPER ONE

Management control systems: the role of input, behaviour and output controls from an organisational life cycle perspective

Abstract

This study examines the association between the use of Snell's (1992) three types of controls (input, behaviour and output) and Miller and Friesen's (1984) four organisational life cycle (OLC) stages (birth, growth, maturity, revival). Data were collected by a survey questionnaire from a random sample of 343 General Managers in Australian manufacturing organisations. The results indicate that the extent of use of different controls is associated with OLC stages. Specifically, both behaviour and input controls are found to be used to a significantly greater extent than output controls in both the birth stage and the growth stage, while all three types of controls are used to a similar extent in the maturity and revival stages. An examination of the use of each type of control across OLC stages reveals that each type of control is used to a significantly greater extent in the growth and revival stages than the birth and maturity stages. The study contributes to the management control system (MCS) literature by linking MCS studies to OLC studies. Most importantly, the study assists Australian manufacturing organisations in identifying the appropriate use of controls both in and across OLC stages.

Keywords

Organisational life cycle stage, input controls, behaviour controls, output controls.

1. Introduction

Over the last few decades, a major stream of management control system (MCS) research has focused on the examination of the influence of contingent variables on MCSs and the subsequent effectiveness of MCSs. Gerdin and Greve (2004) argued that there are two forms of fit which have been used in the contingency research literature, namely the cartesian approach which focuses on how single contingent factors affect MCSs, and the configuration approach which focuses on how multiple contingent factors (configurations) affect MCSs. Given the majority of MCS studies have applied the cartesian approach to examine the influence of single contingent factors such as the organisational environment (Chapman, 1998; Moores and Sharma, 1998), technology (Brownell and Dunk, 1991; Ittner and Larcker, 1997; Mia, 2000) and organisational structure (Gosselin, 1997; Scott and Tiessen, 1999) on MCSs, this study contributes to the MCS literature by adopting the configuration form of contingency fit. This approach is considered to be appropriate for two reasons. First, while the cartesian approach only provides a partial analysis of the effect of contingent variables on MCSs, examining the influence of such factors in isolation, the configuration approach allows a more holistic understanding of organisations and their environment by examining multiple contingent factors simultaneously. It is argued that this approach more accurately reflects the interaction between an organisation's environment and its MCS, with Auzair and Langfield-Smith (2005) suggesting that an effective MCS is a result of the simultaneous consideration of multiple contingent variables. Therefore, the adoption of the configuration approach contributes to the MCS literature by exploring more systematically the way in which multiple contingent factors influence MCSs. Secondly, both Henri (2008) and Gerdin

(2005) argue that there is a gap in the MCS literature investigating the simultaneous influence of multiple contingent variables on MCSs.

The configuration form of contingency fit suggests that organisational configurations represent alignments of distinct characteristics that occur together, and therefore allow for the investigation of multiple contingent variables simultaneously (Gerdin and Greve, 2004). Miller and Friesen (1984) developed a dynamic form of configuration by classifying organisations based on their development stages (birth, growth, maturity, revival and decline stages). These development stages are referred to as organisational life cycle (OLC) stages and are classified based on organisation's four contingent variables (organisational situation, strategy, structure and decision-making style) simultaneously (Miller and Friesen, 1984).

While OLC stages have been widely examined both conceptually and empirically in the organisational behaviour literature, a limited number of studies have examined the association between MCSs and OLC stages (Moores and Yuen, 2001; Auzair and Langfield-Smith, 2005; Davila, 2005; Kallunki and Silvola, 2008; Silvola, 2008; Kober, 2010). Some of these studies only incorporate one or two stages of Miller and Friesen's (1984) five stage OLC model. For instance, due to insufficient data Auzair and Langfield-Smith (2005) only investigated two stages of Miller and Friesen's (1984) five stage OLC model, examining the level of bureaucracy of MCSs for growth and maturity stage organisations. Similarly, Kober

(2010) only focused on the first two stages (birth and growth stages) of Miller and Friesen's (1984) OLC model, examining the manner in which controls are used.

While other studies (Moores and Yuen, 2001; Kallunki and Silvola, 2008; Silvola, 2008) have examined MCSs across more than two OLC stages, these studies have focused on different MCS aspects. For instance, Silvola (2008) found that the use of budgeting, earnings management and the control of profit centers differed across OLC stages, Kallunki and Silvola (2008) indicated that the use of activity based costing varied across OLC stages, and Moores and Yuen (2001) found that the formality of MCSs differed across OLC stages.

The current study aims to extend this literature by examining a different MCS aspect, the types of controls used. While Davila (2005) examined the types of controls across OLC stages, using Merchant's (1998) typology of results, action and personnel controls[9], he only examined firms in transition from the birth to growth stage. This study aims to provide a more comprehensive analysis of the association between the types of controls and OLC stages by focusing on four stages (birth, growth, maturity and revival stages) of Miller and Friesen's (1984) OLC model[10]. In addition, this study examines this relationship using a different model, Snell (1992)'s three types of controls, namely input, behaviour and output controls. Input controls manage resources acquired by the organisation, such as employees'

[9] Davila (2005) did not include a measure of these three types of controls, but rather used them to classify specific MCS attributes.

[10] The decline stage is not covered in the study due to the difficulty in collecting data from decline stage business units.

knowledge, skills and motives. Behaviour controls regulate the transformation process from inputs to outputs through rules and supervision, while output controls manage product and service outcomes (Snell, 1992; Cardinal et al., 2004). The study will focus on the emphasis placed on each type of control, with the first objective being to examine the extent to which input, behaviour and output controls are currently used in each OLC stage.

In addition to examining the use of these controls in each OLC stage, the study also examines the emphasis placed on each type of control across Miller and Friesen's (1984) four OLC stages. As an organisation grows and develops, the dynamic process of transitioning from one OLC stage to another becomes critical to their success. If an organisation fails to adopt appropriate controls during the transition it will result in "organisational transition pains" (Flamholtz, 1995, p.47). Employees' resistance to change and a lack of organisational coordination and integration are common organisational transition pains which could lead to deeper systemic problems, such as employee job dissatisfaction and organisational ineffectiveness (Flamholtz, 1995). Therefore, it is important for organisations to be concerned with the extent to which the use of specific types of controls should be adjusted to fit the particular context. Consequently, the second objective of this study is to examine how organisations adjust the emphasis placed on each type of control across OLC stages.

The study contributes to the MCS literature by incorporating the configuration approach, thereby enabling an examination of the association between the types of controls and multiple

contingent factors simultaneously. The findings inform managers of the appropriateness of using different types of controls in specific OLC stages. In addition, the findings highlight the importance of an awareness of which OLC stage an organisation is in, and provide managers with an insight into the emphasis that they should consider placing on each type of control if organisations move from one OLC stage to another. The remainder of this paper is structured as follows. Section 2 presents a review of the literature on OLC stages and the types of controls, and develops the relevant hypotheses. Section 3 discusses the method used to collect data and the measurement of the independent and dependent variables. The results of the data analysis and a discussion of the results are provided in Section 4. Section 5 provides a discussion of the contributions, practical implications, limitations of the study and insights for future research.

2. Literature review and research hypotheses

2.1 Organisational life cycle (OLC) stages

Previous studies have proposed that changes in organisations follow a consistent and predictable pattern which can be characterized by stages of growth (Greiner, 1972; Adizes, 1979; Miller and Friesen, 1984; Smith et al., 1985; Dodge and Robbins, 1992; Quinn and Cameron, 1993). Hanks et al. (1993) suggested that each stage of growth consists of a unique configuration of variables related to organisational context and structure. The concept of an organisational life cycle (OLC) is therefore introduced to reflect the various stages of the

development of organisations. Numerous OLC stage models have been developed with the number of stages varying from three to ten (See Figure 1).

While there are a number of different OLC models developed, Moores and Yuen (2001) argued that an acceptable OLC stage model must meet two criteria. First, a complete biological cycle of organisational development from birth to death should be covered in the model. Secondly, the model should have been examined empirically. In addition, due to the use of a survey method in the study, the model selected should have also provided a comprehensive quantitative measure of the OLC stages.

Amongst the OLC models provided in Figure 1, models which cover a complete biological series from birth to death are limited to Adizes (1979), Kimberly and Miles (1980), Miller and Friesen (1984), Flamholtz (1990) and Lester et al. (2003). However, Adizes (1979), Kimberly and Miles (1980) and Flamholtz (1990) did not provide a comprehensive measure of the OLC stages developed, and therefore are considered inappropriate for this study. In addition, while Lester et al. (2003) provided a comprehensive measure of the OLC stages developed, the validity and reliability of this model has not been widely tested. Accordingly, Miller and Friesen's (1984) OLC model is considered to be the most appropriate model and is adopted in this study. This model has been empirically supported and has been widely used in recent MCS studies (Moores and Yuen, 2001; Auzair and Langfield-Smith, 2005; Davila, 2005; Kallunki and Silvola, 2008; Silvola, 2008; Kober, 2010).

FIGURE 1 A summary of OLC stage models

Model	Start up stage	Expansion stage	Maturity stage	Diversification stage	Decline stage
Lippitt and Schmidt (1967)	1. Birth	2. Youth	3. Maturity		
Smith et al. (1985)	1. Inception	2. High growth	3. Maturity		
Kimberly and Miles (1980)	1. Start up	2. Growth	3. Maturity		4. Decline
Quinn and Cameron (1983)	1. Entrepreneurial	2. Collectivity	3. Formalization	4. Elaboration of structure	
Kazanjian (1988)	1. Conception & Development 2.Commercialization	3. Growth 4. Expansion	4. Stability		
Greiner (1972)	1. Creativity	2. Direction	3. Delegation	4. Coordination 5.Collaboration	
Churchill and Lewis (1983)	1. Existence 2. Survival 3a. Success-disengagement	3b. Success-Growth 4. Take-off	5. Resource Maturity		
Miller and Friesen (1984)	1. Birth	2. Growth	3. Maturity	4. Revival	5. Decline
Lester et al. (2003)	1. Existence	2. Survival	3. Success	4. Renewal	5. Decline
Adizes (1979)	1. Courtship 2. Infancy	3. Go-Go 4. Adolescence	5. Prime 6. Mature		7. Aristocracy 8. Early Bureaucracy 9. Bureaucracy 10. Death
Flamholtz (1990)	1. New Venture	2. Expansion	3.Professionalization 4. Consolidation	5. Diversification 6. Integration	7. Decline

*While the number of stages are different across different OLC models, this diagram was developed using five major stages in the interest of parsimony and ease of comparison.

Miller and Friesen's five stage model (1984) describes each stage based on its organisational situation, strategy, structure and decision-making style as follows. Birth stage firms are small and owner controlled, with a homogeneous environment. In order to avoid confronting competitors directly, birth stage firms have a narrow product scope, and focus on the pursuit of a niche strategy. Organisational structures are simple and centralized with little delegation given to subordinates. An intuition-orientated decision-making style prevails and only a limited number of factors and opinions are taken into consideration in making decisions. Different decisions therefore may be in conflict with each other.

In the growth stage, organisational size increases and ownership becomes dispersed. The organisational environment is more dynamic and competitive than in the birth stage. The niche strategy is abandoned as emphasis moves to growth and early diversification. Efforts are also devoted to innovation which results in a wider range of products. Organisational structure becomes more complex and less centralized with the adoption of functionally-based structures, which facilitates delegation. The movement towards a team-based approach to work design allows more subordinates to be involved in decision making, while the decision making process itself becomes more analytical and better integrated.

Maturity stage firms are embedded in a relatively stable organisational environment with a more dispersed ownership and a larger size than growth stage firms. An emphasis on a defender strategy shifts organisations' attention from product innovation and diversification

to efficiency and profitability, and hence the product scope is narrower than in the growth stage. Organisational structures are centralized with less delegation of power than in the growth stage. The decision making style is less proactive and less innovative than in any other stage and hence decisions become less responsive and less adaptive to external environmental conditions.

Revival stage firms are the largest, and ownership becomes even more dispersed than in the maturity stage, thereby minimizing the influence of the board, owners and shareholders on business operations and decisions. The organisational environment is much more heterogeneous, dynamic and hostile than in the other stages, and there is a broader range of products than in the maturity stage. Major innovations and extensive diversification play a crucial role in the achievement of a differentiation strategy. Divisional structures are adopted with divisional heads responsible for their own divisions' performance. While a high level of risk taking is involved in decision-making, the use of an analytical and participative decision making style lessens the boldness involved in the decision making process.

Finally, in the decline stage ownership is tightly held with the board, owners and shareholders having a significant influence on decision making. Firms strive to survive without a particular organisational strategy. The organisational structure is highly centralized with little communication between managers and subordinates. Few factors are taken into consideration

when making decisions and no real effort is made to ensure the integration of different decisions.

2.2 Types of Controls

Figure 2 provides a summary of the different models used to describe the types of controls.

FIGURE 2 A summary of control types

Source	Models of controls
Kober et al. (2003)	Result monitoring, cost control, bureaucratic controls, communications/integrative mechanisms, resource sharing, tightness of controls, professional controls, organisational culture and tailoring of controls to specific user needs.
Macintosh (1994)	Bureaucratic, charismatic, market, tradition and collegial controls
Whitley (1999)	Bureaucratic, output, delegated and patriarchal controls
Gerdin (2005)	Rudimentary, broad scope and traditional (narrow) controls
Anthony and Govindarajan (2001)	Formal and informal controls
Snell (1992)	Input, output and behaviour controls
Merchant (1998)	Result, action and personnel/culture controls
Abernethy and Brownell (1997)	Accounting, behaviour and personnel controls
Ouchi (1980)	Market, bureaucratic and clan controls

For instance, Kober et al. (2003) developed the most complex model, including nine types of controls. Alternatively, Macintosh (1994) categorized controls into five types while Whitley (1999) suggested a four category model. Snell (1992) developed a three component model (input, behaviour and output controls), which is similar to other three component models developed by Merchant (1998) (result, action and personnel/culture controls), Abernethy and Brownell (1997) (accounting, behaviour and personnel controls) and Ouchi (1980) (market,

bureaucratic and clan controls)[11]. Gerdin (2005) developed a different three component model (rudimentary, broad scope and traditional controls), while Anthony and Govindarajan (2001) classified controls into two categories (formal and informal controls).

This study applies Snell's (1992) three component model consisting of input, behaviour and output controls for several reasons. First, Walsh and Seward (1990) argued that an ideal control model should regulate both ability and motivation. By applying Snell's (1992) three component model, employees' working abilities can be enhanced through input controls, while motivation can be enhanced through both behaviour controls (through standard operating procedures) and output controls (through the use of incentives). Secondly, Cardinal (2001) posited that Snell's (1992) three component model provides a full range of formal organisational controls. The notion of input controls provides a 'symmetrical counterpart' to behaviour and output controls, since input controls manage the drivers of performance such as employee knowledge and skills, while behaviour and output controls manage the performance process and results respectively (Snell 1992). Finally, this model has been empirically used in the MCS literature (Snell and Youndt, 1995; Cardinal, 2001; Cardinal et al., 2004; Abernethy et al., 2007; Johnson, 2011).

According to Snell (1992), input controls focus on staff selection and recruitment, and providing adequate training to ensure employees have the necessary knowledge and skills to

[11] The terms results, accounting, output and market have been used interchangeably in the literature. Also, personnel, culture and clan have been used interchangeably in the literature.

perform their tasks. Recruitment and training programs are the most common input controls. Behaviour controls are imposed top-down with an emphasis on articulated operating procedures, close supervision, behavioural performance appraisal and feedback. Specifically, articulated operating procedures make employees fully informed as to what they should do, while close supervision enhances the likelihood that operating procedures are carried out as specified. Behavioural performance appraisal and feedback help to monitor and correct deviations from preset standards. Output controls standardize desired organisational outcomes. Employees are held accountable for the results regardless of the means they use to achieve the results. Performance appraisals are based on the results achieved and monetary rewards are directly related to performance outcomes.

2.3 The association between the types of controls and OLC stages

Previous studies show that since organisational features vary across OLC stages different controls are required to fit the different organisational contexts (Miller and Friesen, 1984; Kazanjian, 1988; Brignall, 1997; Moores and Yuen, 2001; Kallunki and Silvola, 2008). Accordingly, the following sections will develop hypotheses concerning the use of different types of controls in each OLC stage, and the use of each type of control across different OLC stages. Hypotheses will not be developed for the decline stage as previous studies (Auzair and Langfield-Smith, 2005; Kallunki and Silvola, 2008; Silvola, 2008) have found that it is difficult to obtain data from decline stage organisations.

2.3.1 The use of different types of controls in each OLC stage

2.3.1.1 Birth stage.

Given that birth stage organisations are small and young with a limited number of employees (Miller and Friesen 1984), top management perform most tasks and directly supervise subordinates, thereby fostering the use of behaviour controls. Since decision-making and ownership are in the hands of top management, if output controls prevailed subordinates would have no significant influence on the results for which they would be held accountable. Hence, output controls are considered inappropriate in the birth stage (Merchant and Van der Stede, 2003). In addition, birth stage organisations do not have established staffing policies and procedures, and staff experts are rarely used due to the low level of product diversity (Miller and Friesen, 1984). Furthermore, there would be relatively few staff meetings and little emphasis placed on training and recruitment programs. As a result, input controls are not expected to be used to a great extent in birth stage organisations.

H1a: Behaviour controls are expected to be employed to a greater extent than input and output controls in birth stage organisations.

2.3.1.2 Growth stage

In growth stage organisations, a function-based structure is adopted with employees deployed in teams (Miller and Friesen, 1984). Teams are given a certain level of autonomy and independence to deal with an increasingly heterogeneous and dynamic environment (Ciavarella, 2001). Cardinal (2001) argued that behaviour controls overemphasize the formality of processes and make employees less capable of dealing with the significant environmental uncertainty experienced in the growth stage. However, given that top

management increasingly delegates authority to subordinates in the growth stage, Simons (1995) suggested that behaviour controls become critical to ensure that employees act in the best interests of their organisation. This argument is supported by Moores and Yuen (2001) and is also in line with Sandelin's (2008) finding that standard operating procedures and personal supervision were used to a great extent in a growth firm context.

For output controls, Snell and Youndt (1995) argued that by focusing on the 'end result' as opposed to the 'means to the end', this type of control allows employees to have more discretion in their work which is very important under such a competitive and uncertain environment. However, Merchant and Van der Stede (2003) suggested that for output controls to work well, organisations must know what results are desired in the areas they intend to control, and how to measure the results effectively. Given the uncertain and dynamic environment in the growth stage it is too difficult to predict future events and therefore less likely that appropriate performance criteria can be set to evaluate employee performance. Hence, output controls are not expected to be used to a great extent under these circumstances.

Finally, organisations in the growth stage seek innovation and early diversification of their products, placing greater emphasis on the degree and variety of employees' knowledge, skills and attitude towards their jobs (Sandelin, 2008). Therefore, input controls such as recruitment and training programs, become critical in this stage. This is consistent with Jensen's (1998)

argument that organisations with a dynamic environment are more likely to rely on employees' capabilities.

H1b: Input and behaviour controls are expected to be employed to a greater extent than output controls in growth stage organisations.

2.3.1.3 Maturity stage

In the maturity stage, due to the relatively stable organisational environment and well-established rules and regulations (Miller and Friesen, 1984), the availability of desired performance criteria is fairly high and information concerning how to perform specific tasks is nearly perfect. Eisenhardt and Bourgeois (1988) and Snell (1992) suggested that either output or behaviour controls are appropriate in this context.

However, Bonner (2005) suggested that the exclusiveness of behaviour controls in this OLC stage could lead to an over-focus on internal processes and an under-focus on external influences. Output controls can overcome this disadvantage by paying attention to the external financial market and environment. Accordingly, the simultaneous use of both behaviour and output controls is considered more appropriate than the use of either behaviour or output controls.

Instead of exploring new markets and developing new products, organisations in the maturity stage strive to maintain their market share for existing products. In this context, job descriptions and procedures become more formal and specified (Miller and Friesen, 1984)

and there is less focus on professional and technical skills. In addition, product diversification and innovation are no longer the focus of organisations with employees concentrating on performing daily routine tasks. In these circumstances, employee selection, and training and development are not as crucial and hence input controls are expected to be used to a lesser extent.

H1c: Behaviour and output controls are expected to be employed to a greater extent than input controls in maturity stage organisations.

2.3.1.4 Revival stage

Due to the high level of risk taking and innovation, revival stage organisations are more likely to exhibit a high level of role ambiguity and uncertainty. According to Perrow (1986) and Galbraith (1977), role ambiguity and uncertainty are best managed by the use of input controls. Similarly, Abernethy and Brownell (1997) found that when task uncertainty is high input controls will have the greatest positive impact on organisational performance. Furthermore, attributable to the pursuit of substantial innovation, firms in this stage are more likely to prioritize the selection, training and development of employees. In addition, Cardinal (2001) found that input controls play a significant role in radical innovations, one of the major features of revival stage organisations. This is consistent with the models of Thompson (1967), Ouchi (1977, 1978), Eisenhardt and Bourgeois (1988) and Snell (1992) which suggest that when the information regarding how to perform tasks is imperfect and standards of desirable performance are ambiguous, input controls are the best option.

In addition, the use of behaviour controls can contribute to the reduction of ambiguity and uncertainty, as the formalization of rules and procedures and frequent observation provides employees with information about what they should do and how tasks should be completed. For example, Merchant (1981, 1984) found that as organisational structure becomes more complex, organisations are more likely to decentralize and implement more administratively oriented controls with a high level of behaviour formalization.

Although the launch of a unique product requires strong basic research and development and the success of such products cannot be evaluated in the short run, revival stage firms are still expected to use output controls to a great extent. This is because having gone through the maturity stage, such firms have well-established knowledge regarding desired results and have already developed the ability to measure results effectively. More importantly, after experiencing temporary decline at the end of the maturity stage, revival stage firms are forced to focus on product diversification and innovation as a means of survival. In such a situation any unsuccessful launches of products could accelerate the arrival of the decline stage, and hence, output controls become vital to ensure the achievement of desired organisational outcomes.

H1d: Input, behaviour and output controls are expected to be employed to a similar extent in revival stage organisations.

2.3.2 The use of each type of control across OLC stages

2.3.2.1 Input controls

In the birth stage, given that the product market is uniform and narrow there is little need for staff experts, with the founders taking responsibility for almost every aspect of their organisation, including the manufacturing of products. Hence, the use of input controls, focusing on staff recruitment and training, and developing employees' knowledge and skills, is not expected to be prevalent in the birth stage.

As organisations move to the growth stage, function-oriented departments are established and employees are required to perform a wider range of tasks (Lester et al., 2003). Firms aim to broaden product lines with the pursuit of diversification and growth. Such aims can be facilitated by the hiring of more professional and experienced employees who are capable of providing a more complete array of products in an existing market, or tailoring new products to a new market. As a result, the use of input controls becomes more important in the growth stage than in the birth stage, in an attempt to improve employees' knowledge, skills and attitudes towards their jobs (Sandelin, 2008).

Compared to growth stage organisations, maturity stage organisations are embedded in a much more stable organisational environment. The availability of standardized work procedures and specific job descriptions, and the decreased emphasis on product innovation lowers the demand placed on employees' professional and technical skills. Accordingly,

input controls are expected to be used to a lesser extent in the maturity stage than in the growth stage.

Firms shift their emphasis to major innovation and diversification when they reach the revival stage. In order to create an innovative organisational environment, employees are given more autonomy and freedom in their work, and consequently higher demands are placed on employees' competencies. In addition, due to the highly competitive and uncertain environment in this stage, employees are required to have superior knowledge, skills and experience to deal effectively with all potential threats and opportunities in a timely manner. Given that recruitment policies can enhance the likelihood of a workforce capable of producing the creativity warranted in this stage, and training and development programs can enhance the competency of staff, input controls are expected to be used to a greater extent in the revival stage than in the maturity stage.

H2a: Input controls are expected to be employed to a greater extent in growth and revival stage organisations than birth and maturity stage organisations.

2.3.2.2 Behaviour controls

In the birth stage, products are homogeneous and simple, and the number of employees is limited. Therefore, managers are able to closely observe employees' ongoing behaviour (Snell and Youndt, 1995). However, both Miller and Friesen (1984) and Simons (1995) argued that given the structure of birth stage firms is very simple, few formal policies and procedures are in place. Accordingly, in line with Snell's (1992) assertion that behaviour

controls mainly consist of articulated operating procedures and policies, and close supervision, behaviour controls are therefore only expected to be used to a moderate extent in the birth stage.

As organisations expand, management is less able to observe operations directly, and is therefore required to introduce formal rules and procedures to monitor employees' performance. For instance, Simons (1995) argued that with the increased delegation of decision making power to subordinates, it becomes very important to clarify strategic boundaries and specify business activities in order to reduce the likelihood of bad investments in the growth stage. Similarly, Merchant and Van de Stede (2003) suggested that by specifying and clarifying the nature of tasks for employees and through direct supervision, behaviour controls can alleviate employees' feelings of a lack of direction in such a highly uncertain and competitive organisational environment. Consequently, behaviour controls are expected to be used to a greater extent in the growth stage than in the birth stage.

As organisations continue to develop and reach the maturity stage, formal rules and procedures are in place. Management in this stage have sufficient knowledge in regard to the process by which inputs are converted into outputs, with Snell (1992) and Jaeger and Baliga (1985) maintaining that behaviour controls prevail when the availability of the knowledge relating to transformation processes from input to output is relatively high. Furthermore, behaviour controls, such as specifying when and how tasks are to be completed, frequently

monitoring progress, and making ongoing adjustments, can help to document best practices (Merchant and Van de Stede, 2003), thereby contributing to the improvement in the level of productivity and efficiency in the maturity stage. Hence, behaviour controls are expected to be just as relevant in the maturity stage as in the growth stage.

When organisations enter the revival stage, divisional structures are adopted to deal with the increased market heterogeneity, with divisional managers overseeing and held responsible for the performance of their own divisions (Miller and Friesen, 1984). Behaviour controls, particularly in the form of procedures and policies, thereby provide an efficient way to facilitate organisational coordination among different divisions (Merchant and Van de Stede, 2003). In addition, although revival stage firms emphasize innovation and creativity, the complexity of markets, as well as the uncertainty and competitiveness of the organisational environment, make it imperative for top management to monitor their employees' behaviour and performance to ensure firms develop in an orderly manner (Miller and Friesen, 1984). Hence, behaviour controls are expected to be just as relevant in the revival stage as in the maturity stage.

H2b: Behaviour controls are expected to be employed to a greater extent in growth, maturity and revival stage organisations than birth stage organisations.

2.3.2.3 Output controls

Merchant and Van der Stede (2003) argued that in order to make output controls work effectively, subordinates should have a certain level of control over their tasks. Given that in

the birth stage ownership is tightly concentrated in the hands of a few individuals, with little authority delegated to subordinates, output controls are not expected to be used to a great extent in this stage. Furthermore, with the limited number of employees and the simple organisational structure in the birth stage, management have sufficient knowledge in regard to all aspects of their business' day-to-day operations, and therefore are expected to place less demand on output controls.

The organisational environment in the growth stage becomes more heterogeneous and competitive, with efforts devoted to broadening product lines by diversification and innovation. Hence, in comparison to the birth stage which focuses on routine administration, management in the growth stage must pay more attention to monitoring and evaluating the financial performance of various divisions. In addition, as organisations expand and grow, management is less likely to involve themselves in all business activities, and hence there will be a greater reliance on the use of output controls to monitor the achievement of desired organisational goals. As a result, output controls are expected to be used to a greater extent in the growth stage than in the birth stage.

Compared to growth stage organisations, maturity stage organisations have a relatively stable environment, and specific operational procedures and policies are in place. With employees performing routine and repetitive tasks in this stage, output controls play a significant role in enhancing employees' work motivation, especially when performance is linked with

employee rewards. Such employee compensation schemes can subsequently lead to improved productivity and efficiency, two main strategies pursued in the maturity stage. In addition, output controls are appropriate due to the high level of stability in the maturity stage which allows organisations to clearly set desired performance criteria (Jaeger and Baliga, 1985; Snell, 1992), and subsequently facilitates the use of output controls. Hence, in the maturity stage output controls are expected to be as relevant as in the growth stage.

Revival stage organisations enter a highly heterogeneous, competitive and dynamic environment. The use of output controls, focusing on the results as opposed to the means to achieve results, allows management to move their attention away from daily operations and focus more on important strategic issues. Merchant and Van der Stede (2003) proposed that output controls are particularly desirable where creativity plays a crucial role. The autonomy embedded in output controls provides employees with more freedom and flexibility in their work, and therefore facilitates the implementation of the innovation strategy employed in the revival stage. Furthermore, given organisations reaching this stage have already established knowledge relating to desired results and appropriate output measures, such controls are considered appropriate in the revival stage. Hence, output controls are expected to be as relevant in the revival stage as in the maturity stage.

H2c: Output controls are expected to be employed to a greater extent in growth, maturity and revival stage organisations than birth stage organisations.

3. Method

A survey questionnaire was mailed to 1000 General Managers from a random sample of Australian manufacturing organisations chosen from the Kompass Australia database (2010). In order to increase the response rate, Dillman's (2007) "Tailored Design Method[12]" was followed for the design and distribution of the questionnaire. Australian manufacturing organisations were chosen because they play a significant role in the Australian economy. Specifically, the Australian manufacturing industry made the second highest contribution to Australian Gross Domestic Product (GDP) and accounted for almost 10% of total employment in Australia (Manufacturing Industry Brief 2008-2009). Surveys were distributed to General Managers, who were asked to complete the questionnaire for a business unit within their organisation. The business unit was chosen as the unit of analysis since different business units in an organisation may fall into different life cycle stages, making it difficult to complete the survey at the corporate level.

Three hundred and forty three responses were received for a response rate of 34.3%. These comprised 214 (21.4%) from the initial distribution of the questionnaires and 129 (12.9%) from the follow-up mail-out. This response rate was considered to be good given that recent MCS studies associated with OLC stages have indicated response rates in the range of 10% to 25% (Kallunki and Silvola, 2008 [21%]; Auzair and Langfiled-Smith, 2005 [15.5%]; Moores and Yuen, 2001 [14.5%]). A test for non-response bias was conducted by comparing the

[12] The Tailored Design Method involves a series of guidelines in respect to the conduct of mail surveys. For instance, guidelines are provided in relation to the format and style of questions, how to personalise the questionnaire, and distribution procedures.

responses of early and late respondents for each of the independent and the dependent variables (Oppenheim, 1992). There were no significant differences between early respondents and late respondents for any of the variables. Hence, there were no problems regarding non-response bias for the data obtained.

3.1 Variable measurement

3.1.1 Organisational life cycle stages

Compared to the self-categorization approach which relies on respondents' perception of their business unit's OLC stage, a more comprehensive approach, classifying organisations into their OLC stages based on a number of organisational characteristics, was considered to be more appropriate. Accordingly, the study applied an adapted version of Miller and Friesen's (1984) 54 item instrument to measure OLC stages. Specifically, without compromising the accuracy and completeness of the measurement, the 54 items were reduced to 38 items by eliminating items which were ambiguous, duplicated, and/or considered irrelevant to the context of the current study. The instrument consists of four variables (strategy, organisational situation, structure and decision-making style), with respondents required to indicate the extent to which each item was reflected in their business unit, using a five point Likert-type scale with anchors of "1 = Not at all" and "5 = To a great extent". Amongst these 38 items, 13 items were used to measure the respondent organisations' strategies, seven items were used to measure the respondent organisations' situation, and nine items were used to measure organisational structure and decision making style.

In order to classify organisations into OLC stages, this study follows the procedures applied in Moores and Yuen (2001), whereby factor analysis (principal component with varimax rotation) was conducted to reduce the 38 items to a manageable set of data. Table 1 shows that 34 of the 38 items loaded onto 12 specific factors. However, the loadings of the items on factors 7, 9, 10 and 12 were not interpretable. Hence, it was concluded that eight relevant factors were obtained with Appendix A providing the details in relation to the specific items used, and a list of the 11 items which did not load on any of the eight factors.

Each of the eight factors was scored as the sum of the items loading onto each factor. The factor scores were subsequently used in cluster analysis with organisations forced into five clusters so as to be consistent with Miller and Friesen's (1984) five stage life cycle model. Cluster analysis was performed using the hierarchical agglomerative technique with Ward's minimum variance method for distance measure between two sub-groups. Table 2 reveals that as a result of the clustering procedures, 78 organisations were categorized into Cluster one, 85 in Cluster two, 40 in Cluster three, 81 in Cluster four and three in Cluster five. Table 2 also provides the mean scores for each factor across the clusters, and demonstrates the validity of the constructs with each of the Cronbach alpha values (Cronbach, 1951) at an acceptable level of 0.4 or higher (Sproles and Kendall, 1986; Mital et al., 2008).

TABLE 1 Factor analysis of OLC items

Items*	Factors											
	1	2	3	4	5	6	7	8	9	10	11	12
1	.242	**.719**	.111	-.066	-.005	.133	.204	-.070	.037	.104	.045	.117
2	.162	**.685**	.042	.133	.064	.111	.071	.059	-.158	-.033	-.132	-.026
3	-.043	-.064	-.120	.049	-.008	.253	-.091	-.043	**.681**	-.131	.102	.201
4	-.010	.194	-.025	.019	.159	**.752**	-.069	.060	.015	-.118	-.116	.040
5	.140	.099	.008	.037	-.061	**.839**	.017	.005	-.028	.144	-.056	-.045
6	-.030	.156	-.061	-.055	.375	**.361**	.258	.117	.130	-.022	-.002	-.486
7	-.126	**.592**	.031	.242	.246	.111	.032	.132	.035	.141	.110	-.222
8	.026	.012	.118	**.786**	.035	-.005	.009	.044	.046	-.044	-.022	.053
9	.226	.176	.129	**.716**	.083	.113	.012	.110	-.026	.138	.056	.013
10	.241	**.316**	.125	.370	.037	-.047	-.026	.305	.206	.252	-.205	.097
11	.205	.073	.000	.035	-.008	.000	.098	.053	-.010	**.747**	-.020	.048
12	-.071	.001	.025	-.004	-.008	-.203	.012	.126	**.738**	.099	-.108	-.174
13	-.063	.179	.006	.169	.483	.052	-.032	.176	-.158	.340	-.115	**.392**
14	.047	-.020	-.107	.039	-.041	-.109	.105	.094	-.004	-.087	**.796**	.023
15	.006	-.007	-.464	-.069	-.046	-.088	.052	-.137	.080	.268	**.506**	.242
16	.096	-.001	.081	.047	.086	.041	.221	.068	.042	.029	.090	**.781**
17	-.022	.092	.681	.122	.109	-.125	.044	.131	.022	-.042	-.150	.203
18	.336	.330	.047	-.275	-.147	.053	.234	**.406**	-.004	-.127	.087	.152
19	.116	-.164	-.002	.172	.154	.011	.220	**.692**	.092	-.059	.027	-.010
20	.193	.166	.094	.107	-.039	.090	.001	**.721**	.049	.121	.040	.040
21	.379	-.109	**.489**	.135	.040	.146	.130	-.001	-.313	.184	.174	.041
22	.333	.299	.271	.122	.496	.037	-.113	-.153	.040	-.175	.097	.070
23	.391	.103	.182	.072	**.634**	.071	.037	-.041	-.089	-.115	.028	.026
24	.393	-.065	.104	.010	**.635**	.012	.056	.170	.092	.177	-.110	-.058
25	.403	.082	**.347**	.189	.263	.047	.178	-.137	-.144	.408	.008	-.085
26	**.531**	.205	.228	.230	.248	-.014	-.063	.086	-.066	.139	-.028	.049
27	.343	.141	**.613**	.132	.145	.060	.154	.014	.088	.085	-.110	-.040
28	.184	.145	.293	-.180	.122	-.039	-.300	.378	-.161	.042	.352	-.061
29	-.073	-.143	.248	.044	.003	.378	.196	.132	.409	-.095	.302	-.021
30	.306	.129	**.402**	.160	.087	.044	.532	-.051	-.127	.209	.149	-.008
31	.043	.170	.084	-.152	-.037	.046	**.738**	.110	.057	.101	.085	.128
32	**.732**	.033	.067	-.042	.108	.069	-.058	.067	-.031	.205	.181	-.043
33	**.786**	.030	.120	-.016	.071	.033	.030	.151	.059	.178	.064	.020
34	**.752**	.024	.168	.063	-.065	-.051	.190	.074	.121	.122	-.096	-.008
35	**.711**	.100	-.117	.045	.206	.062	.084	.063	-.152	-.077	-.037	.078
36	**.657**	.180	.048	.219	.173	.076	.124	.122	-.180	-.164	.012	.105
37	**.494**	.106	.000	.264	.170	-.121	.458	.182	-.161	.025	-.067	.080
38	.334	.064	.056	.349	.049	-.208	**.459**	.209	-.136	-.046	.059	.034
% of Variance	20.73%	6.11%	5.27%	4.94%	4.24%	3.70%	3.51%	3.41%	3.06%	3.02%	2.90%	2.69%

*As listed in Appendix A.

NB: Items loading onto the eight factors are shown in bold.

TABLE 2 Descriptive statistics: mean values for each OLC factor across clusters

OLC factors	Minimum actual (theoretical)	Maximum actual (theoretical)	Entire sample Mean	Cluster mean					Cronbach Alpha
				One (N = 78)	Two (N = 85)	Three (N = 40)	Four (N = 81)	Five (N = 3)	
Organisational Situation									
Environmental uncertainty	3 (3)	15 (15)	9.10	9.03	9.89	7.23	9.48	3.00	0.636
The influence of the board, owners and shareholders	2 (2)	10 (10)	6.99	7.40	7.38	6.60	6.31	8.67	0.440
Structure									
Decentralisation of authority	4 (4)	20 (20)	14.63	13.74	16.29	12.73	15.07	4.00	0.753
Strategy									
Strategic planning	2 (2)	10 (10)	6.73	6.28	7.44	5.68	7.12	2.00	0.634
Diversification	3 (3)	14 (15)	6.22	4.87	5.38	4.90	9.10	5.33	0.615
Marketing and distribution	4 (4)	19 (20)	12.20	10.72	13.12	9.63	14.12	6.67	0.610
Innovation	2 (2)	10 (10)	7.08	6.64	7.73	6.60	7.26	2.00	0.580
Decision making									
Managers' focus on decision making	7 (7)	35 (35)	24.70	23.37	29.52	17.52	25.06	8.33	0.859
Confirmatory variables:									
Average no. of employees				86	114	185	195	4	
Product scope[1]				3.35	3.85	2.90	3.75	1.67	
	LABEL			**Birth**	**Growth**	**Maturity**	**Revival**	**Decline**	

[*]The product scope was measured with scores ranging from 1 to 5.

The comparison of the characteristics across the five clusters facilitates the determination of an appropriate label (birth, growth, maturity, revival and decline) for each cluster, in accordance with the characteristics of the OLC stages proposed by Miller and Friesen (1984).

Business units in Cluster Five exhibited the highest centralized-structure with little delegation of authority. Ownership is tightly held and the Board of Directors and shareholders exercise the greatest degree of power. Such a management style suggests that there is poor communication between top managers and subordinates which stifles the ability of business units to react promptly to the challenges confronting them. Little effort is devoted to "Strategic planning", "Diversification", "Marketing and distribution" and the emphasis on "Innovation" is also very low. No particular strategy is pursued, representing a muddle through management style. Multiplexity and integration of decisions are not taken into account when making decisions, with a minimal amount of analysis involved. The pattern revealed in this cluster is consistent with the characteristics of the decline stage described in Miller and Friesen (1984).

Business units in Clusters Two and Four have approximately similar scores for most of the OLC factors. All the scores from these two clusters are generally higher than the scores from the other three clusters. In regard to organisational situation, business units in these two clusters have a relatively high level of dynamism, hostility and heterogeneity. Significant effort is devoted to facilitating the communication between top managers and subordinates to

ensure more effective coordination. For strategy, the high scores indicate a greater emphasis on “Strategic planning”, “Diversification” (particularly for Cluster Four), “Marketing and distribution”, and “Innovation”. High scores were also shown for the “Environmental uncertainty” factor for both clusters. The decision making style appears to be more analytical and multiplex with better integration compared to the other three clusters (particularly for Cluster Two). The characteristics discussed above signify that business units in Clusters Two and Four correspond to either the growth or revival stages.

A further comparison of these two clusters reveals that Cluster Four has a significantly higher score for the “Diversification” factor than Cluster Two. Since the emphasis of growth stage organisations is early diversification, while the emphasis of revival stage organisations is extensive diversification (Miller and Friesen, 1984), it is expected that business units in the revival stage will exhibit a higher score for the “Diversification” factor. Furthermore, Cluster Four exhibited a significantly lower score than Cluster Two for the “The influence of the board, owners and shareholders” factor. Miller and Friesen (1984) proposed that ownership becomes even more dispersed in the revival stage than the growth stage. Hence, it is expected that the influence of the board, owners and shareholders would be lower in revival stage business units. As a result, it is more likely that business units in Cluster Two are in the growth stage, while those in Cluster Four are in the revival stage.

Business units in Cluster Three appear to be conservative with less emphasis on "Diversification". The business environment is quite stable, perhaps as a result of the low levels of "Innovation" and "Diversification". A low score for the "Influence of the board, owners and shareholders" factor indicates that ownership is widely dispersed. Structure remains fairly centralized without a great deal of delegation of decision making. This structure style is justified by the simplicity and stability of operations which make it easier for only a few key managers to dominate. Decisions become less adaptive and responsive due to the less innovative and proactive decision making style, as indicated by the low scores for the "Managers' focus on decision making" factor. These characteristics closely resemble the characteristics of the maturity stage described by Miller and Friesen (1984).

Business units in Cluster One exhibited the lowest scores for the "Diversification" factor, indicating the pursuit of a niche strategy. Ownership is tightly concentrated in the hands of a few individuals with a high score reported for the "Influence of the board, owners and shareholders" factor. The centralized ownership also results in simple and centralized structures. Top managers make their decisions largely based on their intuition without extensive analyses involved in the decision making process. The pattern revealed in this cluster describes the characteristics expected in the birth stage as described by Miller and Friesen (1984).

Having compared the characteristics of business units in the five clusters with those of the birth, growth, maturity, revival and decline stages proposed by Miller and Friesen (1984), the relevant OLC labels have been assigned to each cluster. Specifically, the five clusters are labeled Birth (Cluster One), Growth (Cluster Two), Maturity (Cluster Three), Revival (Cluster Four) and Decline (Cluster Five).

To confirm the cluster labeling, additional information regarding the average number of employees and product scope for business units within each of the five clusters was collected, with the mean values reported in Table 2. Table 2 reveals that the average number of employees increases across the birth, growth, maturity and revival stages but decreases in the decline stage, which is line with Miller and Friesen's (1984) descriptions of OLC stage characteristics. In addition, the broader product scope in the growth and revival stages compared to the birth and maturity stages, and the narrower product scope in the decline stage are also in line with Miller and Friesen's (1984) descriptions. Therefore, the classification of OLC stages from cluster labeling was considered to be appropriate.

3.1.2 Types of Controls

This study applied an adapted version of Snell's (1992) instrument (see Appendix A). Minor adjustments to the wording were made so as to fit the context of this study, and respondents were asked to indicate the extent to which each item was reflected in their business unit using a five point Likert-type scale with anchors of "1 = Not at all" and "5 = To a great extent".

For input controls, a seven item measure was used to assess the extent of emphasis placed on the recruitment and orientation of new staff, establishing staffing procedures and adhering to these procedures, and employee training and staff development. The measure was assessed as reliable with a Cronbach alpha coefficient of 0.829 reported (Cronbach, 1951). The extent of input controls used was measured as the average score of these seven items, with higher (lower) scores representing a higher (lower) extent of use of input controls. For behaviour controls, a six item measure was applied to assess the extent to which employees were held accountable for their actions, employees' actions were monitored to ensure compliance with staffing policies and procedures, standards and procedures were imposed top-down, and employee performance was evaluated based on their on-going behaviour. One item (see behaviour control item 6 in Appendix A) was deleted from the calculation of the average score due to a low Cronbach's alpha coefficient in the reliability test (Cronbach, 1951). The adjusted five item measure was then assessed as a reliable measure with a Cronbach alpha coefficient (Cronbach, 1951) of 0.789 reported. Hence, the extent of behaviour controls used was measured as the average score of the remaining five items, with higher (lower) scores representing a higher (lower) extent of use of behaviour controls. For output controls, a six item measure was used to assess the extent to which clear and planned performance targets were set for employees, pre-established targets were used as a benchmark for employee evaluation, performance evaluation was based on results achieved regardless of what employees were like personally, and employee rewards were linked to results. The Cronbach alpha coefficient (Cronbach, 1951) was 0.823 thereby indicating a reliable measure. The

extent of output controls used was measured as the average score of these six items, with higher (lower) scores representing a higher (lower) extent of use of output controls.

A Pearson correlation matrix is provided in Table 3 and reveals a significant correlation between the three types of controls. Accordingly, the discriminant validity of these independent variables was assessed (Fornell and Larcker, 1981). The average variance extracted for each pair of the three types of controls was found to be greater than the square of the correlation between the two factors. Hence, the variance explained by each of the three types of controls was greater than the shared variance thereby supporting the discriminant validity of the independent variables.

TABLE 3 Pearson correlation matrix

	Behaviour controls	Output controls
Input controls	.621*	.535*
Behaviour controls		.634*

*significant at the 5% level

4. Results

4.1 The extent of use of controls in each OLC stage

Table 4 Panel A provides the results of a one way analysis of variance (ANOVA) comparing the extent of use of the different types of controls in the birth, growth, maturity and revival stages. As discussed previously the decline stage is beyond the scope of the current study. While input, behaviour and output controls are found to be used to a similar extent in the maturity and revival stages, significant differences are identified in respect to the extent of

use of the three types of controls in the birth and growth stages. Accordingly, multiple pairwise comparisons were conducted with the results provided in Table 4 Panel B. In the birth stage, input and behaviour controls are used to a significantly greater extent than output controls at the 5% significance level. This result partially supports Hypothesis 1a, with behaviour controls used to a greater extent than output controls. However, the finding that input controls are used to a significantly greater extent than output controls and to a similar extent as behaviour controls was not expected. This finding, while surprising, may reflect the learning-oriented nature of birth stage organisations (Miller and Friesen, 1984). For instance, Abernethy et al. (2007) found that employing individuals with appropriate skills and attitudes, or training existing employees to improve their skills and attitudes can help with the implementation of an organisational learning orientation.

In the growth stage, behaviour controls are found to be used to a significantly greater extent than output controls at the 5% significance level. Input controls are also found to be used to a greater extent than output controls, although only at the 10% significance level. Therefore, support is provided for Hypothesis 1b, which states that behaviour and input controls are expected to be used to a greater extent than output controls in growth stage organisations. The extensive use of behaviour controls is justified as they mitigate the level of uncertainty and increase the level of predictability by routinizing the product transformation process (Snell and Youndt 1995), while the extensive use of input controls may be attributable to the

TABLE 4 Results of the examination of the extent of use of each type of control in each OLC stage and across OLC stages

Panel A: Results of ANOVA comparing the extent of use of each type of control in each OLC stage and across OLC stages

	N	Input controls	Behaviour controls	Output controls	F	Significance
Overall		3.71	3.73	3.45		
Birth	75	3.55	3.51	3.11	12.89	0.00**
Growth	82	3.99	4.02	3.78	3.92	0.00**
Maturity	39	3.10	3.32	3.02	1.92	0.15
Revival	81	3.85	3.82	3.69	1.61	0.20
F		19.92	12.62	16.91		
Significance		0.00**	0.00**	0.00**		

Panel B: Results of multiple pairwise comparisons of the extent of use of each type of control in each OLC stage

	N	Mean (Input controls)	Mean (Behaviour controls)	Mean (Output controls)	P-value (Input V.S. Behaviour)	P-value (Input V.S. Output)	P-value (Behaviour V.S. Output)
Birth	75	3.55	3.51	3.11	1.000	0.000**	0.000**
Growth	82	3.99	4.02	3.78	1.000	0.070*	0.034**

Panel C: Results of multiple pairwise comparisons of the extent of *use of each type of control across OLC stages*

	P-value (Input controls)	P-value (Behaviour controls)	P-value (Output controls)
Birth V.S. Growth	0.000**	0.000**	0.000**
Birth V.S. Maturity	0.001**	1.000	1.000
Birth V.S. Revival	0.009**	0.012**	0.000**
Growth V.S. Maturity	0.000**	0.000**	0.000**
Growth V.S. Revival	0.967	0.330	1.000
Maturity V.S. Revival	0.000**	0.000**	0.000**

*Significant at the 10% level

** Significant at the 5% level

increasing reliance on employees' knowledge and skills in performing their jobs in the growth stage.

In the maturity stage, behaviour and output controls were hypothesized to be used to a greater extent than input controls. However, no significant differences are found in the extent of use of the three types of controls, indicating that input controls were as prevalent as behavior and output controls. Hypothesis 1c is therefore not supported. A possible explanation may be that training, career planning, and development programs have been developed in an attempt to retain well-performing employees, given today's high labour cost and low levels of employee loyalty (Samson and Daft, 2005). The retention of competent employees can subsequently facilitate the achievement of efficiency and productivity, which are major strategies pursued by maturity stage firms as suggested by Miller and Friesen (1984).

In the revival stage, all three types of controls are found to be used to a similar extent, and hence H1d is supported. The importance of the use of all three types of controls in the revival stage could be explained by the argument that to respond to the dynamic and challenging environment experienced in the revival stage, the use of input controls assists organisations in carefully selecting, training and developing current and future employees, while the freedom and autonomy associated with output controls foster employees' creativity and innovation. In addition, with increased freedom and delegated decision-making rights, the use of behaviour

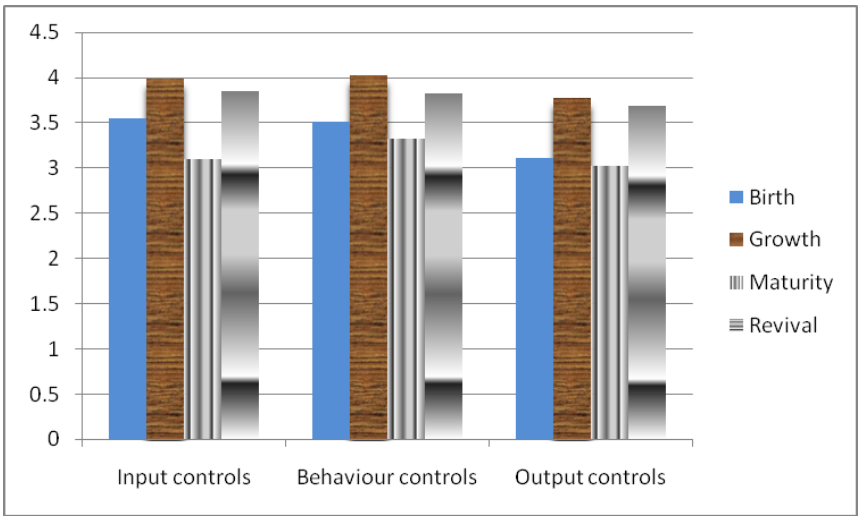
controls helps to limit individuals' undesirable behaviour and enhance the likelihood of achieving organisational goals.

4.2 The extent of use of controls across OLC stages

Table 4 Panel A reveals significant differences in the extent of use of each type of control across OLC stages. Multiple pairwise comparisons were therefore performed, with the results shown in Table 4 Panel C. Consistent with Hypothesis 2a input controls are used to a significantly greater extent in the growth and revival stages than in the birth and maturity stages. Similarly, both behaviour and output controls are used to a significantly greater extent in the growth and revival stages than in the birth and maturity stages. Hence, Hypothesis 2b and 2c are not fully supported, given that maturity stage organisations used behaviour and output controls to a lesser extent than was expected. The unexpected findings that all three types of controls are used to a low extent in the maturity stage could be explained by the argument that well-established maturity stage organisations, which are embedded in a relatively stable environment, tend to place more emphasis on informal controls. Hence, formal controls such as budgeting and performance measures may be supplemented with informal controls such as internal informal meetings and communications, thereby allowing a more flexible management style (Moores and Yuen 2001).

Figure 3 provides a summary of the extent of use of each of the three types of controls across OLC stages illustrating that all three types of controls were used to a significantly greater extent in the growth and revival stages than the birth and maturity stages.

FIGURE 3 The pattern of use of controls across OLC stages



5. Conclusion and discussion

This study contributes to the MCS literature by adopting the configuration form of contingency fit to examine the association between the types of controls and OLC stages. In particular, using Miller and Friesen's (1984) life cycle model, this study investigated how the use of Snell's (1992) input, behaviour and output controls differed in each OLC stage and across OLC stages in Australian manufacturing organisations. The results show that output controls are used to a lesser extent than input and behaviour controls in the birth and growth stages, and used to a similar extent as input and behaviour controls in the maturity and revival stages. In addition, the results reveal that the extent of use of each type of control varies

across OLC stages, exhibiting a similar pattern, with all three types of controls used to a greater extent in the growth and revival stages compared to the birth and maturity stages.

The findings are consistent with those of Moores and Yuen (2001), who found that organisations' reliance on MCS formality increased from the birth to growth stage, decreased in the maturity stage and increased again in the revival stage. In addition, the finding that all three types of controls were used to a greater extent in the growth stage than in the birth stage concurs with Davila's (2005) findings that the use of personnel, action and results controls increase over time from the birth to growth stage.

While the findings were not intended to provide an insight into the success of the use of specific controls in different OLC stages, the observance of current practices does however provide knowledge about the suitability of specific types of controls for organisations in different stages of the OLC. For instance, the findings suggest that in birth and growth stage organisations, more emphasis is placed on input controls such as staff selection, training and development, and behaviour controls such as specifying and monitoring operating procedures. Less emphasis is placed on output controls suggesting that such controls are not as appropriate. Alternatively, organisations in the maturity and revival stages are found to place a similar emphasis on all three types of controls. Hence, while these organisations concentrate on staff recruitment and skill development, and monitoring the behaviour of employees, they also focus on result-oriented performance measures.

In addition to providing knowledge about the relevance of specific types of controls in each OLC stage, the findings highlight the importance of being aware of which OLC stage an organisation is in, due to the difference in the emphasis placed on each type of control across OLC stages. In particular, awareness of an organisation's characteristics and the extent to which those characteristics reflect a different OLC stage, could alert managers to adjust their emphasis on each type of control accordingly. For example, managers in birth stage organisations should consider constantly reviewing their organisational situation, strategy, structure and decision making style, in order to assess when these characteristics are more reflective of the growth stage. Specifically, when the organisational environment becomes more dynamic and competitive, and the emphasis shifts from a niche strategy to growth and early diversification, managers need to consider placing greater emphasis on all three types of controls. Consequently, the focus would shift more to activities such as establishing staff policies and procedures, training, monitoring employees to comply with staffing policies and procedures, and evaluating employees based on results achieved.

When the characteristics of organisations closely resemble those in the maturity stage, the results suggest that there is less emphasis placed on all three types of controls than in the growth stage. Hence, as the organisational environment becomes more stable with an emphasis on efficiency and profitability, managers should consider placing less emphasis on activities such as staff selection and training, regular monitoring of actions undertaken by employees, and linking rewards to results, compared to the growth stage.

However, when the characteristics of organisations reveal a pattern consistent with those of organisations in the revival stage, the results imply that more emphasis is placed on all three types of controls than in the maturity stage. Therefore, as organisations begin to emphasize major innovations and extensive diversification with a high level of risk taking, and the external environment is more heterogeneous and hostile, managers should consider placing more emphasis on areas such as staff recruitment and skill development, employees' accountability for their own actions, and results-based reward systems.

While this study makes a significant contribution to the MCS literature examining the association between MCSs and OLC stages, it is subject to some limitations. For instance, by using cross sectional data this study fails to capture organisational changes over a period of time. Future studies could conduct longitudinal research to obtain a deeper insight into the changes experienced as organisations move from one OLC stage to another. In addition, instead of applying Snell's (1992) three component control model, which does not include any informal controls, a future study could examine the association between controls and OLC stages in respect to both formal and informal controls. Finally, given that the present study only examines the use of different types of controls in each OLC stage, future studies could investigate how different types of controls are used (i.e. diagnostically or interactively) from a life cycle perspective.

Appendix A

The instrument of OLC stages

Please indicate the extent to which the following statements reflect the work environment in your business unit (1 = not at all, 5 = to a great extent)
NB: Factor numbers and item numbers as shown in Table 1 are indicated below.

Situation

Environmental uncertainty (Factor 8)

18: Dynamism (evidenced by the unpredictability of changes in customer tastes, production technologies)
19: Hostility (evidenced by the intensity of competition and other external influences)
20: Heterogeneity (evidenced by the differences in competitive tactics, customer tastes, product lines, channels of distribution).

The influence of board, owners and shareholders (Factor 11)

14: The decisions and operations are influenced by the boards of directors
15: The decisions and operations are influenced by owners /shareholders

Structure

Decentralisation of authority (Factor 3)

21: Participative Management
25: Effective internal communication systems
27: Delegation of decision-making
30: Proactive decision-making

Strategy

Strategic planning (Factor 5)

23: Action planning (includes formal strategic and project planning and review procedures, the use of capital budgeting techniques, and market forecasting).
24: Scanning (involves identification of threats and opportunities in the external environment of your business unit)

Diversification (Factor 6)

4: Use acquisition to diversify into unrelated lines
5: Diversifies into unrelated lines by establishing our own departments or subsidiaries
6: Engages in vertical integration

Marketing and distribution (Factor 2)

1: Has major, frequent product innovations
2: Dominates distribution channels
7: Extensive advertising and promotional expenditure
10: Provides different product lines for different markets

Innovation (Factor 4)

8: Has small, incremental product innovations
9: Selective in respect to the introduction of new products

Decision-making style

Managers' focus on decision making (Factor 1)

26: Centralization of strategy formulation
32: Extensive analysis of major decisions
33: Multiplexity of decisions: (consideration of a broad range of factors in making strategic decisions)
34: Integration of decisions (Actions in one area of the firm are complementary or supportive of those in other areas (i.e. divisions, functions).
35: Futurity of decisions (our business unit incorporates a long-term planning horizon relative to our industry)
36: Consciousness of strategies (concerns the degree of your conscious commitment as a business unit manager to an explicit corporate strategy)
37: Adaptiveness of decisions (concerns the responsiveness and appropriateness of decisions to market requirements and external environmental conditions.

Note:

11 items did not load onto any of the eight factors and are listed below:

3: Follows the lead of competitors
11: Adopts a niche strategy
12: Engages in price cutting
13: Charges a premium for high quality products
16: The decisions and operations of our business unit are influenced by customers
17: The decisions and operations of our business unit are influenced by managers
22: Sophisticated Management Information Systems
28: Technocratization (A higher proportion of highly trained staff specialists and professionally qualified people (accountants, engineers, scientists) as a percentage of the number of employees)
29: Resource shortages (human, physical and financial shortages)
31: Risk taking
38: Industry expertise of top managers (They are in a position to make decisions because of their excellent knowledge of internal operations and the outside environment)

Types of controls

Please indicate the extent to which the following statements reflect the work environment in your business unit (1 = not at all, 5 = to a great extent).

Input controls:

a) Employees must undergo a series of evaluations before they are hired.
b) Employees receive substantial training before they assume new responsibilities.
c) New employees undergo orientation regarding organisational activities.
d) Our business unit has gone to great lengths to establish staffing policies and procedures.
e) Employees are expected to adhere to established staffing policies and procedures.
f) Employees are given ample opportunity to broaden their range of talents.
g) Our business unit provides on-going training and skill development to employees.

Behaviour controls:

1. Employee performance is evaluated based on their on-going behaviour.
2. Employees are held accountable for their actions, regardless of results.

3. Employees are monitored to ensure that they are complying with staffing policies and procedures.
4. Supervisors regularly monitor the actions undertaken by employees.
5. Employees are accountable for areas of responsibilities that are defined by top managers.
6. Subordinates assume responsibility for setting their own performance goals (Reverse scored).

Output controls:

1. Performance evaluations place emphasis on results.
2. There are clear and planned performance targets set for employees.
3. Pre-established targets are used as a benchmark for evaluations.
4. Regardless of what employees are like personally, their performance is judged by results achieved.
5. The rewards employees receive are linked to results.
6. Employees who do not reach objectives receive a low performance rating.

References

Abernethy, M. A. and Brownell, P. (1997), 'Management control system in research and development organisations: the role of accounting, behaviour and personnel controls', *Accounting, Organizations and Society,* Vol. 22, No. 3-4, pp. 233-248.

Abernethy, M. A., Schulz, K-D. and Bell, S. (2007), 'Translating organisational learning orientation into performance: the role of management control systems', *Working paper, University of Melbourne Australia.*

Adizes, I. (1979), 'Organisational passages – Diagnosing and treating lifecycle problems of organisations'. *Organisational Dynamics,* Vol. 8, No. 1, pp. 3-25.

Anthony, R. N. and Govindarajan, V. (2001), *Management Control Systems.* 10th ed., McGraw-Hill/Irwin: US.

Auzair, S. M. and Langfield-Smith, K (2005), 'The effect of service process type, business strategy and life cycle stage on bureaucratic MCS in service organisations', *Management Accounting Research,* Vol. 16, No. 4, pp. 399-421.

Bonner, J. M. (2005), 'The influence of formal controls on customer interactivity in new product development', *Industrial Marketing Management,* Vol. 34, No. 1, pp. 63-69.

Brignall, S. (1997), 'Contingent rationale for cost system design in services', *Management Accounting Research,* Vol. 8, No. 3, pp. 325-346.

Brownell, P. and Dunk, A. S. (1991), 'Task uncertainty and its interaction with budgetary participation and budget emphasis: some methodological issues and empirical investigation,' *Accounting, Organizations and Society,* Vol. 6, No. 8, pp. 693-703.

Cardinal, L. B. (2001), 'Technological innovation in the pharmaceutical industry: the use of organisational control in managing research and development', *Organisational Science,* Vol. 12, No. 1, pp. 19-36.

Cardinal, L. B., Sitkin, S. B. and Long, C. P. (2004), 'Balancing and rebalancing in the creation and evolution of organisational control', *Organisation Science,* Vol.15, No. 4, pp. 411-431.

Chapman, C. S. (1998), 'Accountants in organisational networks', *Accounting, Organizations and Society,* Vol. 23, No. 8, pp. 737-766.

Churchill, N. and Lewis, V. (1983), 'The five stages of small business growth', *Harvard Business Review,* Vol. 61, No. 3, pp. 30-50.

Ciavarella, M. A. (2001), 'Linking high involvement environments to the organisational life cycle: a descriptive and prescriptive approach', *Academy of Management Proceedings,* Vol. 1, August, pp. 1-6.

Cronbach, L. J. (1951) Coefficient alpha and the internal structure of tests. *Psychometrika,* 16, 297-334.

Davila, T. (2005), 'An exploratory study on the emergence of management control system: formalizing human resources in small growing firms', *Accounting, Organizations and Society,* Vol. 30, No. 3, pp. 223-248.

Dillman, D. A. (2007), *Mail and Internet Surveys: The Tailored Design Method*, John Wiley and Sons, Inc.: New York, U.S.

Dodge, H. R. and Robbins, J. E. (1992), 'An empirical investigation of the organisational life cycle model for small business development and survival', *Journal of Small Business Management,* Vol. 30, No. 1, pp. 27-37.

Eisenhardt, K. M. and Bourgeois, L. J. (1988), 'Politics of strategic decision making in high velocity environments: Towards a mid-range theory', *Academy of Management Journal,* Vol. 31, No. 4, pp. 737-770.

Flamholtz, E. G. (1990), *Growing Pains: How to Make the Transition from an Entrepreneurship to a Professionally Managed Firm*, Jossey-Bass Publishers: San Francisco, U.S.

Flamholtz, E. G. (1995), 'Managing organisational transitions: implications for corporate and human resource management', *European Management Journal,* Vol. 13, No. 1, pp. 39-51.

Fornell, C. & Larcker, D. 1981. Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research,* Vol. 18, No. 1, pp. 39-50.

Galbraith, J. R. (1977), *Organisation Design,* Addison-Wesley, Reading: MA.

Gerdin, J. (2005), 'Management accounting system design in manufacturing departments: an empirical investigation using a multiple contingencies approach', *Accounting, Organizations and Society,* Vol. 30, No. 2, pp. 99-126.

Gerdin, J. and Greve, J. (2004), 'Forms of contingency fit in management accounting research – a critical review', *Accounting, Organizations and Society,* Vol. 29, No. 3-4, pp. 303-326.

Gosselin, M. (1997), 'The effects of strategy and organisational structure on the adoption and implementation of activity-based costing', *Accounting, Organizations and Society,* Vol. 22, No, 2, pp. 105-122.

Greiner, L. E. (1972), 'Evolution and revolution as organisations grow', *Harvard Business Review,* Vol. 50, No. 4, pp. 37-46.

Hanks, S. H., Watson. C. J., Jansen, E. and Chandler, G. N. (1993), 'Tightening the life-cycle construct: a taxonomic study of growth stage configurations in high-technology organisations', *Entrepreneurship Theory & Practice,* Vol. 18, No. 2, pp. 5-30.

Henri, J. (2008), 'Taxonomy of performance measurement systems', *In:* Epstein, M. J. and Lee, J. Y. (eds.) *Advances in Management Accounting*. Emerald Group Publishing Ltd.

Ittner, C. D. and Larcker, D. F. (1997), 'Quality strategy, strategic control systems, and organisational performance', *Accounting, Organizations, and Society*, Vol. 22, No. 3-4, pp. 295-314.

Jaeger, A. M., Baliga, B. R. (1985), 'Control systems and strategic adaptation: lessons from the Japanese experience', *Strategic Management Journal,* Vol. 6, No. 2, pp. 115-134.

Jensen, M. C. (1998), *Foundations of Organisational Strategy*, Harvard University Press, Cambridge: Massachusetts.

Johnson, W. H. A. (2011), 'Managing university technology development using organisational control theory', *Research Policy*, Vol. 40, No. 6, pp. 842-852.

Kallunki, J. P. and Silvola, H. (2008), 'The effect of organisational life cycle stage on the use of activity-based costing', *Management Accounting Research,* Vol. 19, No. 1, pp. 62-79.

Kazanjian, R. K. (1988), 'Relation of dominant problems to stages of growth in technology-based new ventures', *Academy of Management Journal*, Vol. 31, No. 2, pp. 257-279.

Kimberly, J. R. and Miles, R. H. (1980), *The Organisational Life Cycle*, Jossey-Bass: San Francisco, U.S.

Kober, R. (2010), 'The emergence and utilization of management control systems in a high growth firm', *Working paper presented at Accounting & Finance Association of Australia and New Zealand.* Christchurch, New Zealand.

Kober, R., Ng, J. and Paul, B. (2003), 'Change in strategy and MCS: a match over time?', *Advanced Accounting*, Vol. 20, No. 3, pp. 199-232.

Kompass Australia Database (2010), *Peter Isaacson Publications,* Victoria, Australia.

Lester, D. L., Parnell, J. A. and Carraher, S. (2003), 'Organisational life cycle: a five-stage empirical scale', *The International Journal of Organisational Analysis,* Vol. 11, No. 4, pp. 339-354.

Lippitt, G. L. and Schmidt, W. H. (1967), 'Crises in a developing organisation', *Harvard Business Review*,Vol. 45, No. 6, pp. 102-112.

Macintosh, N. B. (1994), *Management Accounting and Control Systems*, Wiley: New York, U.S.

Manufacturing Industry Brief (2008-2009) *Department of Innovation Industry, Science and Research.* Available at: http://www.innovation.gov.au/Section/Industry/Documents/DIISR_manuf_rpt_web_version.pdf. Access date 11th Oct. 2011.

Merchant, K. A. (1981), 'The design of the corporate budgeting system: influences on managerial behaviour and performance', *The Accounting Review*, Vol. 56, No. 4, pp. 813-829.

Merchant, K. A. (1984), 'Influences on departmental budgeting: an empirical examination of a contingency model', *Accounting, Organizations and Society,* Vol. 9, No. 3-4, pp. 291-307.

Merchant, K. A. (1998), *Modern management control systems*, Prentice-Hall: Upper Saddle River, NJ.

Merchant, K. A. and Van der Stede, W.A. (2003), *Management Control Systems: Performance Measurement, Evaluation and Incentives*, Prentice-Hall: London, U.K.

Mia, L. (2000), 'Just-in-time manufacturing, management accounting systems and profitability', *Accounting and Business Research,* Vol. 30, No. 2, pp. 137-151.

Miller, D. and Friesen, P. H. (1984), 'A longitudinal study of the corporate life cycle', *Management Science,* Vol. 30, No. 10, pp. 1161-1183.

Mital, A., Desai, A., Subramanian, A. and Mital, A. (2008), *Product Development: a Structured Approach to Consumer Product*, Elsevier Inc.: Oxford, U.K.

Moores, K. and Sharma, D. (1998), 'The influence of environmental uncertainty on performance evaluation style and managerial performance', *Accountability and Performance,* Vol. 4, No. 2, pp. 1-16.

Moores, K. and Yuen, S. (2001), 'Management accounting systems and organisational configuration: a life-cycle perspective', *Accounting, Organizations and Society,* Vol. 26, No. 4-5, pp. 351-389.

Oppenheim A. N. (1992) *Questionnaire Design, Interviewing and Attitude Measurement*. Pinter: London.

Ouchi, W. G. (1977), 'The relationship between organisational structure and organisational control', *Administrative Science Quarterly,* Vol. 22, No. 1, pp. 95-113.

Ouchi, W. G. (1978), 'The transmission of control through organisational hierarchy', *Administrative Science Quarterly,* Vol. 21, No. 2, pp. 173-192.

Ouchi, W. G. (1980), 'Markets, bureaucracies, and clans', *Administrative Science Quarterly,* Vol. 25, No. 1, pp. 129-141.

Perrow, C. (1986), *Complex Organisations*, Random House: New York, U.S.

Quinn, R. E. and Cameron, K. (1983), 'Organisational life cycles and criteria of effectiveness', *Management Science,* Vol. 29, No. 1, pp. 33-51.

Samson, D. and Daft, R. L. (2005), *Management,* Thomson: Sydney, Australia.

Sandelin, M. (2008), 'Operation of management control practices as a package – A case study on control system variety in a growth firm context', *Management Accounting Research,* Vol. 19, No. 4, pp. 324-343.

Scott, T. W. and Tiessen, P. (1999), 'Performance measurement and managerial teams', *Accounting, Organizations and Society,* Vol. 24, No. 3, pp. 263-285.

Silvola, H. (2008), 'Do organisational life-cycle and venture capital investors affect the management control systems used by the firm?', *Advances in Accounting,* Vol. 24, No. 1, pp. 128-138.

Simons, R. (1995), *Levers of control: how managers use innovative control systems to drive strategic renewal*, Harvard Business School Press: Boston, Massachusetts.

Smith, K. G., Mitchell, T. R. and Summer, C. E. (1985), 'Top level management priorities in different stages of the organisational life cycle', *Academy of Management Journal,* Vol. 28, No. 4, pp. 799-820.

Snell, S. A. (1992), 'Control theory in strategic human resource management: the mediating effect of administrative information', *Academy of Management Journal,* Vol. 35, No. 2, pp. 292-327.

Snell, S. A., Youndt, M. A. (1995), 'Human resource management and firm performance: testing a contingency model of executive controls,' *Journal of Management,* Vol. 21, No. 4, pp. 711-737.

Sproles, G. B. and Kendall, E. L. (1986), 'A methodology for profiling consumers' decision-making styles', *Journal of Consumer Affairs,* Vol. 20, No. 2, pp. 267-279.

Thompson, J.D. (1967), *Organisations in Action,* McGraw-Hill: New York, U.S.

Walsh, J. P. and Seward, J. K. (1990), 'On the efficiency of internal and external corporate control mechanisms', *Academy of Management Review,* Vol. 15, No. 3, pp. 421-458.

Whitley, R. (1999), 'Firms, institutions and management control: the comparative analysis of coordination and control systems', *Accounting, Organizations and Society,* Vol. 24, No. 5-6, pp. 507-524.

CHAPTER FOUR

PAPER TWO

Management control systems: the role of interactive and diagnostic approaches to using controls from an organisational life cycle perspective

Abstract

This study examines the association between the approaches to using controls (interactive versus diagnostic) and Miller and Friesen's (1984) four organisational life cycle (OLC) stages (birth, growth, maturity, revival). Data were collected by a survey questionnaire from a random sample of 343 General Managers in Australian manufacturing organisations. The results from the examination of the use of each approach across OLC stages indicate that both approaches are used to a greater extent in the growth and revival stages than the birth and maturity stages. An examination of both approaches to using controls in each OLC stage reveals that the interactive and diagnostic approaches are used to a similar extent in each of the four OLC stages. The study contributes to the management control system (MCS) literature by linking MCSs with OLC stages. Most importantly, the study provides knowledge regarding the suitability of interactive and diagnostic approaches to using controls for organisations both in and across OLC stages.

Key words

Organisational life cycle stage, interactive approach to using controls, diagnostic approach to using controls.

1. Introduction

While a significant body of management control system (MCS) literature has focused on the examination of the existence, characteristics and/or relative importance of controls, less emphasis has been placed on examining the manner in which controls are used (Ferreira, 2002; Ferreira and Otley, 2009; Abernethy et al., 2010). Abernethy et al. (2010) argued that what differentiates one control from another is not their technical characteristics but the way in which management use them. Similarly, Langfield-Smith (1997) asserted that it is not sufficient to merely investigate the existence of controls without examining how they are used, while Ferreira (2002) suggested that the approach to using controls plays a more significant role than the design of controls.

A limited number of studies have examined the effect of contingent variables on the approach to using controls (Naranjo-Gil and Hartmann, 2007; Kober et al., 2007; Widener, 2007; Abernethy et al., 2010; Bobe and Taylor, 2010; Kober, 2010). For instance, Bobe and Taylor (2010) investigated how the professional characteristics and experience of senior academic executives influenced the approach to using controls, with the results showing that as the duration of executives' current position increased they tended to move from an early diagnostic use of controls to a more interactive approach. Similarly, Naranjo-Gil and Hartmann (2007) found that the professionalism of top management teams is positively associated with the interactive use of controls and negatively associated with the diagnostic use of controls.

Abernethy et al. (2010) examined the association between leadership style and the way in which controls are used, and found that top management with a consideration leadership style used their planning and control systems more interactively. Widener (2007) found that there

was a positive association between strategic risks and uncertainties with the interactive use of controls, and Kober et al. (2007) concluded that a change in strategy lead to a change in the manner of how controls are used. However, these studies treated individual contingent variables in isolation, with little attention placed on Drazin and Van de Ven's (1985) assertion that associations can only be understood if multiple contingent variables are analyzed simultaneously. This argument is in line with the configuration approach in the contingency research literature which maintains that multiple contingent variables should be examined simultaneously in order to provide a more holistic understanding of organisations and their environment (Gerdin and Greve, 2004). Accordingly, this study aims to contribute to the MCS literature by adopting the configuration approach to examine how multiple contingent variables simultaneously affect the approach to using controls.

Miller and Friesen (1984) developed a dynamic form of configuration by classifying organisations into different development stages, based on the simultaneous consideration of four contingent variables: organisational situation, strategy, structure and decision-making styles. These development stages were labeled organisational life cycle (OLC) stages, and include the birth, growth, maturity, revival and decline stages. Kober (2010) is the only study which has examined the association between the approaches to using controls and OLC stages. Specifically, Kober (2010) undertook a retrospective longitudinal case study of a New Zealand company, and found that the interactive approach to using controls was introduced in the growth stage, while the diagnostic approach to using controls was introduced at the end of the birth stage and became prevalent in the growth stage[13].

[13] The interactive approach here refers to a system which emphasizes face-to-face communications and allows managers to personally involve themselves in the decision activities of subordinates, while the diagnostic approach is identified as a system that allows organisational outcomes to be monitored and deviations from preset standards of performance to be corrected.

However, Kober's (2010) study only investigated the first two stages (i.e. the birth and growth stages) of Miller and Friesen's (1984) five stage OLC model. Accordingly, the first objective of this study is to extend the current MCS literature by investigating how the approaches to using controls may differ across four stages (birth, growth, maturity and revival stages) of Miller and Friesen's (1984) OLC model[14]. Specifically, this study examines how organisations adjust their emphasis on Simons' (1995) interactive and diagnostic approaches to using controls as they move from one OLC stage to another.

In addition to examining the extent of use of the interactive and diagnostic approaches across OLC stages, the study is also concerned with the balance between the use of the interactive and diagnostic approaches in each OLC stage. While the two approaches are complementary, a dynamic tension can be created as a result of the simultaneous use of the interactive and diagnostic approach (Henri, 2006b). Given that every stage in the OLC is comprised of a unique set of characteristics, the same emphasis on the extent to which the interactive and diagnostic approaches are used may not have the same desired effect in one stage versus another. Hence, the second objective of this study is to examine the extent to which the interactive and diagnostic approaches are used in each OLC stage.

The remainder of this paper is structured as follows. Section 2 discusses the literature on OLC stages and the approaches to using controls, and develops relevant hypotheses. This is followed by Section 3 which discusses the method used to collect data and the measurement of variables. Section 4 then provides the results of the data analysis and a discussion of the results. Finally, a discussion of the contributions, practical implications, limitations of the study and insights for future research are presented in Section 5.

[14] The decline stage is not covered in the study due to the difficulty in collecting data from decline-stage business units.

2. Theory and hypotheses development

2.1 The organisational life cycle (OLC) stages

The concept of OLC stages was introduced by Chandler (1962) to explain that changes within organisations follow a consistent and predictable pattern which is characterized by discrete stages of development. Numerous OLC stage models have been thereafter developed with the number of stages ranging from three to ten stages (See Figure 1). Moores and Yuen (2001) argued that an acceptable OLC stage model must meet two criteria. First, a complete biological cycle of organisational development from birth to death should be covered in the model. Secondly, the model should have been examined and supported empirically. Accordingly, Miller and Friesen's (1984) five OLC stage model was chosen since it covers the complete life of an organisation from birth to death, and has been empirically tested and supported in both the OLC (Miller and Friesen, 1982, 1984; Drazin and Kazanjian, 1990; Kazanjian and Drazin, 1990) and MCS literature (Moores and Yuen, 2001; Auzair and Langfield-Smith, 2005; Davila, 2005; Kallunki and Silvola, 2008; Silvola, 2008). In addition, Miller and Friesen's (1984) OLC model provides a comprehensive quantitative measure of OLC stages.

Miller and Friesen's (1984) model classifies organisation into five stages (birth, growth, maturity, revival and decline stages) following an assessment of their organisational situation, structure, strategy and decision-making style. In the birth stage, organisations are small in size and are faced with a relatively uncompetitive environment. A niche strategy prevails with a narrow product scope. The structure is described as simple and centralized, and

FIGURE 1 A summary of OLC stage models

Model	Start up stage	Expansion stage	Maturity stage	Diversification stage	Decline stage
Lippitt and Schmidt (1967)	1. Birth	2. Youth	3. Maturity		
Smith et al. (1985)	1. Inception	2. High growth	3. Maturity		
Kimberly and Miles (1980)	1. Start up	2. Growth	3. Maturity		4. Decline
Quinn and Cameron (1983)	1. Entrepreneurial	2. Collectivity	3. Formalization	4. Elaboration of structure	
Kazanjian (1988)	1. Conception & Development 2.Commercialization	3. Growth 4. Expansion	4. Stability		
Greiner (1972)	1. Creativity	2. Direction	3. Delegation	4. Coordination 5.Collaboration	
Churchill and Lewis (1983)	1. Existence 2. Survival 3a. Success-disengagement	3b. Success-Growth 4. Take-off	5. Resource Maturity		
Miller and Friesen (1984)	1. Birth	2. Growth	3. Maturity	4. Revival	5. Decline
Lester et al. (2003)	1. Existence	2. Survival	3. Success	4. Renewal	5. Decline
Adizes (1979)	1. Courtship 2. Infancy	3. Go-Go 4. Adolescence	5. Prime 6. Mature		7. Aristocracy 8. Early Bureaucracy 9. Bureaucracy 10. Death
Flamholtz (1990)	1. New Venture	2. Expansion	3.Professionalization 4. Consolidation	5. Diversification 6. Integration	7. Decline

*While the number of stages are different across different OLC models, this diagram was developed using five major stages in the interest of parsimony and ease of comparison.

organisations are owner-controlled. Only a minimal amount of information is used for decision making as owners make their decisions mainly based on their intuition.

Compared to the birth stage, organisations in the growth stage are larger in size, and the organisational structures are more complex and less centralized. Organisations seek to grow and develop more formal structures, with a focus on functional specialization. Top management tend to remove their attention away from daily routine administration and consequently delegate authority to subordinates. Given the heterogeneous and competitive environment in this stage, greater effort is devoted to collecting and processing information so as to cope with the high level of uncertainty. Intuition-based decision-making style is replaced by a more analytical and better integrated decision-making style, with a wide array of factors taken into account. The main strategies pursued are early diversification and innovation, which subsequently results in a broader range of products being provided.

In the maturity stage, organisational size is larger and the environment is relatively stable, with a lower level of uncertainty. Rules and procedures are in place which is consistent with a rigid and centralized structure. Compared to the growth stage, the ownership in this stage is more dispersed. Decision-making power rests in the hands of a few top managers, perhaps due to the simplicity and stability of operations in this stage. Instead of pursuing diversification and innovation, maturity stage organisations emphasize improvements in productivity and efficiency, and there is a narrower product scope than in the growth stage. The emphasis on productivity and efficiency align with the less innovative, less proactive and more risk averse decision-making style in the maturity stage.

In the revival stage, organisations are the largest in terms of size. Environmental dynamism and hostility is higher than in any other stage, and ownership is the most dispersed amongst all of the OLC stages. The organisational emphasis shifts from the defender strategic approach to dramatic diversification and innovation, with a great deal of risk taking. Hence, a broader scope of products is provided than in the maturity stage. The decision-making style tends to be more flexible and analytical so as to mitigate the high level of risk involved. In order to cope with the increasing market heterogeneity, a divisional structure is adopted with the authority over operating decisions delegated to each division, and divisional managers held responsible for their division's performance.

The decline stage is characterized by reductions in market share, profit and financial resources. Organisations focus on survival with little engagement in innovation and risk taking. Ownership is tightly held and the structure is highly centralized. The decision-making power is concentrated in the hands of top management, and the decision-making style tends to be short term orientated with very few factors taken into account in making decisions.

2.2 Approaches to using controls

This study adopts Simons' (1995) framework of the interactive and diagnostic approaches to using controls which has been widely used in recent MCS studies (Abernethy and Brownell, 1999; Davila, 2000; Bisbe and Otley, 2004; Henri, 2006b; Kober et al., 2007; Ferreira and Otley, 2009; Bobe and Taylor, 2010). While Simon's (1995) framework covers four levers of controls (belief, boundary, interactive, diagnostic), most studies examining the approach to using controls have focused on the interactive and diagnostic levers (Abernethy and Brownell, 1999; Davila, 2000; Bisbe and Otley, 2004; Henri, 2006b, Kober et al., 2007; Ferreira and Otley, 2009; Bobe and Taylor, 2010). Bisbe and Otley (2004) argued that

compared to belief and boundary levers, interactive and diagnostic levers place more attention on the relevance of the manner in which controls are used. Similarly, Langfield-Smith (1997), Ramos and Hidalgo (2003) and Merchant and Otley (2007) suggested that the interactive and diagnostic levers allow a comparison of different controls in terms of the way they are used rather than their technical design characteristics. Accordingly, given that the current study aims to examine the way in which management use controls, the focus is on the interactive and diagnostic approaches to using controls.

Under the interactive approach, top management personally and regularly involve themselves in the process of subordinates' decision making activities (Simons, 1995). "The process requires frequent and regular attention from operating managers at all levels of the organisation, and information generated by the process represents an important agenda to be addressed by the highest level of management. The process relies on the continual challenge and debate of underlying data, assumptions, and action plans; and it is fuelled by reward of effort rather than results" (Simons, 1987b, p351). The interactive approach encourages face-to-face dialogue and debate across different levels, which subsequently facilitates organisational learning and innovation. However, this approach requires continuous management attention (Tuomela, 2005) and incurs relatively high costs (Moulang, 2007).

With the diagnostic approach, top management delegate a significant level of authority to subordinates, and only get involved in the process of subordinates' decision making activities if there are discrepancies between expected and actual results. Data is transmitted through formal reporting procedures and management rely greatly on subordinates to inform them when their attention is needed (Simons, 1987b; Simons, 1995). The diagnostic approach links organisational strategy with critical performance variables and therefore conserves

management attention and helps with the implementation of strategies. However, the diagnostic use of controls does not encourage individuals to search for opportunities, and therefore restrains organisational learning and innovation.

The following sections will develop hypotheses relating to the emphasis placed on the interactive and diagnostic approaches to using controls across OLC stages and in each OLC stage respectively. No hypothesis will be developed for the decline stage since previous studies (Auzair and Langfield-Smith, 2005, Kallunki and Silvola, 2008, Silvola, 2008) have found that it is difficult to obtain data from decline stage organisations.

2.3 Approaches to using controls across OLC stages

2.3.1 The interactive use of controls across OLC stages

Given that birth stage organisations exhibit a centralized structure with top management making all key decisions (Miller and Friesen, 1984), there is little demand for information sharing and interaction amongst employees at all levels. In addition, since top management in the birth stage tend to focus more on operational issues than managerial issues, the interactive approach to using controls, which requires frequent discussion and face-to-face meetings across different hierarchical levels, is considered less appropriate.

As organisations start to grow, top management adjust the structure of their organisation. Given that many growth stage organisations adopt a function-based structure, communication amongst the different functional departments plays a vital role in improving coordination and facilitating collaboration (Miller and Friesen, 1984). As a result, the interactive approach to using controls, focusing on interaction and continual information exchange amongst various levels of management and across different functions (Abernethy and Brownell, 1999; Bisbe

and Otley, 2004), becomes extremely important. In addition, since the growth stage is considered as an innovative stage, the use of the interactive approach can assist in fostering organisational innovativeness by encouraging knowledge generation and collaboration throughout organisations (Henri, 2006b). This is consistent with Ferreira and Otley's (2009) argument that the use of the interactive approach can promote innovation and generate new ideas and initiatives. Hence, the interactive approach is expected to be used to a greater extent in the growth stage than in the birth stage.

In the maturity stage, top management attempt to regain the decision-making power delegated to subordinates in the growth stage, and subordinates have a relatively low level of involvement in decision making (Miller and Friesen, 1984). The interactive approach, which is manifested by a high level of participation and involvement of managers from various levels in the decision making process, therefore becomes less prevalent. Further, since maturity stage organisations are embedded in a relatively stable environment, ongoing debate and discussions about the changing conditions faced by the organisation across multiple levels of managers becomes less frequent. Hence, the interactive approach is expected to be used to a lesser extent in the maturity stage than in the growth stage.

The need for revival eventuates when the stability in maturity stage organisations results in slow growth and poor performance. In order to achieve turnaround and new growth, revival stage organisations shift their emphasis to significant product and market diversification and radical innovations (Miller and Friesen, 1984). Simons (1995) suggested that the interactive approach is particularly useful in contexts where innovation plays a crucial role, while Miller and Friesen (1984) suggested that the competitive and uncertain environment in the revival stage requires firms to have a capability to discover environmental threats and opportunities.

In addition, Widener (2007) asserted that the interactive approach enables management across different levels to engage in frequent face-to-face discussion and debate, thereby assisting firms to better position themselves in a dynamic and uncertain environment. Therefore, the interactive approach is expected to be used to a greater extent in the revival stage than in the maturity stage.

H1a: The interactive approach to using controls is expected to be employed to a greater extent in growth and revival stage organisations than the birth and maturity stage organisations.

2.3.2 The diagnostic use of controls across OLC stages

Simons (Simons, 1995, Simons, 2000) suggested that in order to ensure the effectiveness of the diagnostic approach to using controls, organisational goals, strategies, and critical success factors should be explicit enough to make the selection of appropriate outcome measures straightforward. Since birth stage organisations experience a considerable level of environmental uncertainty as they attempt to create products in an unfamiliar market (Miller and Friesen, 1984), it is difficult to set clear goals, strategies and critical success factors. Hence, the diagnostic approach is not expected to be used to a great extent in the birth stage.

As organisations move to the growth stage, there is a potential risk that subordinates act in their own interests due to the increased freedom and decision making rights delegated to them (Simons, 2000). The use of the diagnostic approach, in the form of tracking progress towards goals and monitoring results, can therefore limit individuals' undesirable behaviour to some extent and enhance the achievement of organisational goals (Simons, 2000; Moulang, 2007). In addition, compared to the interactive approach, the diagnostic approach does not require continuous management attention, and therefore enables managers to focus on more important decision-making activities such as organisational long term planning. However,

given the competitive and uncertain environment experienced by growth stage organisations, it is difficult to set expected outputs accurately, which hinders the use of the diagnostic approach (Simons, 2000). Therefore, similarly to the birth stage, the diagnostic approach is not expected to be used to a great extent in the growth stage.

Compared to growth stage organisations, those in the maturity stage experience slower growth in a relatively stable environment with an emphasis on production efficiency. Abernethy and Brownell (1999) argued that the diagnostic approach will be more effective in a situation where the environment is stable, while Simons (2000) argued that the diagnostic approach to using controls plays a significant role in the achievement of efficiency and organisational goals. In addition, due to the relatively stable organisational environment and well-established rules and procedures (Miller and Friesen, 1984), maturity stage firms can set clear organisational goals and desired outcomes, ensuring the effective use of the diagnostic approach (Simons, 1995, 2000). Furthermore, maturity stage firms have highly structured channels of communication which makes the use of the diagnostic approach more appropriate (Henri, 2006b). Hence, the diagnostic approach is expected to be used to a greater extent in the maturity stage than in the birth and growth stages.

Organisations in the revival stage place more emphasis on major innovation and extensive diversification than maturity stage organisations. In order to cope with a highly heterogeneous, competitive and dynamic environment, top management tend to focus more on strategic issues. The diagnostic approach to using controls therefore facilitates the efficient use of management attention, by relying on exception reporting to monitor results and review critical performance variables (Simons, 2000; Moulang, 2007). However, Amabile (1988) argued that the diagnostic approach restricts employees' creativity, and is not appropriate in

revival stage organisations where innovation plays a major role. This argument is supported by Simons (1995) who asserts that the diagnostic approach limits opportunity seeking and innovation. Accordingly, the diagnostic approach is expected to be used to a lesser extent in the revival stage than in the maturity stage.

H1b: The diagnostic approach to using controls is expected to be employed to a greater extent in maturity stage organisations than the birth, growth and revival stage organisations.

2.4 Approaches to using controls in each OLC stage

2.4.1 Birth stage

Due to the relatively small size of birth stage organisations, managers have control over all aspects of their business' daily operations to ensure employees work towards desired outcomes (Miller and Friesen, 1984). As a result, there is less demand for the use of the diagnostic approach, which aims to monitor outcomes and correct any deviations from preset performance standards. Furthermore, for the diagnostic approach to work effectively, organisations must have clear goals and strategies (Simons, 1995, 2000). Given that birth stage organisations are still in a trial stage to set their goals and strategies, the use of the diagnostic approach is less appropriate. Meanwhile, with a high level of centralization, top management in the birth stage make all the key decisions without communicating with their subordinates. Therefore, the interactive approach, which requires frequent information sharing and interaction across different hierarchical levels, is also not expected to be used to a great extent.

H2a: The interactive and diagnostic approaches to using controls are expected to be employed to a similar extent in birth stage organisations.

2.4.2 Growth stage

In the growth stage, the more complex and challenging environment requires firms to adapt quickly to market threats and opportunities. The use of the interactive approach allows managers to deal with highly complicated situations (Widener, 2007) and hence improves firms' responsiveness to unpredictable events. Bisbe and Otley (2004) argued that firms facing a high degree of innovation perform better when controls are used interactively. Similarly, Tekavcic et al. (2008) found that regular face-to-face dialogues and debates, and the exchange of knowledge and communication amongst employees, which are embedded in the interactive approach, facilitates the development of new products and can improve the impact of innovation on performance.

Decentralization increases in the growth stage and employees are given a high level of autonomy and decision making rights. The use of the diagnostic approach therefore becomes essential to direct employees' attention to organisations' desired outcomes (Granlund and Taipaleenmaki, 2005). Miller and Friesen (1984) found that in the growth stage, top management need to monitor the performance of their divisions to ensure firms develop in an orderly way. This can be achieved by the diagnostic use of controls to limit risk taking and provide boundaries for innovation (Henri, 2006b). However, it is difficult to set desired goals and measure critical performance variables in such a dynamic and challenging environment, and hence the use of the diagnostic approach is not expected to be used to the same extent as the interactive approach.

H2b: The interactive approach to using controls is expected to be employed to a greater extent than the diagnostic approach in growth stage organisations.

2.4.3 Maturity stage

Efficiency and productivity replace innovation as the main focus in the maturity stage (Miller and Friesen, 1984), and hence the diagnostic approach is more prevalent as it enables management to observe productivity and efficiency and make timely responses (Miller and Friesen, 1982). In addition, due to the stable environment in this stage, goals and outcome measures can be more clearly set in the maturity stage, thereby providing an appropriate context for the use of the diagnostic approach (Simons, 2000). Furthermore, the diagnostic approach is considered to be traditional and rule-based, which is consistent with the rigid and centralized structure in maturity stage organisations (Moulang, 2007).

Organisational structures are centralized with decision-making activities dominated by a few key managers in the maturity stage. Therefore, the use of the interactive approach is considered less appropriate. In addition, although the interactive approach provides signals to managers in regard to potential threats and opportunities, and stimulates the development of new ideas and initiatives (Henri, 2006b), it requires substantial resources and staff time. Since maturity stage organisations are embedded in a relatively stable environment with little focus on innovation, there is less demand for the use of the interactive approach.

H2c: The diagnostic approach to using controls is expected to be employed to a greater extent than the interactive approach in maturity stage organisations.

2.4.4 Revival stage

The emphasis on dramatic diversification and innovation, opportunity seeking and learning, and generating new ideas become extremely critical in the revival stage. The use of the interactive approach, encouraging information gathering and face-to-face communication amongst employees at all levels, is therefore considered appropriate. This is consistent with

Langfield-Smith's (1997) argument that the use of the interactive approach motivates organisational learning over time through frequent dialogue and debates.

Akroyd (2008) found that employees in firms experiencing radical innovation meet face-to-face to learn, discuss arising issues and debate strategies interactively. Similarly, Simons (1995) asserted that the interactive approach provides signals to managers in regard to potential threats, and subsequently assists managers in better dealing with environmental hostility and heterogeneity. However, the use of the interactive approach is not costless and requires continuous attention, which is time consuming (Abernethy and Brownell, 1999).

Tekavcic et al. (2008) maintained that one of the main advantages of the use of the diagnostic approach is to alleviate managers' burden of constant monitoring, particularly for managers in revival stage organisations who face complex and competitive markets with a high level of risk-taking. While there is criticism that the use of the diagnostic approach stifles innovation (Amabile, 1988; Simons, 1995), Moulang (2007) found that employees can actually tolerate the use of the diagnostic approach to some extent without damaging their creativities. Hence, while the diagnostic use of controls may still have an important role in the revival stage, the interactive approach is expected to be used to a greater extent.

H2d: The interactive approach to using controls is expected to be employed to a greater extent than the diagnostic approach in revival stage organisations.

3. Method

The data were collected by distributing a survey questionnaire to a random sample of 1000 General Managers of Australian manufacturing organisations identified in the Kompass Australia Database (2010). Respondents were asked to complete the questionnaire in respect to one business unit within their organisation, since different business units in an organisation

may be in different stages of their OLC, thereby making it difficult to complete the survey at the corporate level. Australian manufacturing organisations were selected for two reasons. First, given that there are multiple variables and relationships involved in this study, the focus on a single industry can reduce the noise in the measures, and provide better control for variables beyond the interest of this study (Dixon, 1992). Secondly, by making the second highest contribution to Australian Gross Domestic Product (GDP), the Australian manufacturing industry has a crucial influence on the Australian economy.

To improve the response rate, Dillman's Tailored Design Method (Dillmann, 2007) was adopted to design and administer the questionnaire[15]. The response rate of 34.3% (343 responses) compares favourably with the response rate of recent OLC studies in the MCS literature (Auzair and Langfiled-Smith, 2005 [15.5%]; Kallunki and Silvola, 2008 [21%]; Moores and Yuen, 2001 [14.5%]). Non-response bias tests were undertaken by comparing each of the independent and the dependent variables for early and late respondents (Oppenheim, 1992). The results revealed that there were no significant differences for any of the variables, indicating that non-response bias was not a concern.

3.1 Organisational life cycle (OLC) stages

Miller and Friesen's (1984) instrument was used to classify business units into five OLC stages: birth, growth, maturity, revival and decline. In an attempt to make the survey as concise as possible while still maintaining the accuracy and completeness of the measure, the 54 items in Miller and Friesen's (1984) instrument were reduced to 38 by eliminating those items which were ambiguous, duplicated, and/or considered irrelevant to the context of the

[15] The Tailored Design Method provides guidelines in relation to the design and distribution of the questionnaire.

current study. Amongst these 38 items, 13 items were used to measure the respondent organisations' strategies, seven items were used to measure the respondent organisations' situation, and nine items were used to measure organisational structure and decision making style. Respondents were asked to indicate the extent to which each item was reflected in their business unit, using a five point Likert-type scale with anchors of "1 = Not at all" and "5 = To a great extent".

In order to classify organisations into OLC stages, factor analysis was conducted in accordance with the procedures applied in Moores and Yuen (2001). Table 1 reveals that 34 out of the 38 items loaded onto 12 factors. However, the loadings of items on factor 7, 9, 10 and 12 were not interpretable. Accordingly, eight relevant factors were obtained with two relating to organisational situation, one relating to structure, four relating to strategy and one relating to decision making style (see Table 2). The specific items loading on each factor are shown in Appendix A, with each factor subsequently scored as the sum of the items loading clearly on each factor. Table 2 reveals the mean scores for each factor across the clusters, and demonstrates the validity of the constructs with each of the Cronbach alpha coefficients (Cronbach, 1951) at an acceptable level of 0.4 or above (Sproles and Kendall, 1986; Mital et al., 2008). These scores were subsequently used in cluster analysis (hierarchical agglomerative technique with Ward's minimum variance method for distance measure between two sub-groups).

Consistent with Miller and Friesen's (1984) five stage OLC model, business units were forced into five clusters representing five OLC stages. The labeling of clusters was subsequently undertaken by examining the extent to which the characteristics of each of the eight factors were in line with Miller and Friesen's (1984) descriptions of the five OLC

TABLE 1 Factor analysis of OLC items

Items*	Factors											
	1	2	3	4	5	6	7	8	9	10	11	12
1	.242	**.719**	.111	-.066	-.005	.133	.204	-.070	.037	.104	.045	.117
2	.162	**.685**	.042	.133	.064	.111	.071	.059	-.158	-.033	-.132	-.026
3	-.043	-.064	-.120	.049	-.008	.253	-.091	-.043	**.681**	-.131	.102	.201
4	-.010	.194	-.025	.019	.159	**.752**	-.069	.060	.015	-.118	-.116	.040
5	.140	.099	.008	.037	-.061	**.839**	.017	.005	-.028	.144	-.056	-.045
6	-.030	.156	-.061	-.055	.375	**.361**	.258	.117	.130	-.022	-.002	-.486
7	-.126	**.592**	.031	.242	.246	.111	.032	.132	.035	.141	.110	-.222
8	.026	.012	.118	**.786**	.035	-.005	.009	.044	.046	-.044	-.022	.053
9	.226	.176	.129	**.716**	.083	.113	.012	.110	-.026	.138	.056	.013
10	.241	**.316**	.125	.370	.037	-.047	-.026	.305	.206	.252	-.205	.097
11	.205	.073	.000	.035	-.008	.000	.098	.053	-.010	**.747**	-.020	.048
12	-.071	.001	.025	-.004	-.008	-.203	.012	.126	**.738**	.099	-.108	-.174
13	-.063	.179	.006	.169	.483	.052	-.032	.176	-.158	.340	-.115	**.392**
14	.047	-.020	-.107	.039	-.041	-.109	.105	.094	-.004	-.087	**.796**	.023
15	.006	-.007	-.464	-.069	-.046	-.088	.052	-.137	.080	.268	**.506**	.242
16	.096	-.001	.081	.047	.086	.041	.221	.068	.042	.029	.090	**.781**
17	-.022	.092	.681	.122	.109	-.125	.044	.131	.022	-.042	-.150	.203
18	.336	.330	.047	-.275	-.147	.053	.234	**.406**	-.004	-.127	.087	.152
19	.116	-.164	-.002	.172	.154	.011	.220	**.692**	.092	-.059	.027	-.010
20	.193	.166	.094	.107	-.039	.090	.001	**.721**	.049	.121	.040	.040
21	.379	-.109	**.489**	.135	.040	.146	.130	-.001	-.313	.184	.174	.041
22	.333	.299	.271	.122	.496	.037	-.113	-.153	.040	-.175	.097	.070
23	.391	.103	.182	.072	**.634**	.071	.037	-.041	-.089	-.115	.028	.026
24	.393	-.065	.104	.010	**.635**	.012	.056	.170	.092	.177	-.110	-.058
25	.403	.082	**.347**	.189	.263	.047	.178	-.137	-.144	.408	.008	-.085
26	**.531**	.205	.228	.230	.248	-.014	-.063	.086	-.066	.139	-.028	.049
27	.343	.141	**.613**	.132	.145	.060	.154	.014	.088	.085	-.110	-.040
28	.184	.145	.293	-.180	.122	-.039	-.300	.378	-.161	.042	.352	-.061
29	-.073	-.143	.248	.044	.003	.378	.196	.132	.409	-.095	.302	-.021
30	.306	.129	**.402**	.160	.087	.044	.532	-.051	-.127	.209	.149	-.008
31	.043	.170	.084	-.152	-.037	.046	**.738**	.110	.057	.101	.085	.128
32	**.732**	.033	.067	-.042	.108	.069	-.058	.067	-.031	.205	.181	-.043
33	**.786**	.030	.120	-.016	.071	.033	.030	.151	.059	.178	.064	.020
34	**.752**	.024	.168	.063	-.065	-.051	.190	.074	.121	.122	-.096	-.008
35	**.711**	.100	-.117	.045	.206	.062	.084	.063	-.152	-.077	-.037	.078
36	**.657**	.180	.048	.219	.173	.076	.124	.122	-.180	-.164	.012	.105
37	**.494**	.106	.000	.264	.170	-.121	.458	.182	-.161	.025	-.067	.080
38	.334	.064	.056	.349	.049	-.208	**.459**	.209	-.136	-.046	.059	.034
% of Variance	20.73%	6.11%	5.27%	4.94%	4.24%	3.70%	3.51%	3.41%	3.06%	3.02%	2.90%	2.69%

*As listed in Appendix A.

NB: Items loading onto the eight factors are shown in bold.

TABLE 2 Descriptive statistics: mean values for each OLC factor across clusters

OLC factors	Minimum actual (theoretical)	Maximum actual (theoretical)	Entire sample Mean	Cluster mean					Cronbach Alpha
				One (N = 78)	Two (N = 85)	Three (N = 40)	Four (N = 78)	Five (N = 3)	
Situation									
Environmental uncertainty	3 (3)	15 (15)	9.10	9.03	9.89	7.23	9.48	3.00	0.636
The influence of the board, owners and shareholders	2 (2)	10 (10)	6.99	7.40	7.38	6.60	6.31	8.67	0.440
Structure									
Decentralisation of authority	4 (4)	20 (20)	14.63	13.74	16.29	12.73	15.07	4.00	0.753
Strategy									
Strategic planning	2 (2)	10 (10)	6.73	6.28	7.44	5.68	7.12	2.00	0.634
Diversification	0 (3)	14 (15)	6.22	4.87	5.38	4.90	9.10	5.33	0.615
Marketing and distribution	0 (4)	19 (20)	12.20	10.72	13.12	9.63	14.12	6.67	0.610
Innovation	0 (2)	10 (10)	7.08	6.64	7.73	6.60	7.26	2.00	0.580
Decision making									
Managers' focus on decision making	7 (7)	35 (35)	24.70	23.37	29.52	17.52	25.06	8.33	0.859
Confirmatory variables:									
Average no. of employees				86	114	185	195	4	
Product scope*				3.35	3.85	2.90	3.75	1.67	
LABEL				**Birth**	**Growth**	**Maturity**	**Revival**	**Decline**	

*The product scope was measured with scores ranging from 1 to 5.

stages for each cluster. Table 2 reveals that as a result of the clustering procedures, 78 organisations were categorized into Cluster one, 85 in Cluster two, 40 in Cluster three, 81 in Cluster four and three in Cluster five.

The business units in Cluster five appear to have the highest centralized organisational structure, with little authority delegated to subordinates. While the locus of decision making power is vested in top management very few factors are taken into account when making decisions. No particular strategy is pursued in this stage and little effort is devoted to "Strategic planning", "Diversification", "Marketing and distribution". The pattern revealed in this cluster is in line with the characteristics of the decline stage described in Miller and Friesen (1984).

Business units in Cluster Two and Four exhibit similar scores for most of the OLC factors, and generally higher scores than the other three clusters. Business units in both clusters exhibit a high level of environmental heterogeneity, dynamism and hostility. A great deal of effort is therefore devoted to collecting and processing information in order to deal with the high level of "Environmental uncertainty. These business units encourage communication between top management and subordinates, with a high degree of "Decentralization of authority". "Innovation" and "Diversification" prevail in both clusters and there is greater product diversity. The decision-making style tends to be analytical, adaptable and multiplex, with more factors taken into account when making decisions. The characteristics of these two clusters closely resemble the characteristics of the growth and revival stages.

Although both Cluster Two and Four exhibit a relatively high level of "Diversification", Cluster Four reports a significantly higher score in the "Diversification" factor than Cluster

Two. In a similar vein, while both Cluster Two and Four reported a high score for the "The influence of the board, owners and shareholders" factor, the score in Cluster Four is significantly lower than the score in Cluster Two, indicating an even more dispersed ownership in Cluster Four. Given that revival stage business units emphasize extensive diversification with the most dispersed ownership, while growth stage business units emphasize early diversification, business units in Cluster Four were labeled as being in the revival stage, and those in Cluster Two were labeled as being in the growth stage.

Business units in Cluster Three have a widely dispersed ownership, reflected by a low score in the factor "The influence of the board, owners and shareholders". Little effort is devoted to product innovation and diversification as a result of the emphasis on improving efficiency and productivity. The relatively stable and less heterogeneous environment, as indicated by a relatively low score for "Environmental uncertainty", allows top management to concentrate power in their own hands, with a low level of "Decentralization of authority". A low score for the "Managers' focus on decision making" factor represents a less responsive and adaptive decision-making style. These characteristics suggest that business units in Cluster Three correspond to the maturity stage.

Business units in Cluster One emphasize a niche strategy due to weak competitive capability and a considerable level of environmental uncertainty, as indicated by a high score for "Environmental uncertainty". Ownership is tightly concentrated in the hands of a few individuals with little delegation of authority to subordinates. Business units aim to offer a narrow scope of products to their customers and therefore exhibit a low level of "Diversification". Decision-making style appears to be risk orientated as management make their decisions mainly based on their intuition without extensive analyses. The pattern

revealed in this cluster is consistent with the characteristics of business units in the birth stage.

To confirm the labels assigned to the respective clusters, additional information in regard to the average number of employees (proxy for size of an organisation) and the product scope for business units within each of the five clusters was collected, with the mean values reported in Table 2. Table 2 reveals that the average number of employees increases across the birth, growth, maturity and revival stages but is lower in the decline stage, which is consistent with Miller and Friesen's (1984) descriptions of OLC stage characteristics. In addition, the broader product scope in the growth and revival stages, and the narrower product scope in the decline stage are also in line with Miller and Friesen's (1984) descriptions. Therefore, the classification of OLC stages is considered to be appropriate.

3.2 Approaches to using controls

An adapted version of Simons' (1995) instrument was adopted to measure the interactive and diagnostic approaches to using controls (see Appendix A). Respondents were asked to indicate the extent to which each item was reflected in their business unit, using a five point Likert-type scale with anchors of "1 = Not at all" and "5 = To a great extent".

For the interactive approach, a five item measure was used to assess the extent to which: (i) there is an on-going interaction between operational management and senior managers; (ii) controls are used regularly in scheduled face-to-face meetings between operational and senior managers; (iii) controls are used to discuss changes that are occurring within the business unit; (iv) controls generate information that forms an important and recurring agenda in discussions between operational and senior managers; and (v) controls are used as a means of

developing ongoing action plans. The measure was assessed as reliable with a Cronbach alpha coefficient (Cronbach, 1951) of 0.916 reported. The extent of use of the interactive approach was measured as the average score of these five items, with higher (lower) scores representing a higher (lower) extent of use of the interactive approach.

For the diagnostic approach, a four item measure was applied to assess the extent to which controls are used to: (i) track progress towards goals and monitor results; (ii) plan how operations are to be conducted in accordance with the strategic plan; (iii) review performance; and (iv) identify exceptions from expectations and take appropriate actions. The Cronbach alpha coefficient (Cronbach, 1951) of 0.929 confirmed the reliability of the measure. The extent of use of the diagnostic approach was measured as the average score of these four items, with higher (lower) scores representing a higher (lower) extent of use of the diagnostic approach.

A Pearson correlation reveals that a significant correlation coefficient of 0.858 was identified between the two approaches to using controls. Accordingly, the discriminant validity of these independent variables was assessed (Fornell and Larcker, 1981). The average variance extracted for each pair of the two approaches was found to be greater than the square of the correlation between the two factors. Hence, the variance explained by each of the two approaches to using controls was greater than the shared variance thereby supporting the discriminant validity of the independent variables.

4. Results

4.1 The interactive and diagnostic use of controls across OLC stages

Table 3 Panel A provides the results of a one way analysis of variance (ANOVA) comparing the extent of use of the interactive and diagnostic approaches to using controls across OLC stages. As discussed previously, the decline stage is beyond the scope of the current study. Significant differences are identified in the extent of use of each approach to using controls across OLC stages. Accordingly, multiple pairwise comparisons were conducted with the results provided in Table 3 Panel B.

TABLE 3 Results of the examination of the extent to which controls are used interactively and diagnostically across OLC stages and in each OLC stage

Panel A: Results of ANOVA comparing the extent to which controls are used interactively or diagnostically across OLC stages and in each OLC stage

		Mean					
	Overall	**Birth**	**Growth**	**Maturity**	**Revival**	**F**	**Sig.**
Interactive use of controls	3.30	2.98	3.74	2.46	3.46	19.99	0.00**
Diagnostic use of controls	3.41	3.03	3.87	2.49	3.66	29.15	0.00**
F		0.12	1.04	0.01	2.54		
Significance		0.73	0.31	0.91	0.11		

Panel B: Results of pairwise comparisons of the extent to which controls are used interactively and diagnostically across OLC stages

	P-value (Interactive use of controls)	P-value (Diagnostic use of controls)
Birth V.S. Growth	0.000**	0.000**
Birth V.S. Maturity	0.012**	0.018**
Birth V.S. Revival	0.005**	0.000**
Growth V.S. Maturity	0.000**	0.000**
Growth V.S. Revival	0.290	1.000
Maturity V.S. Revival	0.000**	0.000**

*Significant at the 10% level
**Significant at the 5% level

Consistent with H1a, the interactive approach is used to a greater extent in the growth and revival stages than the birth and maturity stages. Given that the growth and revival stages tend to have a higher level of environmental uncertainty and innovation than the birth and maturity stages, the findings imply that firms with a higher level of environmental uncertainty and innovation use controls more interactively. These findings are consistent with previous literature (Chenhall, 2003; Bisbe and Otley, 2004; Henri, 2006b; Widener, 2007; Akroyd, 2008; Ferreira and Otley, 2009) suggesting a positive association between the level of environmental uncertainty and innovation with the extent of use of the interactive approach.

Table 3 Panel B reveals that the diagnostic approach is also used to a greater extent in the growth and revival stages than the birth and maturity stages. The increase in the extent of use of the diagnostic approach from the birth to the growth stage is consistent with Kober's (2010) findings that the diagnostic approach to using controls is introduced in the birth stage and become more prevalent in the growth stage. The findings, while inconsistent with H1b, suggest that the benefits from the use of the diagnostic approach in the growth and revival stages override the restrictions they place on innovation, and the difficulties experienced in accurately setting expected outputs.

The greater focus on the diagnostic use of controls in these two stages is also in line with Henri (2006b) who maintained that while the use of the diagnostic approach restrains organisational learning and innovation, it still has a net positive influence on organisational performance by limiting risk taking, monitoring goal achievement and variances, measuring outcomes and assigning rewards. The constraint on innovation and learning embedded in the use of the diagnostic approach could also be mitigated by linking rewards to results involving

the achievement of innovation and creativity. Furthermore, the accuracy of ascertaining expected outputs could be improved by conducting more frequent reviews.

4.2 The interactive and diagnostic use of controls in each OLC stage

Table 3 Panel A provides the results of ANOVA comparing the extent to which controls are used interactively and diagnostically in the birth, growth, maturity and revival stages. The results reveal that the interactive and diagnostic approaches are used to a similar extent in each OLC stage, and therefore while H2a is supported H2b, H2c and H2d are not supported. The similarity could be explained by the argument that if the interactive approach was used to a significantly greater extent than the diagnostic approach, the benefits from the use of the interactive approach may be undermined due to a loss of direction and a lack of boundary setting. Similarly, if the diagnostic approach is used to a significantly greater extent than the interactive approach, the benefits of the use of the interactive approach may be diminished due to the restrictions placed on opportunity-seeking and innovation.

5. Conclusion and discussion

The first objective of this study was to examine the extent of use of each approach to using controls (interactive and diagnostic) across OLC stages. The results indicate that both the interactive and diagnostic approaches are used to a greater extent in the growth and revival stages than in the birth and maturity stages. The results are consistent with Kober's (2010) findings that the diagnostic approach to using controls were introduced in the birth stage and used to a greater extent in the growth stage. The study provides managers with an insight into the prevalence of the use of interactive and diagnostic approaches across the birth, growth, maturity and revival stages. For instance, when the environment for birth stage organisations

becomes more heterogeneous and uncertain, with greater emphasis being placed on product innovation and diversification, more emphasis should be placed on the use of both the interactive and diagnostic approaches. This involves placing more focus on activities such as encouraging on-going discussion and debates across different organisational levels, and regularly reviewing critical performance variables.

When the environment becomes relatively stable with a rigid structure dominated by various rules and procedures, closely resembling the characteristics of the maturity stage, less attention is placed on both the interactive and diagnostic approaches. Hence, there would be less information exchange and face-to-face communications across different levels within the organisation, and less progress tracking towards organisational goals and monitoring of results. Alternatively, as organisations shift their emphasis from productivity and efficiency to dramatic diversification and innovation under a highly heterogeneous and dynamic environment, reflecting the revival stage, more emphasis is placed on the use of both the interactive and diagnostic approaches. As a result, managers should consider increasing their participation and involvement in the decision making process of their subordinates, and closely monitoring variations based on exception reports.

The second objective of this study was to examine the extent of use of the interactive and diagnostic approaches in each of the birth, growth, maturity and revival stages. While previous studies have found that the interactive and diagnostic approaches are used simultaneously from an overall organisation's perspective (Simons, 1991, 1994; Abernethy and Brownell, 1999; Henri, 2006b; Moulang, 2007; Widener, 2007; Bobe and Taylor, 2010), this study contributes to the MCS literature by examining the use of these two approaches from an OLC perspective. The findings highlight that the complementary nature of the

interactive and diagnostic approaches applies in each of the four OLC stages, and suggest that similar attention should be placed on the use of both the interactive and diagnostic approaches in each OLC stage. Hence, managers in all OLC stages are advised to promote information exchange and face-to-face dialogue and debate across all levels within their organisation so as to encourage innovation and creativity, while simultaneously reviewing critical performance variables and relying on exception reports to monitor organisational goal achievement.

While the study makes a significant contribution to both the MCS literature and practice, two limitations were identified. First, the study is subject to the usual limitations associated with the use of the survey method, such as reflecting only associations rather than causal relationships between independent variables and dependent variables (Singleton and Straits, 2005). Future studies could use multiple methodological approaches to obtain further insights. For instance, conducting interviews with managers could provide a deeper understanding of the changes in the use of the interactive and diagnostic approaches across OLC stages, especially as organisations move from one OLC stage to another. Secondly, caution should be taken when generalizing the results from this study to other populations as this study only focused on Australian manufacturing organisations. Future studies could replicate this study in different industries so as to refine the findings of this study and extend them to different contexts.

Appendix A

The instrument of OLC stages

Please indicate the extent to which the following statements reflect the work environment in your business unit (1 = not at all, 5 = to a great extent)
NB: Factor numbers and item numbers as shown in Table 1 are indicated below.

Situation

Environmental uncertainty (Factor 8)

18: Dynamism (evidenced by the unpredictability of changes in customer tastes, production technologies)
19: Hostility (evidenced by the intensity of competition and other external influences)
20: Heterogeneity (evidenced by the differences in competitive tactics, customer tastes, product lines, channels of distribution).

The influence of board, owners and shareholders (Factor 11)

14: The decisions and operations are influenced by the boards of directors
15: The decisions and operations are influenced by owners /shareholders

Structure

Decentralisation of authority (Factor 3)

21: Participative Management
25: Effective internal communication systems
27: Delegation of decision-making
30: Proactive decision-making

Strategy

Strategic planning (Factor 5)

23: Action planning (includes formal strategic and project planning and review procedures, the use of capital budgeting techniques, and market forecasting).
24: Scanning (involves identification of threats and opportunities in the external environment of your business unit)

Diversification (Factor 6)

4: Use acquisition to diversify into unrelated lines
5: Diversifies into unrelated lines by establishing our own departments or subsidiaries
6: Engages in vertical integration

Marketing and distribution (Factor 2)

1: Has major, frequent product innovations
2: Dominates distribution channels
7: Extensive advertising and promotional expenditure
10: Provides different product lines for different markets

Innovation (Factor 4)

8: Has small, incremental product innovations
9: Selective in respect to the introduction of new products

Decision-making style

Managers' focus on decision making (Factor 1)

26: Centralization of strategy formulation
32: Extensive analysis of major decisions
33: Multiplexity of decisions: (consideration of a broad range of factors in making strategic decisions)
34: Integration of decisions (Actions in one area of the firm are complementary or supportive of those in other areas (i.e. divisions, functions).
35: Futurity of decisions (our business unit incorporates a long-term planning horizon relative to our industry)
36: Consciousness of strategies (concerns the degree of your conscious commitment as a business unit manager to an explicit corporate strategy)
37: Adaptiveness of decisions (concerns the responsiveness and appropriateness of decisions to market requirements and external environmental conditions.

Note:

11 items did not load onto any of the eight factors and are listed below:

3: Follows the lead of competitors
11: Adopts a niche strategy
12: Engages in price cutting
13: Charges a premium for high quality products
16: The decisions and operations of our business unit are influenced by customers
17: The decisions and operations of our business unit are influenced by managers
22: Sophisticated Management Information Systems
28: Technocratization (A higher proportion of highly trained staff specialists and professionally qualified people (accountants, engineers, scientists) as a percentage of the number of employees)
29: Resource shortages (human, physical and financial shortages)
31: Risk taking
38: Industry expertise of top managers (They are in a position to make decisions because of their excellent knowledge of internal operations and the outside environment)

Measures of use of controls

Please indicate the extent to which the following statements reflect the work environment in your business unit (1 = not at all, 5 = to a great extent).

The interactive use of controls

1. Controls are often used as a means of developing ongoing action plans.
2. Controls are used regularly in scheduled face-to-face meetings between operational and senior managers.
3. There is a lot of on-going interaction between operational management and senior managers.
4. Controls generate information that forms an important and recurring agenda in discussions between operational and senior managers.
5. Controls are used by operational and senior managers to discuss changes that are occurring within the business unit.

The diagnostic use of controls

1. Controls are used to track progress towards goals and monitor results.
2. Controls are used to plan how operations are to be conducted in accordance with the strategic plan.
3. Controls are used to review performance
4. Controls are used to identify significant exceptions from expectations and take appropriate actions.

References

Abernethy, M. A., Bouwens, J. and Lent, L. (2010), 'Leadership and control system design', *Management Accounting Research,* Vol. 21, No. 1, pp. 2-16.

Abernethy, M. A. and Brownell, P. (1999), 'The role of budgets in organisations facing strategic change: an exploratory study', *Accounting, Organizations and Society,* Vol. 24, No. 3, pp. 189-204.

Adizes, I. (1979), 'Organisational passages – diagnosing and treating lifecycle problems of organisations', *Organisational Dynamics,* Vol. 8, No. 1, pp. 3-25.

Akroyd, C. (2008), 'An analysis of the levers of control in product development: a cas study', *5th Global Management Accounting Research Symposium.* Sydney Australia.

Amabile, T. M. (1988), 'A model of creativity and innovation in organisations', *Research in Organisational Behaviour*, Vol. 10, pp. 123-167.

Auzair, S. M. and Langfield-smith, K. (2005), 'The effect of service process type, business strategy and life cycle stage on bureaucratic MCS in service organisations', *Management Accounting Research,* Vol. 16, No. 4, pp. 399-421.

Bisbe, J. and Otley, D. (2004), 'The effects of the interactive use of management control systems on product innovation', *Accounting, Organizations and Society,* Vol. 29, No. 8, pp. 709-737.

Bobe, B. J. and Taylor, D. W. (2010), 'Use of management control systems in university faculties: evidence of diagnostic versus interactive approaches by the upper echelons', *Working paper,* Deakin University Australia.

Chandler, A. D. (1962) *Strategy and structure: chapters in the history of the american industrial enterprise,* MIT Press: Cambridge, MA.

Chenhall, R. H. (2003), 'Management control systems design within its organisational context: findings from contingency-based research and directions for the future', *Accounting, Organizations and Society,* Vol. 28, No. 2-3, pp. 127-168.

Churchill, N. and Lewis, V. (1983), 'The five stages of small business growth', *Harvard Business Review*, Vol. 61, No. 3, pp. 30-50.

Cronbach, L. J. (1951) Coefficient alpha and the internal structure of tests. *Psychometrika,* 16, 297-334.

Davila, T. (2000), 'An emprical study on the drivers of management control systems' design in new product development', *Accounting, Organizations and Society,* Vol. 25, No. 4-5, pp. 383-409.

Davila, T. (2005), 'An exploratory study on the emergence of management control system: formalizing human resources in small growing firms', *Accounting, Organizations and Society,* Vol. 30, No. 3, pp. 223-248.

Dillman, D. A. (2007), *Mail and Internet Surveys: The Tailored Design Method*, John Wiley and Sons, Inc.: New York, U.S.

Dixon, J. R. (1992), 'Measuring manufacturing flexibility: an empirical investigation', *European Journal of Operational Research,* Vol. 60, No. 2, pp. 131-143.

Drazin, R. and Kazanjian, R. K. (1990), 'A reanalysis of Miller and Friesen's life cycle data', *Strategic Management Journal*, Vol. 11, No. 4, pp. 319-325.

Drazin, R. and Van de Ven, A. H. (1985), 'Alternative forms of fit in contingency theory', *Administrative Science Quarterly,* Vol. 30, No. 4, pp. 514-539.

Ferreira, A. (2002), *Management Accounting and Control System Design and Use: An Exploratory Study in Portuagal.* Lancaster University.

Ferreira, A. and Otley, D. (2009), 'The design and use of management control systems: an extended framework for analysis', *Management Accounting Research,* Vol. 20, No. 4, pp. 263-282.

Flamholtz, E. G. (1990), *Growing Pains: How to Make the Transition from an Entrepreneurship to a Professionally Managed Firm*, Jossey-Bass Publishers: San Francisco, U.S.

Fornell, C. & Larcker, D. 1981. Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research,* Vol. 18, No. 1, pp. 39-50.

Gerdin, J. and Greve, J. (2004), 'Forms of contingency fit in management accounting research - a critical review', *Accounting, Organizations and Society,* Vol. 29, No. 3-4, pp. 303-326.

Granlund, M. and Taipaleenmaki, J. (2005), 'Management control and controllership in new economy firms - a life cycle perspective', *Management Accounting Research,* Vol. 16, No. 1, pp. 21-57.

Greiner, L.E. (1972), 'Evolution and revolution as organisations grow', *Harvard Business Review,* Vol. 50, No. 4, pp. 37-46.

Henri, J. (2006b), 'Management control systems and strategy: a resource-based perspective', *Accounting, Organizations and Society,* Vol. 31, No. 6, pp. 529-558.

Kallunki, J. P. and Silvola, H. (2008), 'The effect of organisational life cycle stage on the use of activity-based costing', *Management Accounting Research,* Vol. 19, No. 1, pp. 62-79.

Kazanjian, R. K. (1988), 'Relation of dominant problems to stages of growth in technology-based new ventures', *Academy of Management Journal,* Vol. 31, No. 2, pp. 257-279.

Kazanjian, R. K. and Drazin, R. (1990), 'A stage-contingent model of design and growth for technology based new ventures', *Journal of Business Venturing,* Vol. 5, No. 3, pp. 137-150.

Kimberly, J. R. and Miles, R. H. (1980), *The Organisational Life Cycle*. Jossey-Bass: San Francisco, U.S.

Kober, R. (2010), 'The emergence and utilization of management control systems in a high growth firm', *Accounting and Finance Association of Australia and New Zealand.* Christchurch, New Zealand.

Kober, R., Ng, J. and Paul, B. J. (2007), 'The interrelationship between management control mechanism and strategy', *Management Accounting Research,* Vol. 18, No. 4, pp. 425-452.

Kompass Australia Database (2010), *Peter Isaacson Publications,* Victoria, Australia.

Langfield-Smith, K. (1997), 'Management control systems and strategy: a critical review', *Accounting, Organizations and Society,* Vol. 22, No. 2, pp. 207-232.

Lester, D. L., Parnell, J. A. and Carraher, S. (2003), 'Organisational life cycle: a five-stage empirical scale', *The International Journal of Organisational Analysis,* Vol. 11, No. 4, pp. 339-354.

Lippitt, G. L. and Schmidt, W. H. (1967), 'Crises in a developing organisation', *Harvard Business Review,* Vol. 45, No. 6, pp. 102-112.

Merchant, K. A. and Otley, D. T. (2007), 'A review of the literature on control and accountability', *In:* Chapman, C. S., Hopwood, A. G. and Shield, M. D. (eds.) *Handbook of Management Accounting Research.* Elsevier: Oxford.

Miller, D. and Friesen, P. H. (1982), 'Innovation in conservative and entrepreneurial firms: two models of strategic momentum', *Strategic Management Journal,* Vol. 3, No. 1, pp. 1-25.

Miller, D. and Friesen, P. H. (1984), 'A longitudinal study of the corporate life cycle', *Management Science,* Vol. 30, No. 10, pp. 1161-1183.

Mital, A., Desai, A., Subramanian, A. and Mital, A. (2008), *Product Development: a Structured Approach to Consumer Product,* Elsevier Inc.: Oxford, U.K.

Moores, K. and Yuen, S. (2001), 'Management accounting systems and organisational configuration: a life-cycle perspective', *Accounting and Business Research,* Vol. 26, No. 4-5, pp. 351-389.

Moulang, C. (2007), 'Does "style of use" of performance measurement systems impact on individual creativity? An empirical analysis', *Working paper,* Monash University Australia.

Naranjo-Gil, D. and Hartmann, F. (2007), 'Management accounting systems, top management team heterogeneity and strategic change', *Accounting, Organizations and Society,* Vol. 32, No. 7-8, pp. 735-756.

Oppenheim A. N. (1992) *Questionnaire Design, Interviewing and Attitude Measurement*. Pinter: London.

Quinn, R.E. and Cameron, K. (1983), 'Organisational life cycles and criteria of effectiveness', *Management Science,* Vol. 29, No. 1, pp. 33-51.

Ramos, M. and Hidalgo, F. G. (2003), 'From diagnostic to interactive style of management control', *Management Research News,* Vol. 26, No. 5, pp. 21-31.

Silvola, H. (2008), 'Do organisational life cycle and venture capital investors affect the management control systems used by the firm?', *Advances in Accounting,* Vol. 24, No. 1, pp. 128-138.

Simons, R. (1987b). 'Planning, control, and uncertainty: a process view', *In:* Burns, W. J. and Kaplan, R. S. (eds.) *Accounting and Management: Field Study Perspectives.* Harvard Business School Press: Boston.

Simons, R. (1991), 'Strategic orientation and top management attention to control systems', *Strategic Management Journal,* Vol. 12, No. 1, pp. 49-62.

Simons, R. (1994), 'How new top managers use control systems as levers of strategic renewal', *Strategic Management Journal,* Vol. 15, No. 3, pp. 169-189.

Simons, R. (1995), *Levers of Control: How Managers Use Innovative Control Systems to Drive Strategic Renewal,* Harvard Business School Press: Boston, Massachusetts.

Simons, R. (2000), *Performance Measurement & Control Systems for Implementing Strategy,* Prentice Hall: Upper Saddle River, New Jersey.

Singleton, R. A. and Straits, B. C. (2005), *Approaches to Social Research,* Oxford University Press: New York.

Smith, K. G., Mitchell, T. R. and Summer, C. E. (1985), 'Top level management priorities in different stages of the organisational life cycle', *Academy of Management Journal,* Vol. 28, No. 4, pp.799-820.

Sproles, G. B. and Kendall, D. L. (1986), 'A methodology for profiling consumers' decision-making styles', *Journal of Consumer Affairs,* Vol. 20, No. 2, pp. 267-279.

Tekavcic, M., Peljhan, D. and Sevic, Z. (2008), 'Levers of control: analysis of management control systems in a Slovenian company', *Journal of Applied Business Research,* Vol. 24**,** No. 4, pp. 96-104.

Tuomela, T. S. (2005), 'The interplay of different levers of control: a case study of introducing a new performance measurement system', *Management Accounting Research,* Vol. 16, No. 3, pp. 293-320.

Widener, S. K. (2007), 'An empirical analysis of the levers of control framework', *Accounting, Organizations, and Society,* Vol. 32, No. 7-8, pp.757-788.

CHAPTER FIVE

PAPER THREE

Management control system effectiveness: the association between types of controls and approaches to using controls with employee organisational commitment

Abstract

This study examines the association between the use of three types of controls (input, behaviour and output) and two approaches to using controls (interactive and diagnostic) with the level of employee organisational commitment (EOC). Data were collected by a survey questionnaire from a random sample of 343 General Managers in Australian manufacturing organisations. The results indicate that one type of control, input controls, and one approach to using control, the interactive approach, are significantly associated with the level of EOC. The association between the three types of controls and the two approaches to using controls were also examined within four of Miller and Friesen's (1984) OLC stages (birth, growth, maturity and revival). The results reveal that there is a significant positive association between input controls and the level of EOC in both the birth and revival stages. The study contributes to the management control system (MCS) literature by providing the first empirical examination of the association between the types of controls and approaches to using controls with the level of EOC. Most importantly, the findings assist organisations in enhancing employees' organisational commitment.

Key words

Employee organisational commitment, input controls, behaviour controls, output controls, interactive approach to using controls, diagnostic approach to using controls.

1. Introduction

The effectiveness of management control systems (MCSs) has been extensively examined in the MCS literature, with the majority of studies focusing on the association between MCSs and organisational outcomes, including organisational performance (Merchant, 1981; Abernethy and Guthrie, 1994; Snell and Youndt, 1995; Chenhall, 1997; Abernethy and Brownell, 1999; Hoque and James, 2000; Abernethy and Lillis, 2001; Baines and Langfield-Smith, 2003; Maiga and Jacobs, 2005; Abernethy et al., 2007; Sandino, 2007; Jermias and Setiawan, 2008; Lee and Yang, 2011) and organisational learning (Simons, 1995, 2000; Kloot, 1997; Makhija and Ganesh, 1997; Driver, 2001; Henri, 2006b; Abernethy et al., 2007; Batac and Carassus, 2009). A number of studies have also examined MCS effectiveness in respect to behavioural outcomes, such as job-related stress (Hopwood, 1972; Imoisili, 1989; Shields and Shields, 1998; Shields et al., 2000; Gillespie et al., 2001), job satisfaction (Chenhall, 1986; Frucot and Shearon, 1991; Banker et al., 1993; Oliver and Anderson, 1994; Fletcher and Williams, 1996; Kim, 2002; Leach-Lopez et al., 2008; Lautizi et al., 2009), and employee organisational commitment (EOC) (Caldwell et al., 1990; Wallace, 1995; Mallak and Kurstedt, 1996; Fletcher and Williams, 1996; Russell, 1996; Rodwell et al., 1998; Metcalfe and Dick, 2001).

This study aims to examine the association between MCSs and a specific behavioural outcome, EOC. Previous studies have found that EOC is important for organisations because of its potential to improve employees' job performance (Bateman and Strasser, 1984; Mathieu and Zajac, 1990; Meyer and Allen, 1997; Ketchand and Strawser, 1998; MacKenzie et al., 1998; Ketchand and Strawser, 2001; Riketta, 2002; Chan, 2006; Sahoo and Das, 2011), lower employee turnover (Mowday et al., 1982; Mathieu and Zajac, 1990; Stallworth, 2004; Sahoo and Das, 2011) and facilitate acceptance of organisational change by employees

(Guest, 1987; Lau and Woodman, 1995; Iverson, 1996; Yousef, 2000; Vakola and Nikolaou, 2005). Improvements in the level of EOC can also provide organisations with a competitive advantage in the long term (Lockwood, 2007; Carless, 2009), with Mathieu and Zajac (1990) suggesting that extra-role behaviours such as creativeness and innovativeness are more likely to be performed by more committed employees, and Jaramillo et al. (2005) arguing that EOC enhance organisational effectiveness in the long run.

While some studies have examined the association between MCSs and the level of EOC, such studies have focused on specific control mechanisms. For instance, Fletcher and Williams (1996) examined the association between the characteristics of performance management systems and the level of EOC, reporting a positive association between both the link of performance to rewards and employees' awareness of their organisation's performance with the level of EOC. Similarly, a positive association between the link of performance to rewards with the level of EOC was also found by Caldwell et al. (1990), Wallace (1995), and Mallak and Kurstedt (1996). In addition, Russell (1996) reported that the level of information sharing between employees can lead to a higher level of EOC while in a similar vein, Rodwell et al. (1998) identified a positive relationship between the level of communication amongst employees and the level of EOC. Further, Metcalfe and Dick (2001) reported a higher level of EOC when employees participated in decision making and received feedback on their job performance.

This study contributes to the MCS literature by examining the association between different aspects of MCSs and EOC. Specifically, the first objective of the study is to examine the association between three types of controls (input, behaviour and output), based on Snell's (1992) control model, and two approaches to using controls (interactive and diagnostic),

based on Simons' (1995) levers of control model, with the level of EOC. Further, given that the types of controls and approaches to using controls differ across OLC stages as found in Papers One and Two, it is anticipated that the impact of the types of controls and approaches to using controls on the level of EOC may also differ across OLC stages. Accordingly, the second objective of this study is to examine the association between the three types of controls and the two approaches to using controls with the level of EOC from an OLC perspective. Specifically, such associations will be examined in each of Miller and Friesen's (1984) birth, growth, maturity and revival stages.[16] Since there is no established theory regarding the association between the types of controls and the approaches to using controls with the level of EOC from an OLC perspective, the examination of the associations is exploratory, and no formal hypotheses are developed.

The remainder of the paper is divided into four sections. Section 2 reviews the relevant literature on EOC, the types of controls, the approaches to using controls, and OLC stages. This section also develops the relevant hypotheses. Section 3 then discusses the data collection method and the measurement of the independent and dependent variables. This is followed by Section 4 which reports the results of the data analysis. Finally, Section 5 provides a discussion of the results, the limitations of the study and directions for future research.

[16] The decline stage is not included as previous studies (Silvola, 2008; Kallunki and Silvola, 2008; Auzair and Langfiled-Smith, 2005) have found that it is difficult to obtain data from decline stage organisations.

2. Literature review and hypotheses development

2.1 Employee organisational commitment

According to Porter et al. (1974, p. 604), EOC refers to "(a) a strong belief in and acceptance of the organisation's goals and values; (b) a willingness to exert considerable effort on behalf of the organisation; (c) a definite desire to maintain organisational membership". Given the importance of EOC many studies have examined the factors affecting the level of EOC. For instance, a number of studies have examined the association between demographic characteristics (Hrebiniak and Alutto, 1972; Bateman and Strasser, 1984; Mathieu and Zajac, 1990; Cohen, 1992; Iverson and Buttigieg, 1999; Joiner and Bakalis, 2006; Su et al., 2009), job-related characteristics (Hrebiniak and Alutto, 1972; Bateman and Strasser, 1984; Mathieu and Zajac, 1990; Iverson and Buttigieg, 1999; Joiner and Bakalis, 2006), and role-related variables such as role conflict and role autonomy (Hrebiniak and Alutto, 1972; Mathieu and Zajac, 1990; Cohen, 1992; Foote and Seipel, 2005) with the level of EOC. However, the importance of EOC has not received sufficient attention in the MCS literature (Meyer and Smith, 2000), with only a limited number of studies examining the association between MCSs and the level of EOC. In particular, there is no published study to date which has examined the association between the types of controls and approaches to using controls with the level of EOC. Accordingly, this study fills the gap in the MCS literature by examining these associations.

2.2 The association between the use of input, behaviour and output controls with the level of EOC

Input controls are used to manage the resources acquired by organisations including employees' knowledge and skills. Common input controls, in the form of appropriate selection, training and skill development activities, are used to ensure employees are capable

of performing their jobs in the desired way (Snell, 1992; Simons, 1995; Cardinal et al., 2004). Hiring the right people with adequate knowledge and the provision of well-established staffing procedures can reduce employees' role ambiguity, with Agarwal et al. (1999) and Gormley and Kennerly (2010) finding that less role ambiguity was associated with higher levels of EOC.

Samson and Daft (2005) argue that providing necessary training can enable employees to succeed on the job and promote their commitment to their organisation, while Taormina (1999) found that employees who believed that they had received good training exhibited a higher level of commitment to their organisation. Similarly, Lambooij et al. (2007) suggested that employees were more willing to work overtime when they had been provided adequate training and were able to perform their tasks. A positive association between recruitment, training and career development with the level of EOC was also found in Lam and Zhang (2003) and Edgar and Geare (2005). Hence, the use of input controls is expected to be positively associated with the level of EOC.

H1a: The extent of use of input controls is expected to be positively associated with the level of EOC.

Behaviour controls are used to regulate the transformation process from inputs to outputs by directly observing employee behaviour. They consist of a set of formal rules and procedures regarding how tasks should be performed (Rockness and Shields, 1984). Rayton (2006) suggests that high levels of job routinisation embedded in behaviour controls will lower employees' commitment to their organisations. Similarly, Zeffane (1995) argued that the emphasis on rules and regulations is negatively associated with the level of EOC. In addition, direct supervision and observation, linked with a low level of job autonomy, makes

employees feel that they are not trusted and respected (Ramaswami, 1996), subsequently resulting in a lower level of EOC (Su et al., 2009).

Alternatively, Oliver and Anderson (1994) found that behaviour controls play a significant role in enhancing the level of EOC as they contribute to reducing employees' confusion regarding performance requirements and provide information about employees' job expectations. In addition, Dewettinck and Buyens (2006) found that behaviour controls did not significantly affect the level of job autonomy and flexibility, and were therefore less likely to result in a lower level of EOC. Instead they argued that the association between the use of behaviour controls and the level of job autonomy is dependent on the manner in which behaviour controls are implemented. In particular, if behaviour controls are used in a supportive way, employees are more likely to perceive that such controls are intended to guide them rather than control and monitor them.

Given these mixed findings, the hypothesis examining the association between the use of behaviour controls and the level of EOC is stated in the null form.

H1b: The extent of use of behaviour controls is not expected to be associated with the level of EOC.

Output controls focus on the achievement of desired results, leaving the processes used to achieve such results to employees themselves (Snell, 1992). Hofstede (1998) maintained that employees feel more committed to their organisation if they focus on pragmatic values where results are more important than processes. Danish and Usman (2010) suggested that output controls, in the form of linking rewards to performance, encourage employees to work harder. Similarly, House (1996) and Phoenix (2006) argued that employees who are rewarded for their performance are more likely to be motivated to excel and increase their commitment.

However, Ramaswami (1996) suggested that the influence of output controls on the level of EOC is contingent on the appropriateness of employee performance measures. For example, when targeted outcomes are too difficult to reach, employees will perceive that the achievement of such outcomes is beyond their control, and therefore be less likely to exert extra effort towards achieving the desired outcomes. In a similar vein, Crawford and Nonis (1996) found that employees who perceive that they have little control over desired results exhibit a lower level of job satisfaction which subsequently affects their motivation levels and commitment.

Given these mixed findings, the hypothesis examining the association between the use of output controls and the level of EOC is stated in the null form.

H1c: The extent of use of output controls is not expected to be associated with the level of EOC.

2.3 The association between the interactive and diagnostic approaches to using controls with the level of EOC

The interactive approach to using controls allows managers to be regularly and personally involved in the decision activities of subordinates (Simons, 2000). It emphasizes face-to-face communication such as ongoing debate and dialogue. Previous studies have examined the link between different features of the interactive approach and the level of EOC. For instance, Lok and Crawford (1999) reported that the extent of interaction between employees is positively associated with the level of EOC. Similarly, Rodwell et al. (1998), Galunic and Anderson (2000) and Smeenk et al. (2006) identified a positive association between the level of communication amongst employees and the level of EOC, while Russell (1996) found that the level of information sharing within organisations was positively associated with the level of EOC. In addition, Zeffane (1995) and Richman et al. (2008) argued that greater emphasis

on flexibility and adaptation and less emphasis on rules and regulations can enhance employees' commitment to their organisations. Hence, the interactive approach to using controls is expected to be positively associated with the level of EOC.

H2a: The interactive approach to using controls is expected to be positively associated with the level of EOC.

Under the diagnostic approach, employees are given a significant level of authority and autonomy with top management only becoming involved in the decision making process when there are significant discrepancies between expected and actual results (Simons, 1995, 2000). The high level of empowerment embedded in the use of the diagnostic approach is regarded as an important factor enhancing the level of EOC (Iverson and Roy, 1994). For instance, Lok and Crawford (2004) and Kazlauskaite et al. (2006) found there was a significant association between employee empowerment and the level of EOC, while Sahoo and Das (2011) reported that empowerment can increase employees' commitment at workplace.

However, given the emphasis on the achievement of preset standards of performance, the diagnostic approach constrains organisational innovation (Simons, 1995), which has been found to be positively associated with the level of EOC (McKinnon et al., 2003). Lok and Crawford (2001) reported that employees in organisations promoting innovation are more likely to exhibit high levels of EOC. Similarly, Tseng and Lee (2011) found that organisations with an innovative culture exhibit higher levels of EOC. Accordingly, there are alternative arguments regarding the association between the diagnostic approach to using controls and the level of EOC and the hypothesis is stated in the null form.

H2b: The diagnostic approach to using controls is not expected to be associated with the level of EOC.

2.4 The association between the types of controls and approaches to using controls with the level of EOC in each organisational life cycle (OLC) stage

As previously discussed this study also explores the association between the types of controls and the approaches to using controls with the level of EOC from an OLC perspective. The concept of organisational life cycle (OLC) stage, which allows for the consideration of various contextual variables simultaneously, has received increasing attention in recent MCS studies (Moores and Yuen, 2001; Auzair and Langfield-Smith, 2005; Davila, 2005; Kallunki and Silvola, 2008; Silvola, 2008; Kober, 2010). This study uses Miller and Friesen's (1984) OLC stage model to classify organisations into five stages of development (birth, growth, maturity, revival and decline). Based on the simultaneous consideration of organisational situation, strategy, structure and decision-making style, the study will conduct an exploratory analysis of the associations discussed in Sections 2.2 and 2.3 within each of Miller and Friesen's (1984) OLC stages except the decline stage[17]. The characteristics of each of these stages are discussed below.

2.4.1 Birth stage

In the birth stage, organisations are small and dominated by their owners, and the environment tends to not be very hostile and competitive. With little product diversity, the primary focus in this stage is learning and seeking opportunities to find gaps in the market which are not being filled. The organisational structure is simple and centralized, and there is minimal delegation of authority to subordinates. Owners rely mainly on their intuition to make decisions, with few factors and opinions taken into account.

[17] As previously discussed the decline stage is not included due to the difficulty in obtaining data from decline stage organisations.

2.4.2 Growth stage

Growth stage organisations are larger than birth stage organisations, with more dispersed ownership. The environment in which they operate is heterogeneous and competitive, and greater effort is devoted to collecting, processing and analysing information when making decisions. Function-based structures are adopted with decision making authority delegated to subordinates to a greater extent than in the birth stage. The main strategies shift from a niche strategy to early diversification and innovation, which results in a broader range of product offerings than in the birth stage.

2.4.3 Maturity stage

In the maturity stage, the size of the organisation is larger and ownership becomes more dispersed compared to the growth stage. The environment is relatively stable and many rules and procedures are in place. The organisational structure remains centralised and there is less delegation of authority than in the growth stage. The decision making style is more conservative and risk averse than in any other stage, probably due to the emphasis on the defender strategy which shifts attention from product innovation and diversification to efficiency and productivity. Such a strategy also leads to a narrower product scope than in the growth stage.

2.4.4 Revival stage

Organisations in the revival stage are the largest in size and have a more dispersed ownership than in the maturity stage. Divisional structures are present, and divisional managers have authority to regulate their own divisions, and are held accountable for their divisions' performance. Due to the dynamic and hostile environment and the high level of

heterogeneity, the decision making process tends to be more analytical, more participative and better integrated to reduce the level of risk taken. The main strategies pursued are major innovation and extensive diversification, which results in a wider range of products than in the maturity stage.

2.4.5 Decline stage

The decline stage is considered to be the most vulnerable stage. Organisations in this stage are extremely conservative and engage in little innovation and risk taking, since the failure of any product line could lead to the collapse of the organisation. Ownership is tightly held and the structure is highly centralized. The decision making power is concentrated in the hands of top management, and decision making tends to be short term orientated.

3. Method

A questionnaire was mailed to 1000 General Managers (or equivalent) from a random sample of Australian manufacturing organisations chosen from the Kompass Australia database[18] (2010). The Australian manufacturing industry was selected because of its importance to the Australian economy. According to the Australian Bureau of Statistics (2009-2010), the Australian manufacturing industry made the largest contribution (11.6%) to Industry Value Added (IVA) among the eighteen ANZSIC[19] industry divisions that comprise the economy. It also accounted for 15.1% of the total income with the largest labour costs of $60.6 billion among the eighteen ANZSIC industry divisions. The business unit was chosen as the unit of

[18] The Kompass Australia database contains general information for all Australian businesses. A random sample drawn from this database is therefore highly representative of the Australian context.
[19] ANZSIC represents Australian and New Zealand Standard Industrial Classification

analysis since different business units in an organisation may fall into different life cycle stages, making it difficult to complete the survey at the corporate level.

The application of Dillman's (2007) Tailored Design Method in the design and distribution of the questionnaire resulted in a total of 343 questionnaires (34.3%) being received, 214 (21.4%) from the initial distribution and 129 (12.9%) from the follow up mail-out. This response rate was considered to be acceptable given that previous manufacturing industry studies have reported response rates in the range of 15% to 36% (Kayis and Kara, 2005 [35.3%]; Karami et al., 2004 [22.8%]; Bayo-Moriones and De Cerio, 2001 [29.72%]; Wilkes et al., 1996 [16%]). Non-response bias tests revealed no significant differences for any of the variables tested (Oppenheim, 1992).

3.1 Variable measurement

3.1.1 The level of EOC

Meyer and Allen (1987) classified EOC into three components, namely affective, continuance and normative commitment. Affective commitment is defined as employees' emotional identification and attachment to their organisation, while continuance commitment refers to employees' perception of the costs associated with leaving their organisation. Normative commitment is defined as employees' feelings of moral obligation to stay within their organisation. In terms of these definitions both continuance and normative commitment are beyond the control of management, and hence are not examined in the present study. Only affective commitment, which is dependent upon employees' attitude towards their

organisation, may be influenced by their organisational environment, and therefore this component was considered to be the focus of the study[20].

Cook and Wall's (1980) nine item and five point Likert-type scale was applied to measure the level of EOC. It has been shown to be a reliable measure of EOC in many studies such as Varona (1996), Karsh et al. (2005), Jaramillo et al. (2005) and Su et al. (2009), with the Cranbach alpha coefficient of 0.817 (Cronbach, 1951). The scale consists of three components: organisational identification, organisational involvement, and organisational loyalty (see Appendix A). Respondents were asked to indicate the extent to which they agreed with each of the nine statements using anchors of '1 = strongly disagree' and '5 = strongly agree'. The level of EOC was measured as the combined scores for the nine items (ranging from 9 to 45), with higher (lower) scores representing a higher (lower) level of EOC.

3.1.2 Types of controls

Controls have been classified in various ways in the literature. While different models have been used, this study adopts Snell's (1992) three component model comprising input, behaviour and output controls for several reasons. First, based on the argument that an ideal control model should regulate both ability and motivation (Walsh and Seward, 1990), Snell's (1992) input controls (i.e. recruitment and training) can be used to regulate employees' working abilities, while behaviour (i.e. standard operating procedures) and output controls (i.e. use of incentives) can be used to regulate employee's motivation. Secondly, since input controls manage the drivers of performance such as employee knowledge and skills, while behaviour and output controls manage the performance process and results respectively, the

[20] EOC hereafter refers to affective EOC.

notion of input controls provides a 'symmetrical counterpart' to behaviour and output controls. The control model developed by Snell (1992) is therefore considered to provide a full range of organisational formal controls (Cardinal, 2001). Finally, Snell's (1992) three component model has been widely used in the MCS literature (Snell and Youndt, 1995; Cardinal, 2001; Cardinal et al., 2004; Abernethy et al., 2007; Johnson, 2011).

Snell's (1992) instrument, with minor wording adjustments to fit the context of this study, is shown in Appendix A. The instrument was assessed as a reliable measure with Cronbach alpha coefficients of 0.829, 0.789, and 0.823 reported for input, behaviour and output controls respectively (Cronbach, 1951). A Pearson correlation matrix was also conducted, revealing a significant correlation between the three types of controls (see Table 1). The discriminant validity of these independent variables was therefore assessed (Fornell and Larcker, 1981), with the average variance extracted for each pair of the three types of controls found to be greater than the square of the correlation between the two factors. Hence, the variance explained by each of the three types of controls was greater than the shared variance thereby supporting the discriminant validity of the independent variables.

TABLE 1 Pearson correlation matrix

	Behaviour controls	Output controls
Input controls	.621*	.535*
Behaviour controls		.634*

*significant at the 5% level

To evaluate the focus on input controls, respondents were asked to indicate the extent of emphasis placed on employees' pre-employment evaluation, on-going training programs, skill and career development, the establishment of staff procedures and policies, and

adherence to those procedures and policies. In respect to behaviour controls, respondents were asked to indicate the extent of emphasis placed on employees' accountability for their own behaviour regardless of the results, the monitoring of employees' compliance with staffing policies and procedures, and performance evaluation based on employees' on-going behaviour. Finally, for output controls, respondents were asked to indicate the extent of emphasis placed on setting up clear and planned performance targets, evaluating employees based on achievement of pre-set targets, and linking rewards to results.

A five point Likert-type scale was used for all items with anchors of "1 = Not at all" and "5 = To a great extent". The focus on input, behaviour and output controls was assessed as the average score of the items (ranging from 1 to 5) for each of the three type of controls respectively, with higher (lower) scores representing a higher (lower) extent of use of controls.

3.1.3 Approaches to using controls

While Simon's (1995) original framework covers four levers of controls, namely belief, boundary, interactive and diagnostic levers, this study only focuses on Simons' (1995) interactive and diagnostic levers for two reasons. First, it is argued that compared to belief and boundary levers which focus on framing organisations' strategic activities, interactive and diagnostic levers place more attention on the relevance of the manner in which controls are used (Bisbe and Otley, 2004), and therefore are considered more appropriate as the focus of this study. This is consistent with Langfield-Smith (1997), Ramos and Hidalgo (2003) and Merchant and Otley (2007) who suggested that the interactive and diagnostic levers allow a comparison of different controls in terms of the way they are used rather than their technical design characteristics. Secondly, the majority of previous studies examining the approach to

using controls have focused on Simons' (1995) interactive and diagnostic levers (Abernethy and Brownell, 1999; Davila, 2000; Bisbe and Otley, 2004; Henri, 2006b; Kober et al., 2007; Ferreira and Otley, 2009; Bobe and Taylor, 2010).

This study applies an adapted version of Simons' (1995) instrument to measure the interactive and diagnostic approaches to using controls, with minor adjustment to the wording so as to fit the context of this study. The Cronbach alpha coefficients (Cronbach, 1951) were 0.916 and 0.929 for the interactive and diagnostic approaches respectively, indicating a reliable measure. A Pearson correlation matrix was also conducted with a significant correlation coefficient of 0.858 identified between the two approaches to using controls. Accordingly, the discriminant validity of these independent variables was assessed (Fornell and Larcker, 1981). The average variance extracted for each pair of the two approaches was found to be greater than the square of the correlation between the two factors. Hence, the variance explained by each of the two approaches to using controls was greater than the shared variance thereby supporting the discriminant validity of the independent variables.

Respondents were asked to indicate the extent to which each item was reflected in their business unit, using a five point Likert-type scale with anchors of "1 = Not at all" and "5 = To a great extent" (see Appendix A). Specifically, for the interactive approach to using controls, respondents were asked to indicate the extent of emphasis placed on scheduled face-to-face meetings between operational and senior managers, on-going interaction between operational and senior managers, the discussion of changes that are occurring, and the generation of information that forms an important and recurring agenda in discussions between operational and senior managers. For the diagnostic approach to using controls, respondents were asked to indicate the extent of emphasis placed on tracking progress

towards goals, ensuring operations are consistent with strategic plans, reviewing performance, and identifying significant exceptions from expectations and taking appropriate actions. The extent of use of the diagnostic and interactive approaches was measured as the average score of the items (ranging from 1 to 5) for each of the two approaches respectively, with higher (lower) scores representing a higher (lower) extent of use of each control approach.

3.1.4 Organisational life cycle (OLC) stages

This study adopts Miller and Friesen's (1984) five stage OLC model (birth, growth, maturity, revival and decline stages) since it covers a complete biological cycle of organisational development from birth to death, and provides a comprehensive quantitative measure of the OLC stages required in the current study. Miller and Friesen's (1984) model has also been empirically tested in the MCS literature (Moores and Yuen, 2001; Auzair and Langfield-Smith, 2005; Davila, 2005; Kallunki and Silvola, 2008; Silvola, 2008; Kober, 2010). Without compromising the accuracy and completeness of the measure, 16 items from Miller and Friesen's (1984) 54 item instrument were eliminated due to ambiguity, duplication, and/or irrelevance to the context of this study. For instance, item 44 in Miller and Friesen's (1984) instrument was deleted since the extent of 'new product innovation' measured in item 44 was basically a duplicate of item 1 which measures the extent of 'product innovation'. In addition, it was assumed that the items 'shotgun approach to new product introduction' and 'use of middlemen in marketing' would be difficult to interpret, and they were therefore deleted. The remaining 38 items included 13 items on strategy, seven on situation, and nine on structure and decision making style.

Factor analysis of the 38 items resulted in 34 items loading onto 12 specific factors (see Table 2). Of the 12 factors eight were considered to be usable[21]. Table 3 shows that two of these factors related to organisational situation, one factor related to structure, four factors were related to strategy, and one factor related to decision making style. Appendix A lists the specific items loading on each factor, with each factor subsequently scored as the sum of the items loading clearly on it. Using the factor scores obtained, cluster analysis (hierarchical agglomerative technique with Ward's minimum variance method for distance measure between two sub-groups) was conducted to force organisations into five clusters so as to be consistent with Miller and Friesen's (1984) five stage life cycle model. As a result of the clustering procedures, 40 business units were categorized into Cluster one, 85 in Cluster two, 81 in Cluster three, 78 in Cluster four and three in Cluster five (see Table 3). Table 3 also demonstrates the validity of the constructs with the Cronbach alpha values for each of the eight factors at an acceptable level of 0.4 or above (Sproles and Kendall, 1986; Mital et al., 2008).

Labelling of clusters into appropriate OLC stages was performed by comparing the characteristics of each cluster with Miller and Friesen's (1984) descriptions of OLC stages. Cluster Five was labelled as the decline stage as business units in this cluster exhibited a high level of centralization in structure, with little authority delegated to subordinates, the Board of Directors and shareholders have great influence on operations, and there is little emphasis placed on "Strategic planning", "Marketing and distribution", and "Innovation".

[21] The items loading on four (Factor 7, 9, 10 and 12) of the 12 factors were not interpretable, and hence were not used in the current study.

TABLE 2 Factor analysis of OLC items

Items*	Factors											
	1	2	3	4	5	6	7	8	9	10	11	12
1	.242	**.719**	.111	-.066	-.005	.133	.204	-.070	.037	.104	.045	.117
2	.162	**.685**	.042	.133	.064	.111	.071	.059	-.158	-.033	-.132	-.026
3	-.043	-.064	-.120	.049	-.008	.253	-.091	-.043	**.681**	-.131	.102	.201
4	-.010	.194	-.025	.019	.159	**.752**	-.069	.060	.015	-.118	-.116	.040
5	.140	.099	.008	.037	-.061	**.839**	.017	.005	-.028	.144	-.056	-.045
6	-.030	.156	-.061	-.055	.375	**.361**	.258	.117	.130	-.022	-.002	-.486
7	-.126	**.592**	.031	.242	.246	.111	.032	.132	.035	.141	.110	-.222
8	.026	.012	.118	**.786**	.035	-.005	.009	.044	.046	-.044	-.022	.053
9	.226	.176	.129	**.716**	.083	.113	.012	.110	-.026	.138	.056	.013
10	.241	**.316**	.125	.370	.037	-.047	-.026	.305	.206	.252	-.205	.097
11	.205	.073	.000	.035	-.008	.000	.098	.053	-.010	**.747**	-.020	.048
12	-.071	.001	.025	-.004	-.008	-.203	.012	.126	**.738**	.099	-.108	-.174
13	-.063	.179	.006	.169	.483	.052	-.032	.176	-.158	.340	-.115	**.392**
14	.047	-.020	-.107	.039	-.041	-.109	.105	.094	-.004	-.087	**.796**	.023
15	.006	-.007	-.464	-.069	-.046	-.088	.052	-.137	.080	.268	**.506**	.242
16	.096	-.001	.081	.047	.086	.041	.221	.068	.042	.029	.090	**.781**
17	-.022	.092	.681	.122	.109	-.125	.044	.131	.022	-.042	-.150	.203
18	.336	.330	.047	-.275	-.147	.053	.234	**.406**	-.004	-.127	.087	.152
19	.116	-.164	-.002	.172	.154	.011	.220	**.692**	.092	-.059	.027	-.010
20	.193	.166	.094	.107	-.039	.090	.001	**.721**	.049	.121	.040	.040
21	.379	-.109	**.489**	.135	.040	.146	.130	-.001	-.313	.184	.174	.041
22	.333	.299	.271	.122	.496	.037	-.113	-.153	.040	-.175	.097	.070
23	.391	.103	.182	.072	**.634**	.071	.037	-.041	-.089	-.115	.028	.026
24	.393	-.065	.104	.010	**.635**	.012	.056	.170	.092	.177	-.110	-.058
25	.403	.082	**.347**	.189	.263	.047	.178	-.137	-.144	.408	.008	-.085
26	**.531**	.205	.228	.230	.248	-.014	-.063	.086	-.066	.139	-.028	.049
27	.343	.141	**.613**	.132	.145	.060	.154	.014	.088	.085	-.110	-.040
28	.184	.145	.293	-.180	.122	-.039	-.300	.378	-.161	.042	.352	-.061
29	-.073	-.143	.248	.044	.003	.378	.196	.132	.409	-.095	.302	-.021
30	.306	.129	**.402**	.160	.087	.044	.532	-.051	-.127	.209	.149	-.008
31	.043	.170	.084	-.152	-.037	.046	**.738**	.110	.057	.101	.085	.128
32	**.732**	.033	.067	-.042	.108	.069	-.058	.067	-.031	.205	.181	-.043
33	**.786**	.030	.120	-.016	.071	.033	.030	.151	.059	.178	.064	.020
34	**.752**	.024	.168	.063	-.065	-.051	.190	.074	.121	.122	-.096	-.008
35	**.711**	.100	-.117	.045	.206	.062	.084	.063	-.152	-.077	-.037	.078
36	**.657**	.180	.048	.219	.173	.076	.124	.122	-.180	-.164	.012	.105
37	**.494**	.106	.000	.264	.170	-.121	.458	.182	-.161	.025	-.067	.080
38	.334	.064	.056	.349	.049	-.208	**.459**	.209	-.136	-.046	.059	.034
% of Variance	20.73%	6.11%	5.27%	4.94%	4.24%	3.70%	3.51%	3.41%	3.06%	3.02%	2.90%	2.69%

*As listed in Appendix A.

NB: Items loading onto the eight factors are shown in bold.

TABLE 3 Descriptive statistics: mean values for each OLC factor across clusters

OLC factors	Minimum actual (theoretical)	Maximum actual (theoretical)	Entire sample Mean	Cluster mean					Cronbach Alpha
				One (N = 78)	Two (N = 85)	Three (N = 40)	Four (N = 81)	Five (N = 3)	
Organisational Situation									
Environmental uncertainty	3 (3)	15 (15)	9.10	9.03	9.89	7.23	9.48	3.00	0.636
The influence of the board, owners and shareholders	2 (2)	10 (10)	6.99	7.40	7.38	6.60	6.31	8.67	0.440
Structure									
Decentralisation of authority	4 (4)	20 (20)	14.63	13.74	16.29	12.73	15.07	4.00	0.753
Strategy									
Strategic planning	2 (2)	10 (10)	6.73	6.28	7.44	5.68	7.12	2.00	0.634
Diversification	3 (3)	14 (15)	6.22	4.87	5.38	4.90	9.10	5.33	0.615
Marketing and distribution	4 (4)	19 (20)	12.20	10.72	13.12	9.63	14.12	6.67	0.610
Innovation	2 (2)	10 (10)	7.08	6.64	7.73	6.60	7.26	2.00	0.580
Decision making									
Managers' focus on decision making	7 (7)	35 (35)	24.70	23.37	29.52	17.52	25.06	8.33	0.859
Confirmatory variables:									
Average no. of employees				86	114	185	195	4	
Product scope[1]				3.35	3.85	2.90	3.75	1.67	
	LABEL			**Birth**	**Growth**	**Maturity**	**Revival**	**Decline**	

[*]The product scope was measured with scores ranging from 1 to 5.

The characteristics of Cluster Two and Four correspond to either the growth or revival stages for three reasons. Firstly, both clusters exhibit higher scores for “Environmental uncertainty” than other clusters, indicating that business units in these two clusters are embedded in a heterogeneous, hostile and dynamic environment. Secondly, both clusters indicate a greater emphasis on “Strategic planning”, “Diversification”, “Marketing and distribution”, “Innovation” (particularly Cluster Four), and “Managers’ focus on decision making” (particularly Cluster Two). Finally, both clusters exhibit a higher degree of “Decentralization of authority” than other clusters.

A closer comparison between Cluster Two and Four reveals that Cluster Four has a significantly lower score for the “The influence of the board, owners and shareholders” factor, and a significantly higher score for the “Diversification” factor than Cluster two. According to Miller and Friesen’s (1984) descriptions of OLC stages, growth stage organisations focus on early diversification while revival stage organisations focus on extensive diversification. Therefore, it is expected that business units in the revival stage will exhibit a higher score in the “Diversification” factor than in the growth stage. Similarly, compared with growth stage organisations revival stage organisations have even more dispersed ownership, indicating a lower score in the “The influence of the board, owners and shareholders” factor than growth stage organisations. Consequently, it is more likely that business units in Cluster Two are in the growth stage, while those in Cluster Four are in the revival stage.

Cluster Three was labelled as the maturity stage since business units in this cluster exhibited a relatively stable and less heterogeneous environment, as indicated by the low score in the “Environmental uncertainty” factor. The structure remains fairly centralized with a low level

of “Decentralization of authority”, and the strategy tends to be conservative with little emphasis on “Innovation” and “Diversification”. A low score in the “Managers’ focus on decision making” factor indicates a less responsive and adaptive decision-making style.

Finally, Cluster One was labelled as the birth stage since business units in this cluster exhibited a low score in the “The influence of the board, owners, and shareholders” factor, indicating a high level of centralization in ownership. Such centralized ownership aligns with simple and centralized structures. There also is a low level of “Diversification” probably due to the pursuit of a niche strategy, while the decision making style appears to be intuition-based with only a few factors taken into account.

Additional information regarding the average number of employees and product scope were also collected to confirm the cluster labelling (see Table 3). In alignment with Miller and Friesen’s (1984) descriptions of OLC stage characteristics, Table 3 reveals that the average number of employees increases across the birth, growth, maturity and revival stages but decreases in the decline stage. In addition, the product scope is broader in the growth and revival stages than in the birth and maturity stage, and is narrowest in the decline stage. Hence, the classification of OLC stages is considered to be appropriate.

4. Results

4.1 Descriptive Statistics

Table 4 provides descriptive statistics including the mean, standard deviation, and the minimum and maximum values for each of the variables. Table 4 indicates that input and behaviour controls are used to a greater extent than output controls, while the diagnostic approach is used to a greater extent than the interactive approach. The mean score for the

level of EOC is relatively high indicating a high level of EOC in Australian manufacturing organisations.

TABLE 4 Descriptive statistics of the variables

Variables	N	Mean	Std. Dev.	Minimum Actual (Theoretical)	Maximum Actual (Theoretical)
Input controls	329	3.71	0.66	1.29 (1)	5 (5)
Behaviour controls	328	3.73	0.63	2.00 (1)	5 (5)
Output controls	327	3.45	0.74	1.50 (1)	5 (5)
Interactive approach	335	3.22	0.94	1.00 (1)	5 (5)
Diagnostic approach	331	3.41	1.02	1.00 (1)	5 (5)
The level of EOC	325	39.28	4.82	11 (9)	45 (45)

4.2 The association between the three types of controls and the level of EOC

The association between the three types of controls (input, behaviour and output) and the level of EOC was assessed using multiple regression analysis. Table 5 indicates that the overall model was statistically significant at the 0.01 level ($F = 9.16$, $p = 0.00$). The results reveal that the use of input controls is significantly related to the level of EOC, indicating that organisations which use input controls to a greater extent are more likely to exhibit higher levels of EOC. Hence, H1a is supported. The insignificant association between behaviour controls and output controls with the level of EOC provides support for H1b and H1c.

TABLE 5 Results of multiple regression analysis of the association between types of controls and the level of EOC

Variables	Level of EOC		
	Coefficient	T-Statistics	Significance
Input controls	0.32	4.64	0.00**
Behaviour controls	-0.09	-1.16	0.25
Output controls	0.01	0.13	0.90
F-value		9.16	
p-value		0.00**	
R^2		0.08	
Adjusted R^2		0.07	
N		319	

**Significant at the 0.01 level

4.3 The association between the two approaches to using controls and the level of EOC

Table 6 provides the results of the multiple regression analysis of the association between the two approaches to using controls (interactive and diagnostic) and the level of EOC. The overall model was statistically significant at the 0.01 level ($F = 5.84$, $p = 0.00$). The results reveal that the interactive approach to using controls is significantly related to the level of EOC, indicating that organisations which use the interactive approach more extensively are more likely to exhibit higher levels of EOC. H2a is therefore supported. The lack of association between the diagnostic approach to using controls and the level of EOC provides support for H2b.

TABLE 6 Results of multiple regression analysis of the association between approaches to using controls and the level of EOC

Variables	Level of EOC		
	Coefficient	T-Statistics	Significance
Interactive approach	0.27	2.51	0.01**
Diagnostic approach	-0.10	-0.92	0.36
F-value		5.84	
p-value		0.00**	
R^2		0.04	
Adjusted R^2		0.03	
N		312	

**Significant at the 0.01 level

4.4 The association between the types of controls and the approaches to using controls with the level of EOC in each OLC stage

Table 7 provides the descriptive statistics for the level of EOC in each OLC stage. The ANOVA results indicate that the level of EOC is significantly different across OLC stages, with employees in growth stage organisations exhibiting the highest level of EOC, followed by the revival, birth and maturity stage organisations. Such findings could be attributable to the positive association between the extent of innovation and the level of EOC (Lok and Crawford, 2001; McKinnon et al., 2003; Tseng and Lee, 2011), with growth and revival stage

organisations promoting innovation to a greater extent than birth and maturity stage organisations.

TABLE 7 Results of one way analysis of variance (ANOVA) comparing the level of EOC across OLC stages

		Level of EOC			
OLC stage	N	Mean	St. Dev	F-statistic	Significance
Birth	75	39.04	4.83	2.415	0.05*
Growth	81	39.95	4.45		
Maturity	38	37.21	6.57		
Revival	80	39.33	4.36		

* Significant at the 0.05 level

A series of multiple regression analyses were subsequently conducted to examine the association between the three types of controls and the two approaches to using controls with the level of EOC in each OLC stage[22]. Table 8 reveals that there is a significant association between the use of input controls and the level of EOC in the birth and revival stages. However, both the use of behaviour and output controls does not exhibit a significant association with the level of EOC in any individual OLC stage. Furthermore, it is found that the interactive and diagnostic approaches to using controls are not associated with the level of EOC in any individual OLC stage.

[22] Given the extensive number of regressions conducted the results are not provided.

Table 8 Results of multiple regression analysis of the association between types of controls and approaches to using controls with the level of EOC in each OLC stage

Variables	Level of EOC			
	Birth Co-efficient (t-value) ((t-sign.))	**Growth** Co-efficient (t-value) ((t-sign.))	**Maturity** Co-efficient (t-value) ((t-sign.))	**Revival** Co-efficient (t-value) ((t-sign.))
Input controls	2.852 (2.371) ((0.020*))	0.867 (0.816) ((0.417))	1.819 (0.791) ((0.435))	3.504 (3.642) ((0.000**))
Behaviour controls	-1.953 (-1.744) ((0.086))	0.041 (0.035) ((0.972))	-3.150 (-1.517) ((0.138))	-0.207 (-0.179) ((0.858))
Output controls	0.393 (0.860) ((0.779))	-1.128 (-1.183) ((0.241))	3.179 (1.724) ((0.094))	-1.254 (-1.274) ((0.207))
The interactive approach	2.188 (2.022) ((0.047))	0.879 (0.803) ((0.425))	0.368 (0.171) ((0.865))	1.173 (1.062) ((0.291))
The diagnostic approach	-1.353 (-1.397) ((0.167))	-0.434 (-0.380) ((0.705))	0.419 (0.217) ((0.829))	-0.892 (-0.908) ((0.367))
F-value	2.307	0.603	1.618	5.136
p-value	0.084	0.615	0.203	0.003
R^2	0.090	0.023	0.125	0.169

*Significant at the 0.05 level
**Significant at the 0.01 level

5. Conclusion and discussion

The first objective of the study was to examine the association between the use of the three types of controls and the two approaches to using controls with the level of EOC. The results reveal that while input controls are significantly associated with the level of EOC, the use of behaviour and output controls is not significantly associated with the level of EOC. In addition, while the interactive approach to using controls is found to be significantly associated with the level of EOC, no significant association between the diagnostic approach to using controls and the level of EOC is identified.

The significant positive association between input controls and the level of EOC indicates that in order to enhance the level of EOC organisations need to place more emphasis on the use of input controls. For instance, organisations could provide appropriate training to employees before they are given new responsibilities; organisations could also offer employees on-going skill and career development programs so as to broaden their range of talents.

While previous studies have identified significant associations between behaviour and output controls with the level of EOC, this study found no such associations, suggesting that employees are indifferent to the imposition of behaviour and output controls. However, rather than being indifferent, this finding may be attributed to the balanced impact of different aspects of such controls on the level of EOC, with previous research arriving at conflicting conclusions regarding their associations with EOC. Specifically, while some studies have reported that behaviour (Zefane, 1995; Rayton, 2006) and output controls (Crawford and Nonis, 1996) were negatively associated with EOC, others have found a positive association between behaviour (Oliver and Anderson, 1994) and output controls (House, 1996; Hofstede, 1998; Phoenix, 2006; Danish and Usman, 2010) with the level of EOC. Hence, given the potential for these factors to affect the level of EOC, organisations need to ensure that behaviour and output controls are used in a manner which has a positive impact on employees.

In regard to the two approaches to using controls, no significant association is found between the diagnostic approach and the level of EOC. The lack of such an association could be attributable to the conflicting effect of the diagnostic approach to using controls, whereby on one hand, the high level of employee empowerment embedded in the diagnostic approach

enhances the level of EOC (Lok and Crawford, 2004; Kazlauskaite et al., 2006), while on the other hand, the diagnostic approach to using controls constrains innovation thereby undermining EOC (Lok and Crawford, 2001; McKinnon et al., 2003; Tseng and Lee, 2011). However, the interactive approach to using controls is found to be positively associated with the level of EOC. Hence, in order to retain valued employees and promote their commitment to their organisations, organisations need to encourage face-to-face dialogue and debate, and information sharing across different levels in the organisational hierarchy. Organisations also need to be regularly involved in subordinates' decision making activities.

The second objective of the study was to examine the association between the three types of controls and the two approaches to using controls with the level of EOC in each OLC stage. The results show that the use of input controls is positively related to the level of EOC in the birth stage. Given that input controls are generally not used to a great extent in the birth stage as found in Paper One, this association implies that the provision of any form of input control including training and career development programs is likely to be received well by employees as a sign that their organisations care about their career progression and well-being. Such commitment from organisations to employees can subsequently enhance employees' commitment to their organisations (Shore and Tetrick, 1991; Guzzo et al., 1994; Tsui et al., 1997; Aube et al., 2007).

A positive association between input controls and the level of EOC is also found in the revival stage. Since revival stage organisations experience dramatic product and market diversification in an uncertain and competitive environment, employees who lack the relevant knowledge and skills to perform their tasks are more likely to be frustrated, thereby resulting in a lower level of EOC. Hence, it is plausible that in the revival stage, employees who are

appropriately selected to meet job demands, and who are provided with the necessary training and on-going skill development will exhibit a higher level of EOC.

This study contributes to both the MCS literature and practice. First, since only a limited number of studies have examined the association between MCSs and the level of EOC, this study fills a gap in the MCS literature by examining the association between the types of controls and the approaches to using controls with the level of EOC. These associations were also explored in each of Miller and Friesen's (1984) four OLC stages. Secondly, the findings have important implications for Australian manufacturing organisations. In particular, by providing an insight into the factors affecting the level of EOC, the results suggest that more emphasis needs to be placed on input controls and the interactive approach to using controls so as to enhance the level of EOC.

While this study contributes to both the MCS literature and practice, it is subject to the usual limitations of using survey method. For instance, due to the inability to eliminate rival explanations, surveys can only find associations rather than casual relationships between independent variables and dependant variables (Singleton and Straits, 2005). Future studies could apply a combination of different methods, such as interviews together with surveys, so as to provide further insights into the factors affecting the level of EOC. In addition, by adopting Snell's (1992) control model consisting of three types of formal controls, this study fails to capture the association between informal controls and the level of EOC. Accordingly, future studies could examine the association between informal controls and the level of EOC. Future studies could also investigate the associations examined in this study with alternative industries.

Appendix A

Measure of the level of EOC

Please indicate the extent to which you agree with the following statements (1 = strongly disagree, 5 = strongly agree)

In regard to organisational identification:

1. I am quite proud to be able to tell people who it is I work for.
2. I feel that I am a part of the organisation.
3. I would not advise a close friend to join my organisation. (Reverse scored)

In regard to organisational involvement

4. I am not willing to put myself out just to help the organisation. (Reverse scored)
5. In my work I like to feel I am applying some effort not just for myself but for the organisation as well.
6. I am determined to make a contribution for the good of my organisation.

In regard to organisational loyalty

7. I sometimes feel like leaving this employment for good. (Reverse scored)
8. Even if my organisation was not doing well financially, I would be reluctant to change to another employer.
9. The offer of a small increase in remuneration by another employer would not seriously make me think of changing my job.

Measure of three types of control

Please indicate the extent to which the following statements reflect the work environment in your business unit (1 = not at all, 5 = to a great extent).

Input controls:

1. Employees must undergo a series of evaluations before they are hired.
2. Employees receive substantial training before they assume new responsibilities.
3. New employees undergo orientation regarding organisational activities.
4. Our business unit has gone to great lengths to establish staffing policies and procedures.
5. Employees are expected to adhere to established staffing policies and procedures.
6. Employees are given ample opportunity to broaden their range of talents.
7. Our business unit provides on-going training and skill development to employees.

Behaviour controls:

1. Employee performance is evaluated based on their on-going behaviour.
2. Employees are held accountable for their actions, regardless of results.
3. Employees are monitored to ensure that they are complying with staffing policies and procedures.
4. Supervisors regularly monitor the actions undertaken by employees.
5. Employees are accountable for areas of responsibilities that are defined by top managers.
6. Subordinates assume responsibility for setting their own performance goals (Reverse scored).

Output controls:

1. Performance evaluations place emphasis on results.
2. There are clear and planned performance targets set for employees.
3. Pre-established targets are used as a benchmark for evaluations.

4. Regardless of what employees are like personally, their performance is judged by results achieved.
5. The rewards employees receive are linked to results.
6. Employees who do not reach objectives receive a low performance rating.

Measures of approaches to using controls

Please indicate the extent to which the following statements reflect the work environment in your business unit (1 = not at all, 5 = to a great extent).

The interactive use of controls

1. Controls are often used as a means of developing ongoing action plans.
2. Controls are used regularly in scheduled face-to-face meetings between operational and senior managers.
3. There is a lot of on-going interaction between operational management and senior managers.
4. Controls generate information that forms an important and recurring agenda in discussions between operational and senior managers.
5. Controls are used by operational and senior managers to discuss changes that are occurring within the business unit.

The diagnostic use of controls

1. Controls are used to track progress towards goals and monitor results.
2. Controls are used to plan how operations are to be conducted in accordance with the strategic plan.
3. Controls are used to review performance
4. Controls are used to identify significant exceptions from expectations and take appropriate actions.

The instrument of OLC stages

Please indicate the extent to which the following statements reflect the work environment in your business unit (1 = not at all, 5 = to a great extent)

NB: Factor numbers and item numbers as shown in Table 2 are indicated below.

Situation

Environmental uncertainty (Factor 8)

18: Dynamism (evidenced by the unpredictability of changes in customer tastes, production technologies)

19: Hostility (evidenced by the intensity of competition and other external influences)

20: Heterogeneity (evidenced by the differences in competitive tactics, customer tastes, product lines, channels of distribution).

The influence of board, owners and shareholders (Factor 11)

14: The decisions and operations are influenced by the boards of directors

15: The decisions and operations are influenced by owners /shareholders

Structure

Decentralisation of authority (Factor 3)

21: Participative Management

25: Effective internal communication systems

27: Delegation of decision-making
30: Proactive decision-making

Strategy

Strategic planning (Factor 5)

23: Action planning (includes formal strategic and project planning and review procedures, the use of capital budgeting techniques, and market forecasting).
24: Scanning (involves identification of threats and opportunities in the external environment of your business unit)

Diversification (Factor 6)

4: Use acquisition to diversify into unrelated lines
5: Diversifies into unrelated lines by establishing our own departments or subsidiaries
6: Engages in vertical integration

Marketing and distribution (Factor 2)

1: Has major, frequent product innovations
2: Dominates distribution channels
7: Extensive advertising and promotional expenditure
10: Provides different product lines for different markets

Innovation (Factor 4)

8: Has small, incremental product innovations
9: Selective in respect to the introduction of new products

Decision-making style

Managers' focus on decision making (Factor 1)

26: Centralization of strategy formulation
32: Extensive analysis of major decisions
33: Multiplexity of decisions: (consideration of a broad range of factors in making strategic decisions)
34: Integration of decisions (Actions in one area of the firm are complementary or supportive of those in other areas (i.e. divisions, functions).
35: Futurity of decisions (our business unit incorporates a long-term planning horizon relative to our industry)
36: Consciousness of strategies (concerns the degree of your conscious commitment as a business unit manager to an explicit corporate strategy)
37: Adaptiveness of decisions (concerns the responsiveness and appropriateness of decisions to market requirements and external environmental conditions.

Note:

11 items did not load onto any of the eight factors and are listed below:

3: Follows the lead of competitors
11: Adopts a niche strategy
12: Engages in price cutting
13: Charges a premium for high quality products
16: The decisions and operations of our business unit are influenced by customers
17: The decisions and operations of our business unit are influenced by managers
22: Sophisticated Management Information Systems

28: Technocratization (A higher proportion of highly trained staff specialists and professionally qualified people (accountants, engineers, scientists) as a percentage of the number of employees)
29: Resource shortages (human, physical and financial shortages)
31: Risk taking
38: Industry expertise of top managers (They are in a position to make decisions because of their excellent knowledge of internal operations and the outside environment)

References

Abernethy, M. A. and Brownell, P. (1999), 'The role of budgets in organisations facing strategic change: an exploratory study', *Accounting, Organizations and Society*, Vol. 24, No. 3, pp. 189-204.

Abernethy, M. A. and Guthrie, C. H. (1994), 'An empirical assessment of the fit between strategy and management information systems design', *Accounting and Finance*, Vol. 34, No. 2, pp. 49-66.

Abernethy, M. A. and Lillis, A. M. (2001), 'Interdependencies in control system design: a test in hospitals', *Journal of Management Accounting Research*, Vol. 13, No. 1, pp. 107-129.

Abernethy, M.A., Schulz, K-D. and Bell, S. (2007), 'Translating organisational learning orientation into performance: the role of management control systems', *Working paper*, University of Melbourne, Australia.

Agarwal, S., Decarlo, T. E. and Vyas, S. B. (1999), 'Leadership behaviour and organisational commitment: a comparative study of American and Indian salespersons,' *Journal of International Business Studies*, Vol. 30, No. 4, pp. 727-743.

Aube, C., Rousseau, V. and Morin, E. M. (2007), 'Perceived organisational support and organisational commitment. *Journal of Managerial Psychology*, Vol. 22, No. 5, pp. 479-495.

Australian Bureau of Statistics. (2009-2010), Australian industry, available at <http://www.abs.gov.au/ausstats/abs@.nsf/Products/8A66DC4E93DDF45BCA25789C0023DF8F?opendocument.>, Access date: 24th March 2012.

Auzair, S. M. and Langfield-Smith, K., (2005), 'The effect of service process type, business strategy and life cycle stage on bureaucratic MCS in service organisations', *Management Accounting Research*, Vol. 16, No. 4, pp. 399-421.

Baines, A. and Langfield-Smith, K. (2003), 'Antecedents to management accounting change: a structural equation approach', *Accounting, Organizations and Society*, Vol. 28, No. 7-8, pp. 675-698.

Banker, R. D., Potter, G. and Schroeder, R. G. (1993), 'Reporting manufacturing performance measures to workers: an empirical investigation', *Journal of Management Accounting Research*, Vol. 3, No. 5, pp. 34-55.

Batac, J. and Carassus, C. (2009), 'Interactions between control and organisational learning in the case of a municipality: A comparative study with Kloot (1997)', *Management Accounting Research*, Vol. 20, No. 2, pp. 102-116.

Bateman, T. S. and Strasser, S. (1984), 'A longitudinal analysis of the antecedents of organisational commitment', *The Academy of Management Journal*, Vol. 27, No. 1, pp. 95-112.

Bayo-Moriones, J. A. and De Cerio, J. M. D. (2001), 'Size and HRM in the Spanish manufacturing industry', *Employee Relations*, Vol. 23, No. 2, pp. 188-206.

Bisbe, J. and Otley, D. (2004), 'The effects of the interactive use of management control systems on product innovation', *Accounting, Organizations and Society*, Vol. 29, No. 8, pp. 709-737.

Bobe, B. J. and Taylor, D. W. (2010), 'Use of management control systems in university faculties: evidence of diagnostic versus interactive approaches by the upper echelons', *Working paper*, Deakin University, Australia.

Caldwell, D. F., Chatman, J. A. and O'Reilly, C. A. (1990), 'Building organisational commitment: A multifirm study', *Journal of Occupational Psychology*, Vol. 63, No. 3, pp. 245-261.

Cardinal, L. B. (2001), 'Technological innovation in the pharmaceutical industry: the use of organisational control in managing research and development', *Organisational Science*, Vol. 12, No. 1, pp. 19-36.

Cardinal, L.B., Sitkin, S. B. and Long, C. P. (2004), 'Balancing and rebalancing in the creation and evolution of organisational control', *Organisation Science*, Vol. 15, No. 4, pp. 411-431.

Carless, S. A. (2009), 'Psychological testing for selection purposes: a guide to evidence-based practice for human resource professionals', *The International Journal of Human Resource Management*, Vol. 20, No. 12, pp. 2517-2532.

Chan, S. H. (2006), 'Organisational identification and commitment of members of a human development organisation', *Journal of Management Development*, Vol. 25, No. 3, pp. 249-258.

Chenhall, R. H. (1986), 'Authoritarianism and participative budgeting: a dyadic analysis', *The Accounting Review*, Vol. 61, No. 2, pp. 263-272.

Chenhall, R. H. (1997), 'Reliance on manufacturing performance measures, total quality management and organisational performance', *Management Accounting Research*, Vol. 8, No. 2, pp. 187-206.

Cohen, A. (1992), 'Antecedents of organisational commitment across occupational groups: a meta-analysis', *Journal of Organisational Behaviour*, Vol. 13, No. 6, pp. 539-558.

Cook, J. and Wall, T. (1980), 'New work attitude measures of trust, organisational commitment and personal need non-fulfilment', *Journal of Occupational Psychology*, Vol. 53, No. 1, pp. 39-52.

Crawford, J. C. and Nonis, S. (1996), 'The relationship between boundary spanner's job satisfaction and the management control system', *Journal of Managerial Issues*, Vol. 8, No. 1, pp. 118-131.

Cronbach, L. J. (1951) Coefficient alpha and the internal structure of tests. *Psychometrika*, 16, 297-334.

Danish, R. Q. and Usman, A. (2010), 'Impact of reward and recognition on job satisfaction and motivation: An empirical study from Pakistan', *International Journal of Business and Management*, Vol. 5, No. 2, pp. 159-167.

Davila, T. (2000), 'An empirical study on the drivers of management control systems' design in new product development', *Accounting, Organizations and Society,* Vol. 25, No. 4-5, pp. 383-409.

Davila, T. (2005), 'An exploratory study on the emergence of management control system: formalizing human resources in small growing firms', *Accounting, Organizations and Society,* Vol. 30, No. 3, pp. 223-248.

Dewettinck, K. and Buyens, D. (2006), 'Linking behavioural control to employee outcomes: testing two explanations using motivation theories', *Academy of Management Annual Meeting Proceedings,* pE1-6.

Dillman, D. A. (2007), *Mail and Internet Surveys: The Tailored Design Method,* John Wiley and Sons Inc.: New York, U.S.

Driver, M. (2001), 'Activity-based costing: a tool for adaptive and generative organisational learning?', *The Learning Organisation,* Vol. 8, No. 3, pp. 94-105.

Edgar, F. and Geare, A. (2005), 'Employee voice on human resource management', *Asia Pacific Journal of Human Resources,* Vol. 43, No. 3, pp. 361-380.

Ferreira, A. and Otley, D. (2009), 'The design and use of management control systems: An extended framework for analysis', *Management Accounting Research,* Vol. 20, No. 4, pp. 263-282.

Fletcher, C. and Williams, R. (1996), 'Performance management, job satisfaction and organisational commitment', *British Journal of Management,* Vol. 7, No. 2, pp. 169-179.

Foote, D. A. and Seipel, S. J. (2005), 'Employee commitment and organisational policies', *Management Decision,* Vol. 43, No. 2, pp. 203-219.

Fornell, C. & Larcker, D. 1981. Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research,* Vol. 18, No. 1, pp. 39-50.

Frucot, V. and Shearon, W. T. (1991), 'Budgetary participation, locus of control, and Mexican managerial performance and job satisfaction', *The Accounting Review,* Vol. 66, No. 1, pp. 80-99.

Galunic, D. C. and Anderson, E. (2000), 'From security to mobility: Generalised investments in human capital and agent commitment', *Organisation Science,* Vol. 11, No. 1, pp. 1-20.

Gillespie, N. A., Walsh, M., Winefield, A. H., Dua, J. K. and Stough, C. (2001), 'Occupational stress in universities: staff perceptions of causes, consequences and moderators of stress', *Work & Stress,* Vol. 15, No. 1, pp. 53-72.

Gormley, D. K. and Kennerly, S. (2010), 'Influence of work role and perceptions of climate on faculty organisational commitment', *Journal of Professional Nursing,* Vol. 26, No. 2, pp.108-115.

Guest, D. (1987), 'Human resource management and industrial relations', *Journal of Management Studies,* Vol. 24, No. 5, pp. 503-521.

Guzzo, R. A., Noonan, K. A. and Elron, E. (1994), 'Expatriate managers and the psychological contract', *Journal of Applied Psychology*, Vol. 79, No. 4, pp. 617-626.

Henri, J. (2006b), 'Management control systems and strategy: A resource-based perspective', *Accounting. Organizations and Society*, Vol. 31, No. 6, pp. 529-558.

Hofstede, G. (1998), 'Attitudes, values and organisational culture: disentangling the concepts', *Organisation Studies*, Vol. 19, No. 3, pp. 477-492.

Hopwood, A. G. (1972), 'An empirical study of the role of accounting data in performance evaluation', *Journal of Accounting Research*, Vol. 10, No. 1, pp. 156-182.

Hoque, Z. and James, W. (2000), 'Linking balanced scorecard measures to size and market factors: impact on organisational performance', *Journal of Management Accounting Research*, Vol. 12, pp. 1-17.

House, R. J. (1996), 'Path-goal theory of leadership lessons, legacy, and a reformulated theory', *The Leadership Quarterly*, Vol. 7, No. 3, pp. 323-52.

Hrebiniak, L. G. and Alutto, J. A. (1972), 'Personal and role-related factors in the development of organisational commitment', *Administrative Science Quarterly*, Vol. 17, No. 4, pp. 555-573.

Imoisili, O. A. (1989), 'The role of budget data in the evaluation of managerial performance', *Accounting, Organizations and Society*, Vol. 14, No. 4, pp. 325-335.

Iverson, R. D. (1996), 'Employee acceptance of organisational change: the role of organisational commitment', *The International Journal of Human Resource Management*, Vol. 7, No. 1, pp. 122-49.

Iverson, R. D. and Buttigieg, D. M. (1999), 'Affective, normative and continuance commitment: Can the "right kind" of commitment be managed', *Journal of Management Studies*, Vol. 36, No. 3, pp. 307-333.

Iverson, R. and Roy, P. (1994), 'A causal model of behavioural commitment: Evidence from a study of Australian blue-collar employees', *Journal of Management*, Vol. 20, No. 1, pp. 15-41.

Jaramillo, F., Mulki, J. P. and Marshall, G. W. (2005), 'A meta-analysis of the relationship between organisational commitment and salesperson job performance: 25 years research', *Journal of Business Research*, Vol. 58, No. 6, pp. 705-714

Jermias, J. and Setiawan, T. (2008), 'The moderating effects of hierarchy and control systems on the relationship between budgetary participation and performance', *The International Journal of Accounting*, Vol. 43, No. 3, pp. 268-292.

Johnson, W. H. A. (2011), 'Managing university techology development using organisational control theory', *Research Policy*, Vol. 40, No. 6, pp. 842-852.

Joiner, T. A. and Bakalis, S. (2006), 'The antecedents of organisational commitment: the case of Australian casual academics', *International Journal of Educational Management*, Vol. 20, No. 6, pp. 439-452.

Kallunki, J.-P. and Silvola, H. (2008), 'The effect of organisational life cycle stage on the use of activity-based costing', *Management Accounting Research*, Vol. 19, No. 1, pp. 62-79.

Karami, A., Analoui, F. and John, C. (2004), 'Strategic human resource management and resource-based approach: The evidence from the British manufacturing industry', *Management Research News*, Vol. 27, No. 6, pp. 50-68.

Karsh, B., Boojke, B. C. and Sainfort, F. (2005), 'Job and organisational determinants of nursing home employee commitment, job satisfaction and intention to turnover', *Ergonomics*, Vol. 48, No. 10, pp. 1260-1281.

Kayis, B. and Kara, S. (2005), 'The supplier and customer contribution to manufacturing flexibility: Australian manufacturing industry's perspective', *Journal of Manufacturing Technology Management*, Vol. 16, No. 7, pp. 733-752.

Kazlauskaite, R., Buciuniene, I., and Turauskas, L. (2006), 'Building employee commitment in the hospitality industry', *Baltic Journal of Management*, Vol. 1, No. 3, pp. 300-314.

Ketchand, A. A. and Strawser, J. R. (1998), 'The existence of multiple measures of organisational commitment and experience-related differences in a public accounting setting', *Behavioral Research in Accounting*, Vol. 10, pp. 109-137.

Ketchand, A. A. and Strawser, J. R. (2001), 'Multiple dimensions of organisational commitment: implications for future accounting research', *Behavioural Research in Accounting*, Vol. 13, pp. 221-251.

Kim, S. (2002), 'Participative management and job satisfaction: Lessons for management leadership', *Public Administration Review*, Vol. 62, No. 2, pp. 231-241.

Kloot, L. (1997), 'Organisational learning and management control systems: responding to environmental change', *Management Accounting Research*, Vol. 8, No. 1, pp. 47-73.

Kober, R. (2010), 'The emergence and utilization of management control systems in a high growth firm', *Presented at Accounting & Finance Association of Australia and New Zealand.* Christchurch, New Zealand.

Kober, R., Ng, J. and Paul, B. J. (2007), 'The interrelationship between management control mechanism and strategy', *Management Accounting Research*, Vol. 18, No. 4, pp. 425-452.

Kompass Australia (2010), *Peter Isaacson Publications*, Victoria, Australia.

Lam, T. and Zhang, H. Q. (2003), 'Job satisfaction and organisational commitment in the Hong Kong fast food industry', *International Journal of Contemporary Hospitality Management*, Vol. 15, No. 4, pp. 214-220.

Lambooij, M., Flache, A., Sanders, K. and Siegers, J. (2007), 'Encouraging employees to co-operate: the effects of sponsored training and promotion practices on employees' willingness to work overtime', *International Journal of Human Resource Management*, Vol. 18, No. 10, pp. 1748-1767.

Langfield-Smith, K. (1997), 'Management control systems and strategy: a critical review', *Accounting, Organizations and Society,* Vol. 22, No. 2, pp. 207-232.

Lau, C. and Woodman, R. C. (1995), 'Understanding organisational change: a schematic perspective', *Academy of Management Journal,* Vol. 38, No. 2, pp. 537-554.

Lautizi, M., Heather, Laschinger, H. K. S. and Ravazzolo, S. (2009), 'Workplace empowerment, job satisfaction and job stress among Italian mental health nurses: an exploratory study', *Journal of Nursing Management,* Vol. 17, No. 4, pp. 336-452.

Leach-Lopez M. A., Stammerjohan, W. W., and Tigsby Jr, J. T. (2008), 'An Update on budgetary participation, locus of control, and the effects on Mexican managerial performance and job satisfaction', *The Journal of Applied Business Research,* Vol. 24, No. 3, pp. 121-133.

Lee, C. L. and Yang, H. J. (2011), 'Organisation structure, competition and performance measurement systems and their joint effects on performance', *Management Accounting Research,* Vol. 22, No. 2, pp. 84-104.

Lockwood, N. R. (2007), 'Employee engagement for competitive advantage: HR's strategic role. Strategic Human Resource', *Management Research Quarterly,* Vol. 1, pp. 1-12.

Lok, P. and Crawford, J. (2004), 'The effect of organisational culture and leadership style on job satisfaction and organisational commitment A cross-national comparison', *Journal of Management Development,* Vol. 23, No. 4, pp. 321-338.

Lok, P. and Crawford, J. (2001), 'Antecedents of organisational commitment and the mediating role of job satisfaction', *Journal of Managerial Psychology,* Vol. 16, No. 8, pp. 594-613.

Lok, P. and Crawford, J. (1999), 'The relationship between commitment and organisational culture, subculture, leadership style and job satisfaction in organisational change and development', *Leadership & Organisation Development Journal,* Vol. 20, No. 7, pp. 365-373.

MacKenzie, S. B., Podsakoff, M. and Aheame, M. (1998), 'Some possible antecedents and consequences of in-role and extra-role salesperson performance', *Journal of Marketing,* Vol. 62, No. 3, pp. 87-98.

Maiga, A. S. and Jacobs, F. A. (2005), 'Antecedents and consequences of quality performance', *Behavioral Research in Accounting,* Vol. 17, pp. 111-131.

Makhija, M. V. and Ganesh, U. (1997), 'The relationship between control and partner learning in learning-related joint ventures', *Organisation Science,* Vol. 8, No. 5, pp. 508-527.

Mallak, L. A. and Kurstedt, H. A. Jr. (1996), 'Using culture gap analysis to manage organisational change', *Engineering Management Journal,* Vol. 8, No. 2, pp. 35-41.

Mathieu, J. E. and Zajac, D. M. (1990), 'A review and meta-analysis of the antecedents, correlates, and consequences of organisational commitment', Psychological Bulletin, Vol. 108, No. 2, pp. 171-194.

McKinnon, J. L., Harrison, G. L., Chow, C. W. and Wu, A. (2003), 'Organisational culture: association with commitment, job satisfaction, propensity to remain, and information sharing in Taiwan', *International Journal of Business Studies,* Vol. 11, No. 1, pp. 25-44.

Merchant, K. A. (1981), 'The design of the corporate budgeting system: influences on managerial behaviour and performance', *The Accounting Review,* Vol. 56, No. 1, pp. 813-829.

Merchant, K. A. and Otley, D. T. (2007), 'A review of the literature on control and accountability', *In:* Chapman, C. S., Hopwood, A. G. & Shield, M. D. (eds.) (2007) *Handbook of Management Accounting Research.* Elsevier: Oxford.

Metcalfe, B. and Dick, G. (2001), 'Exploring organisation commitment in the police Implications for human resource strategy', *An International Journal of Police Strategies & Management,* Vol. 24, No. 3, pp. 399-419.

Meyer, J. P. and Allen, N. J. (1987), 'Organisational commitment: Toward a three-component model', *Research Bulletin, 660. Department of Psychology, The University of Western Ontario, London*.

Meyer, J. P. and Allen, N. J. (1997), *Commitment in the Workplace,* Sage: Thousand Oaks, CA.

Meyer, J. P. and Smith, C. A. (2000), 'HRM practices and organisational commitment: Test of a mediation model', *Canadian Journal of Administrative Sciences,* Vol. 17, No. 4, pp. 319-331.

Miller, D. and Friesen, P. H. (1984), 'A longitudinal study of the corporate life cycle. Management Science', Vol. 30, No. 10, pp. 1161-1183.

Mital, A., Desai, A., Subramanian, A. and Mital, A. (2008), *Product Development: a Structured Approach to Consumer Product*. Elsevier Inc.: Oxford, U.K.

Moores, K. and Yuen, S. (2001), 'Management accounting systems and organisational configuration: a life-cycle perspective', *Accounting, Organizations and Society*, Vol. 26, No. 4-5, pp. 351-389.

Mowday, R. T., Porter, L. W. and Steers, R. M. (1982), *Employee-Organisational Linkages: the Psychology of Commitment, Absenteeism, and Turnov*er, Academic Press: New York.

Oliver, R. L. and Anderson, E. (1994), 'An Empirical Test of the Consequences of Behaviour and Outcome-Based Sales Control Systems', *Journal of Marketing*, Vol. 58, No. 4, pp. 53-67.

Oppenheim A. N. (1992) *Questionnaire Design, Interviewing and Attitude Measurement*. Pinter: London.

Phoenix, T. (2006), 'Benefits Compensation', *International Foundation of Employee Benefit Plans*, Vol. 43, No. 9, pp. 11-14.

Porter, L. W., Steers, R. M., Mowday, R. T. and Boulian, P. V. (1974), 'Organisational commitment, job satisfaction, and turnover among psychiatric technicians', *Journal of Applied Psychology*, Vol. 59, No. 5, pp. 603-609.

Ramaswami, S. N. (1996), 'Marketing controls and dysfunctional employee behaviours: a test of traditional and contingency theory postulates', *Journal of Marketing*, Vol. 60, No. 2, pp. 105-120.

Ramos, M. M. and Hidalgo, F. G. (2003), 'From Diagnostic to Interactive style of Management Control', *Management Research News*, Vol. 26, No. 5, pp. 21-31.

Rayton, B. A. (2006), 'Examining the interconnection of job satisfaction and organisational commitment: an application of the bivariate probit model', *International Journal of Human Resource Management*, Vol. 17, No. 1, pp. 139-154.

Richman, A. L., Civian, J. T., Shannon, L. L., Hill, E. J. and Brennan, R. T. (2008), 'The relationship of perceived flexibility, supportive work-life policies, and use of formal flexible arrangements and occasional flexibility to employee engagement and expected retention. Community', *Work & Family*, Vol. 11, No. 2, pp. 183-197.

Riketta, M. (2002), 'Attitudinal organisational commitment and job performance: a meta-analysis', *Journal of Organisational Behaviour*, Vol. 23, No. 3, pp. 257-266.

Rockness, H. O. and Shields, M. D. (1984), 'Organisational control systems in research and development', *Accounting, Organizations and Society*, Vol. 9, No. 2, pp. 165-177.

Rodwell, J. J., Kienzle, R. and Shadur, M. A. (1998), 'The relationships among work-related perceptions, employee attitudes and employee performance: the integral role of communication', *Human Resource Management*, Vol. 37, No. 3-4, pp. 277-293.

Russell, R. H. (1996), 'Providing access: the difference between sharing and just reporting corporate information', *Information Strategy: The executive's journal*, Vol. 12, No. 2, pp. 28-33.

Sahoo, C. K. and Das, S. (2011), 'Employee empowerment: A strategy towards workplace commitment', *European Journal of Business and Management*, Vol. 3, No. 11, pp. 46-54.

Samson, D. and Daft, R. L. (2005), *Management,* Sydney, Thomson.

Sandino, T. (2007), 'Introducing the first management control systems: Evidence from the retail sector', *The Accounting Review*, Vol. 82, No. 1, pp. 265-293.

Shields, M. D., Deng, F. J. and Yutaka, K. (2000), 'The design and effects of control systems: tests of direct- and indirect-effects models', *Accounting, Organizations and Society,* Vol. 25, No. 2, pp. 185-202.

Shields, J. and Shields, M. (1998), 'Antecedents of participative budgeting', *Accounting, Organisations and Society*, Vol. 23, No. 1, pp. 49-76.

Shore, L.M. and Tetrick, L.E. (1991), 'A construct validity study of the survey of perceived organisational support', *Journal of Applied Psychology*, Vol. 76, No. 5, pp. 637-643.

Silvola, H. (2008), 'Do organisational life-cycle and venture capital investors affect the management control systems used by the firm?', *Advances in Accounting*, Vol. 24, No. 1, pp. 128-138.

Simons, R. (1995), *Levers of control: how managers use innovative control systems to drive strategic renewal*, Harvard Business School Press: Boston, Massachusetts.

Simons, R. (2000), *Performance measurement & control systems for implementing strategy*, Prentice Hall: New Jersey.

Singleton, R. A. and Straits, B. C. (2005), *Approaches to Social Research*. Oxford University Press: New York.

Smeenk, S. G. A., Eisinga, R. N., Teelken, J. C. and Doorewaard, J. A. C. M. (2006), 'The effects of HRM practices and antecedents on organisational commitment among university employees, *International Journal of Human Resource Management*, Vol. 17, No. 12, pp. 2035-2054.

Snell, S. A. (1992), 'Control theory in strategic human resource management: the mediating effect of administrative information', *Academy of Management Journal*, Vol. 35, No. 2, pp. 292-327.

Snell, S. A. and Youndt, M. A. (1995), 'Human resource management and firm performance: Testing a contingency model of executive controls', *Journal of Management*, Vol. 21, No. 4, pp. 711-737.

Sproles, G. B. and Kendall, E. L. (1986), 'A methodology for profiling consumers' decision-making styles', *Journal of Consumer Affairs*, Vol. 20, No. 2, pp.267-279.

Stallworth, L. (2004), 'Antecedents and consequences of organisational commitment to accounting organisations', *Managerial Auditing Journal*, Vol. 19, No. 7, pp. 945-955.

Su, S., Baird, K. and Blair, B. (2009) 'Employee organisational commitment: the influence of cultural and organisational factors in the Australian manufacturing industry', *International Journal of Human Resource Management*, Vol. 20, No. 12, pp. 2494-2516.

Taormina, R. J. (1999), 'Predicting employee commitment and satisfaction: the relative effects of socialization and demographics', *International Journal of Human Resource Management*, Vol. 10, No. 6, pp. 1060-1076.

Tseng, L. Y. and Lee, T. S. (2011), 'Can high-Tech Companies Enhance Employee Task Performance through Organisational Commitment?', *International Journal of Business Administration*, Vol. 2, No. 2, pp. 94-113.

Tsui, A. S., Pearce, J. L., Porter, L. W. and Tripoli, A. M. (1997), 'Alternative approaches to the employee-organisation relationship: Does investment in employees pay off?', *Academy of Management Journal*, Vol. 40, No. 5, pp. 1089-1121.

Vakola, M and Nikolaou, I. (2005), 'Attitudes towards organisational change: what is the role of employees' stress and commitment?', Employee Relations, Vol. 27, No. 2, pp. 160-17.

Varona, F. (1996), 'Relationship between communication satisfaction and organisational commitment in three guatemalan organisations', *The Journal of Business Communication*, Vol. 33, No. 2, pp. 111-140.

Wallace, J. E. (1995), 'Corporatist control and organisational commitment among professionals: the case of lawyers working in law firms', *Social Forces,* Vol. 73, No. 3, pp. 811-840.

Walsh, J. P. and Seward, J. K. (1990), 'On the efficiency of internal and external corporate control mechanisms', *Academy of Management Review,* Vol. 15, No. 3, pp. 421-458.

Wilkes, F. M., Samuels, J. M. and Creenfield, S. M. (1996), 'Investment decision making in UK manufacturing industry', *Management Decision,* Vol. 34, No. 4, pp. 62-71.

Yousef, D. A. (2000), 'Organisational commitment and job satisfaction as predictors of attitudes toward organisational change in a non-western setting', *Personnel Review,* Vol. 29, No. 5, pp. 567-592.

Zeffane, R. (1995), 'Organisational commitment and perceived management styles: The Public-Private Sector Contrast', *Management Research News,* Vol. 18, No. 6-7, pp. 9-20.

CHAPTER SIX

CONCLUSION

This study was motivated by a gap in the management control system (MCS) literature examining MCSs from an OLC perspective. Paper One examined the association between Snell's (1992) three types of controls (input, behaviour and output controls) and four of Miller and Friesen's (1984) OLC stages (birth, growth, maturity and revival stages). Specifically, hypotheses were developed in regard to the extent of use of the three types of controls in each of the four OLC stages, and the extent of use of each type of control across the four stages. Paper Two then examined the association between Simons' (1995) interactive and diagnostic approaches to using controls with these four OLC stages. Hypotheses were developed in relation to the extent of use of each approach across the four OLC stages, and the extent of use of both approaches in each of the four stages.

A further motivation for the study was to address a deficiency in the number of studies examining the effectiveness of MCSs in respect to the behavioural outcome, employee organisational commitment (EOC). While a limited number of studies have examined the association between MCSs and the level of EOC (Caldwell et al., 1990; Wallace, 1995; Mallak and Kurstedt, 1996; Fletcher and Williams, 1996; Russell, 1996; Rodwell et al., 1998; Metcalfe and Dick, 2001), these studies have focused on specific control mechanisms. Accordingly, Paper Three provides an empirical examination of the association between two different aspects of MCSs, the types of controls and approaches to using controls, with the level of EOC. Specifically, hypotheses were developed in regard to the association between input, behaviour and output controls, and the interactive and diagnostic approaches with the level of EOC. Such associations were also explored from an OLC perspective, although no hypotheses were developed.

The remainder of the chapter is organised as follows. Section 6.1 presents the findings of the thesis. Section 6.2 discusses the contributions and implications of the thesis, and Section 6.3 outlines the limitations of the thesis and provides suggestions for future research.

6.1 Findings

Using the survey method, data were collected from a random sample of 343 General Managers in Australian manufacturing organisations. The results indicate that there is a significant association between the use of the three types of controls and the two approaches to using controls with OLC stages, and that a specific type of control (input controls) and a specific approach to using controls (interactive) are significantly associated with the level of EOC.

Input and behaviour controls are used to a significantly greater extent than output controls in the birth and growth stages, while all three types of controls are used to a similar extent in the maturity and revival stages. Further, the results indicate that all three types of controls are used to a greater extent in the growth and revival stages than in the birth and maturity stages. These results align with Moores and Yuen's (2001) findings that the extent of use of formal controls increases from the birth to growth stage, decreases in the maturity stage and increases again in the revival stage. The greater extent of use of all three types of controls in the growth stage is also consistent with Davila's (2005) findings that the use of personnel, action and results controls increases over time from the birth to the growth stage.

The results further reveal that both the interactive and diagnostic approaches to using controls are employed to a greater extent in the growth and revival stages than in the birth and maturity stages. This result is consistent with Kober's (2010) findings that while the interactive approach is introduced in the birth stage it becomes more prevalent in the growth stage. Further, the

interactive and diagnostic approaches are found to be used to a similar extent in each of the four OLC stages, suggesting that the two approaches are complementary in nature regardless of the OLC stage. Such findings reinforce the importance of the simultaneous use of both approaches as suggested by Henri (2006b) and Widener (2007).

In respect to the effectiveness of MCSs, the extent of use of input controls is found to be significantly positively associated with the level of EOC, supporting the findings from previous studies (Taormina, 1999; Lam and Zhang, 2003; Edgar and Geare, 2005; Lambooij et al., 2007). In addition, the study identified a significant positive association between the extent to which controls are used interactively and the level of EOC, consistent with the findings in the literature (Galunic and Anderson, 2000; Smeenk et al., 2006; Richman et al., 2008). These associations were also explored from an OLC perspective, with the results showing that the use of input controls is positively associated with the level of EOC in the birth and revival stages.

6.2 Contributions and implications

The majority of MCS studies have applied the cartesian approach, examining the effect of contingent variables on MCSs in isolation. Accordingly, this study has addressed a gap in the MCS literature by applying the configuration approach, which focuses on how multiple contingent factors (configurations) affect MCSs (Gerdin and Greve, 2004). Specifically, the study classified organisations into different OLC stages based on the simultaneous consideration of multiple contingent variables, thereby enabling due consideration to be given to multiple contingent factors simultaneously. Compared to the cartesian approach, which only provides a partial analysis of the effect of contingent variables on MCSs, the application of the configuration approach allows a more accurate reflection of the association between contingency factors and MCSs.

In addition, while a limited number of studies have examined the association between MCSs and OLC stages (Moores and Yuen, 2001; Auzair and Langfield-Smith, 2005; Davila, 2005; Kallunki and Silvola, 2008; Silvola, 2008; Kober, 2010), they have focused on specific control mechanisms such as the use of budgeting and activity-based costing. The current study provides an additional understanding of this association by focusing on two different MCS aspects, namely the types of controls (input, behaviour and output controls) and the approaches to using controls (interactive and diagnostic approaches). The empirical evidence concerning the association between these three types of controls and two approaches to using controls with OLC stages provides managers with an improved insight into the application of MCSs within their organisations.

In the birth stage, where organisations are embedded in a homogenous environment with the pursuit of a niche strategy, the findings suggest that while input and behaviour controls are used to a greater extent than output controls, all three types of controls are used to a relatively low extent. Specifically, given the emphasis on a niche strategy, birth stage organisations are less likely to concentrate on staff recruitment and training, and developing employees' knowledge and skills. In addition, due to the simple organisational structure there is little emphasis placed on formal policies and procedures (Miller and Friesen, 1984; Simons, 1995). Further, with the decision making power in the hands of top management, birth stage organisations are less likely to evaluate employees based on the results achieved.

In regard to the approaches to using controls, while the interactive and diagnostic approaches are employed to a similar extent, both approaches are used to a relatively low extent in the birth stage. In particular, given the relatively small size of birth stage organisations top management have control over all aspects of daily operations to ensure employees work towards desired outcomes, and hence there is less demand for the use of the diagnostic approach. Further, with a high level of

centralisation, birth stage organisations are less likely to promote communication and information exchange as top management make all the key decisions on their own (Miller and Friesen, 1984).

When the characteristics of organisations change, the findings suggest that organisations need to reconsider their focus on the specific types of controls and the approaches to using controls. For example, as the organisational environment of birth stage firms becomes more heterogeneous and competitive, with a greater emphasis placed on growth and early product diversification, the characteristics become more indicative of the growth stage. While similar to the birth stage, input and behaviour controls are applied to a greater extent than output controls, growth stage organisations tend to employ all three types of controls to a greater extent than birth stage organisations. Hence, with the pursuit of diversification and growth, growth stage organisations should consider placing greater emphasis on hiring more professional and experienced employees who are capable of broadening existing product lines, or launching new products to a new market. In addition, in the growth stage, management is less likely to observe daily operations directly, and accordingly they should consider paying more attention to specifying formal rules and procedures in order to assist employees in performing their tasks properly. They also need to consider paying more attention to monitoring and evaluating the financial performance of various divisions, to enhance the likelihood of achieving desired organisational goals.

While the interactive and diagnostic approaches are applied to a similar extent, growth stage organisations employ both approaches to a greater extent than birth stage organisations. Therefore, in order to promote innovation and generate new ideas and initiatives, growth stage organisations should consider placing greater emphasis on frequent discussions, face-to-face meetings and continual information exchange amongst the different hierarchical levels within the organisation. Further, since management have less involvement in their organisation's daily

operations, growth stage organisations need to consider focusing more on tracking progress towards goals and monitoring results in an attempt to limit undesirable behaviour by employees (Simons, 2000; Moulang, 2007).

When the organisational environment of growth stage organisations becomes more stable with a greater focus on efficiency and profitability, the characteristics are more indicative of maturity stage organisations. Maturity stage organisations tend to apply output controls to a similar extent as input and behaviour controls. This could be attributable to the high availability of desired performance criteria and information on how to perform specific tasks, which provides an appropriate context for the implementation of output controls (Eisenhardt and Bourgeois, 1988; Snell, 1992). In addition, compared to growth stage organisations, maturity stage organisations use all three types of controls to a lesser extent. Specifically, given the standardised work procedures and well-established job descriptions (Miller and Friesen, 1984) maturity stage organisations should consider focusing less on developing employees' professional and technical skills, regularly monitoring employees and evaluating employee performance based on the results achieved.

With regard to the approaches to using controls, while a similar emphasis is placed on the interactive and diagnostic approaches, both approaches are used to a less extent in the maturity stage than in the growth stage. Specifically, embedded in a relatively stable environment, maturity stage organisations should consider paying less attention to ongoing debate and discussions about the changing conditions faced by organisations. In addition, due to the high level of stability, maturity stage organisations should consider placing less emphasis on tracking progress towards goals and identifying exceptions from desired outcomes.

When the organisational environment of maturity stage organisations becomes more heterogeneous and hostile, and the emphasis shifts from productivity and efficiency to major innovation and diversification, the organisational characteristics begin to reveal a pattern consistent with those of organisations in the revival stage. As was the case in the maturity stage, the three types of controls are used to a similar extent, however revival stage organisations tend to employ all three types of controls to a greater extent than they do in the maturity stage. Accordingly, to deal effectively with potential threats and opportunities in a timely manner, revival stage organisations should consider focusing more on recruiting employees who have superior knowledge, skills and experience, and training existing employees to enhance their competency at work. In addition, since divisional managers oversee and are held responsible for the performance of their own divisions, revival stage organisations should consider relying more on procedures and policies to enable efficient organisational coordination amongst the different divisions (Merchant and Van de Stede, 2003). Further, to respond to the highly heterogeneous, competitive and dynamic environment, greater emphasis needs to be placed on the results as opposed to the means to achieve results, thereby allowing management to move their attention away from daily operations to more important strategic issues.

While revival stage organisations use the interactive and diagnostic approaches to a similar extent, the findings suggest that both approaches are employed to a greater extent than in the maturity stage. Hence, revival stage organisations should consider being more engaged in face-to-face discussion and debate and information sharing across different hierarchical levels in order to facilitate innovation (Simons, 1995). Furthermore, to better position themselves in such a dynamic and uncertain environment, revival stage organisations need to consider focusing more on strategic issues and consequently they rely more on exception reporting to monitor results and to review critical performance variables.

The study also provides an insight into the effectiveness of MCSs by identifying how the application of the types of controls and the approaches to using controls impacts on the level of EOC. The focus on EOC is important given that it has been found to contribute to improved job performance, lower employee turnover, and less resistance to change. The findings suggest that the use of input controls is significantly positively associated with the level of EOC. Accordingly, in order to enhance the level of EOC, organisations should endeavour to use input controls to a greater extent, providing necessary training to employees before the assignment of specific tasks, and offering on-going skill and career development during their employment. More importantly, such an association was also found in birth and growth stage organisations, indicating that the application of input controls is even more critical for organisations operating in these two particular OLC stages. In addition, the overall association found between the interactive approach to using controls and the level of EOC suggests the use of the interactive approach contributes to a higher level of EOC. Therefore, in order to improve employees' commitment, organisations should consider regularly involving themselves in subordinates' decision making activities, and promoting communication and information sharing across different levels in the organisational hierarchy.

6.3 Limitations and suggestions for future studies

This study has a number of limitations. First, it is subject to the usual criticisms associated with the use of the mail survey method. For example, the application of the survey method provides no opportunities for probing and also no control over who completes the survey questionnaire (Frankfort-Nachmias and Nachmias, 1996). Future studies could use alternative methods such as case studies to obtain an improved insight into changes in the types of controls and approaches to using controls as organisations develop along the OLC, and the impact on the level of EOC. This study is also potentially subject to common method bias given that the self-report data obtained on

all variables were from the same individuals, General Managers. Future studies could collect data from different sources such as lower-level managers so as to minimize the effect of common method bias. Secondly, by adopting Snell's (1992) control model, this study did not incorporate any informal controls. Accordingly, future studies could examine the association between informal controls and OLC stages, and the association between informal controls and the level of EOC. Thirdly, due to the difficulty in collecting data decline stage organisations were not examined in the study. Future studies could attempt to obtain access to decline stage organisations and examine the prevalence of both types of controls and the approaches to using controls in decline stage organisations. Fourthly, since the Cronbach alpha coefficients obtained in the factor analysis of OLC stages are considered to be relatively low, future studies could use alternative measures to classify OLC stages. Finally, future studies could examine the hypothesised associations in a different industry, or in foreign organisations operating in Australia to ascertain whether the nationality of organisations could affect the application of MCSs within and across OLC stages.

Management Control System Survey

As a token of my appreciation for your help in completing this survey, I am committed to making a donation of $5 to your charity of choice. For this purpose, could you please choose one of the following nominated charities:

The Smith Family ☐ The Cancer Council of NSW ☐

The Fred Hollows Foundation ☐ World Vision Australia ☐

The Salvation Army ☐ Australian Red Cross ☐

A General information

1. **How long** has your business unit been in operation? ☐ years

2. What is the approximate **number of employees** within your business unit? (Please treat part-time employees as fractions of full time employees). ☐ employees

3. What is **your title**? ☐ Other, please specify _____

4. **How many years** have you worked in your current position? ☐ years

B Please indicate the extent to which you agree with the following statements.

	Strongly Disagree		Neutral		Strongly Agree
I am quite proud to be able to tell people who it is I work for.	☐1	☐2	☐3	☐4	☐5
I sometimes feel like leaving this organisation for good.	☐1	☐2	☐3	☐4	☐5
I am not willing to put myself out just to help the organisation.	☐1	☐2	☐3	☐4	☐5
Even if my organisation was not doing well financially, I would be reluctant to change to another employer.	☐1	☐2	☐3	☐4	☐5
I feel that I am a part of the organisation.	☐1	☐2	☐3	☐4	☐5
In my work I like to feel I am applying some effort not just for myself but for the organisation as well.	☐1	☐2	☐3	☐4	☐5
The offer of a small increase in remuneration by another employer would not seriously make me think of changing my job.	☐1	☐2	☐3	☐4	☐5
I would not advise a close friend to join my organisation.	☐1	☐2	☐3	☐4	☐5
I am determined to make a contribution for the good of my organisation.	☐1	☐2	☐3	☐4	☐5

C **Please indicate the extent to which the following statements reflect the work environment in your business unit.**

	Not at all				To a great extent
Employees must undergo a series of evaluations before they are hired.	☐1	☐2	☐3	☐4	☐5
Employees receive substantial training before they assume new responsibilities.	☐1	☐2	☐3	☐4	☐5
Our business unit has gone to great lengths to establish staffing policies and procedures.	☐1	☐2	☐3	☐4	☐5
Employees are expected to adhere to established staffing policies and procedures.	☐1	☐2	☐3	☐4	☐5
New employees undergo orientation regarding organizational activities.	☐1	☐2	☐3	☐4	☐5
Employees are given ample opportunity to broaden their range of talents.	☐1	☐2	☐3	☐4	☐5
Our business unit provides on-going training and skill development to employees.	☐1	☐2	☐3	☐4	☐5
Employee performance is evaluated based on their on-going behaviour.	☐1	☐2	☐3	☐4	☐5
Employees are held accountable for their actions, regardless of results.	☐1	☐2	☐3	☐4	☐5
Employees are monitored to ensure that they are complying with staffing policies and procedures.	☐1	☐2	☐3	☐4	☐5
Performance evaluations place emphasis on results.	☐1	☐2	☐3	☐4	☐5
Employees are accountable for areas of responsibilities that are defined by top managers.	☐1	☐2	☐3	☐4	☐5
Subordinates assume responsibility for setting their own performance goals.	☐1	☐2	☐3	☐4	☐5
Supervisors regularly monitor the actions undertaken by employees.	☐1	☐2	☐3	☐4	☐5
There are clear and planned performance targets set for employees.	☐1	☐2	☐3	☐4	☐5
Pre-established targets are used as a benchmark for evaluations.	☐1	☐2	☐3	☐4	☐5
Regardless of what employees are like personally, their performance is judged by the results achieved.	☐1	☐2	☐3	☐4	☐5
The rewards employees receive are linked to results.	☐1	☐2	☐3	☐4	☐5
Employees who do not reach objectives receive a low performance rating.	☐1	☐2	☐3	☐4	☐5

	Not at all				To a great extent
Performance measurement systems are often used as a means of identifying strategic uncertainties.	☐1	☐2	☐3	☐4	☐5
Performance measurement systems are often used as a means of developing ongoing action plans.	☐1	☐2	☐3	☐4	☐5
Performance measurement systems are used regularly in scheduled face-to-face meetings between operational and senior managers.	☐1	☐2	☐3	☐4	☐5
There is a lot of on-going interaction between operational management and senior managers in the performance management system process.	☐1	☐2	☐3	☐4	☐5
Performance management systems generate information that forms an important and recurring agenda in discussions between operational and senior managers.	☐1	☐2	☐3	☐4	☐5
Performance management systems are used by operational and senior managers to discuss changes that are occurring within the business unit.	☐1	☐2	☐3	☐4	☐5
Performance management systems are used to track progress towards goals and monitor results.	☐1	☐2	☐3	☐4	☐5
Performance management systems are used to plan how operations are to be conducted in accordance with the strategic plan.	☐1	☐2	☐3	☐4	☐5
Performance management systems are used to review performance.	☐1	☐2	☐3	☐4	☐5
Performance management systems are used to identify significant exceptions from expectations and take appropriate actions.	☐1	☐2	☐3	☐4	☐5

D **Please indicate the extent to which the following statements reflect the work environment in your business unit.**

	Not at all				To a great extent
Our business unit:					
Has major, frequent product innovations.	☐1	☐2	☐3	☐4	☐5
Dominates our distribution channels.	☐1	☐2	☐3	☐4	☐5
Follows the lead of competitors.	☐1	☐2	☐3	☐4	☐5
Uses acquisition to diversify into unrelated lines.	☐1	☐2	☐3	☐4	☐5
Diversifies into unrelated lines by establishing our own departments or subsidiaries.	☐1	☐2	☐3	☐4	☐5

	Not at all				To a great extent
Engages in vertical integration (e.g. buying raw material sources or/and buying retail outlets).	☐1	☐2	☐3	☐4	☐5
Incurs extensive advertising and promotional expenditure.	☐1	☐2	☐3	☐4	☐5
Has small, incremental product innovations.	☐1	☐2	☐3	☐4	☐5
Is selective in respect to the introduction of new products.	☐1	☐2	☐3	☐4	☐5
Provides different product lines for different markets.	☐1	☐2	☐3	☐4	☐5
Adopts a niche strategy.	☐1	☐2	☐3	☐4	☐5
Engages in price cutting.	☐1	☐2	☐3	☐4	☐5
Charges a premium for high quality products.	☐1	☐2	☐3	☐4	☐5
The decisions and operations of our business unit are influenced by:					
(i) The board of directors	☐1	☐2	☐3	☐4	☐5
(ii) Owners/shareholders	☐1	☐2	☐3	☐4	☐5
(iii) Customers	☐1	☐2	☐3	☐4	☐5
(iv) Managers	☐1	☐2	☐3	☐4	☐5

E **Please indicate the extent to which the following characteristics are prevalent in your business unit work environment.**

	Not at all				To a great extent
Dynamism (evidenced by the unpredictability of changes in customer tastes, production technologies).	☐1	☐2	☐3	☐4	☐5
Hostility (evidenced by the intensity of competition and other external influences).	☐1	☐2	☐3	☐4	☐5
Heterogeneity (evidenced by the differences in competitive tactics, customer tastes, product lines, channels of distribution).	☐1	☐2	☐3	☐4	☐5
Participative Management.	☐1	☐2	☐3	☐4	☐5
Sophisticated Management Information Systems.	☐1	☐2	☐3	☐4	☐5
Action planning (includes formal strategic and project planning and review procedures, the use of capital budgeting techniques, market forecasting).	☐1	☐2	☐3	☐4	☐5
Scanning (involves identification of threats and opportunities in the external environment of your business unit).	☐1	☐2	☐3	☐4	☐5

	Not at all				To a great extent
Effective internal communication systems.	☐1	☐2	☐3	☐4	☐5
Centralization of strategy formulation.	☐1	☐2	☐3	☐4	☐5
Delegation of decision-making.	☐1	☐2	☐3	☐4	☐5
Technocratization (a higher proportion of highly trained staff specialists and professionally qualified people (accountants, engineers, scientists) as a percentage of the number of employees).	☐1	☐2	☐3	☐4	☐5
Resource shortages (human, physical and financial shortages).	☐1	☐2	☐3	☐4	☐5
Proactive decision-making.	☐1	☐2	☐3	☐4	☐5
Risk taking.	☐1	☐2	☐3	☐4	☐5
Extensive analysis of major decisions.	☐1	☐2	☐3	☐4	☐5
Multiplexity of decisions (consideration of a broad range of factors in making strategic decisions).	☐1	☐2	☐3	☐4	☐5
Integration of decisions (actions in one area of the firm are complementary or supportive of those in other areas (i.e. divisions, functions).	☐1	☐2	☐3	☐4	☐5
Futurity of decisions (our business unit incorporates a long-term planning horizon relative to our industry).	☐1	☐2	☐3	☐4	☐5
Consciousness of strategies (the degree of your conscious commitment to an explicit corporate strategy).	☐1	☐2	☐3	☐4	☐5
Adaptiveness of decisions (the responsiveness and appropriateness of decisions to market requirements and external environmental conditions).	☐1	☐2	☐3	☐4	☐5
Industry expertise of top managers (they are in a position to make decisions because of their excellent knowledge of internal operations and the outside environment).	☐1	☐2	☐3	☐4	☐5

Thank you for taking your time to complete the survey. Please return your completed survey in the enclosed envelope. Please also return the enclosed postcard separately in the mail. The receipt of the postcard will alert us to refrain from sending you a follow up questionnaire.

Please also make sure you identify the charity of your choice (on the front page) who will benefit from your generosity in completing this survey.

If you wish to enquire about the survey or if you need any assistance in completing the survey, please contact Sophia Su on 02 9850 8478 or email xsu@efs.mq.edu.au

References

Abernethy, M. A., Bouwens, J. and Van Lent, L. (2004), 'Determinants of control systems design in divisionalized firms', *The Accounting Review*, Vol. 79, No. 3, pp. 545-570.

Abernethy, M. A., Bouwens, J. and Van Lent, L. (2010), 'Leadership and control system design', *Management Accounting Research*, Vol. 21, No. 1, pp. 2-16.

Abernethy, M. A. and Brownell, P. (1997), 'Management control system in research and development organisations: the role of accounting, behaviour and personnel controls', *Accounting, Organizations and Society*, Vol. 22, No. 3-4, pp. 233-248.

Abernethy, M. A. and Brownell, P. (1999), 'The role of budgets in organisations facing strategic change: an exploratory study', *Accounting, Organizations and Society,* Vol. 24, No. 3, pp. 189-204.

Abernethy, M. A. and Guthrie, C. H. (1994), 'An empirical assessment of the fit between strategy and management information systems design', *Accounting and Finance*, Vol. 34, No. 2, pp. 49-66.

Abernethy, M. A. and Lillis, A. M. (2001), 'Interdependencies in control system design: a test in hospitals', *Journal of Management Accounting Research*, Vol.13, No. 1, pp. 107-129.

Abernethy, M. A., Schulz, K.-D. and Bell, S. (2007), 'Translating organisational learning orientation into performance: the role of managment control systems', *Working paper, University of Melbourne, Australia.*

Abernethy, M. A. and Stoelwinder, J. U. (1991), 'Budget use, task uncertainty, system goal orientation and subunit performance: a test of the fit hypothesis in not-for-profit hospitals', *Accounting, Organizations and Society*, Vol. 16, No. 2, pp. 105-120.

Abernethy, M. A. and Stoelwinder, J. U. (1995), 'The role of professional control in the management of complex organisations', *Accounting, Organizations and Society*, Vol. 20, No. 1, pp. 1-17.

Adizes, I. (1979), 'Organisational Passages - Diagnosing and treating lifecycle problems of organisations', *Organisational Dynamics*, Vol. 8, No. 1, pp. 3-25.

Agarwal, S., Decarlo, T. E. and Vyas, S. B. (1999), 'Leadership behaviour and organisational commitment: a comparative study of American and Indian salespersons', *Journal of International Business Studies*, Vol. 30, No. 4, pp. 727-743.

Akroyd, C. (2008), 'An analysis of the levers of control in product development: a case study', *Presented at 5th Global Management Accounting Research Symposium,* Sydney, Australia.

Amabile, T. M. (1988), 'A model of creativity and innovation in organisations', *Research in Organisational Behaviour*, Vol. 10, pp. 123-167.

Anthony, R. N. (1965), *Planning and Control Systems: Framework for Analysis,* Harvard University Press: Boston.

Anthony, R. N. and Govindarajan, V. (2001), *Management Control Sytems*, McGraw-Hill / Irwin: U.S.

Aube, C., Rousseau, V. and Morin, E. M. (2007), 'Perceived organisational support and organisational commitment', *Journal of Managerial Psychology,* Vol. 22, No. 5, pp. 479-495.

Australian Bureau of Statistics. (2009-2010) *Australian industry*, Available at: <http://www.abs.gov.au/ausstats/abs@.nsf/Products/8A66DC4E93DDF45BCA25789C0023DF8F?opendocument>. Access date: 24th March 2012.

Auzair, S. M. and Langfield-Smith, K. (2005), 'The effect of service process type, business strategy and life cycle stage on bureaucratic MCS in service organisations', *Management Accounting Research,* Vol. 16, No. 4, pp. 399-421.

Baines, A. and Langfield-Smith, K. (2003), 'Antecedents to management accounting change: a structural equation approach,' *Accounting, Organizations and Society,* Vol. 28, No. 7-8, pp. 675-698.

Baird, K., Harrison, G. L. and Reeve, R. C. (2004), 'Adoption of activity management practices: a note on the extent of adoption and the influence of organisational and cultural factors', *Management Accounting Research,* Vol. 15, No. 4, pp. 383-399.

Banker, R. D., Potter, G. and Schroeder, R. G. (1993), 'Reporting manufacturing performance measures to workers: an empirical investigation', *Journal of Management Accounting Research,* Vol. 3, No. 5, pp. 34-55.

Batac, J. and Carassus, D. (2009), 'Interactions between control and organisational learning in the case of a municipality: A comparative study with Kloot (1997)', *Management Accounting Research,* Vol. 20, No. 2, pp. 102-116.

Bateman, T. S. and Strasser, S. (1984), 'A longitudinal analysis of the antecedents of organisational commitment', *The Academy of Management Journal,* Vol. 27, No. 1, pp. 95-112.

Bayo-Moriones, J. A. and De Cerio, J. M. D. (2001), 'Size and HRM in the Spanish manufacturing industry,' *Employee Relations,* Vol. 23, No. 2, pp. 188-206.

Bisbe, J. and Otley, D. (2004), 'The effects of the interactive use of management control systems om product innovation', *Accounting, Organizations and Society,* Vol. 29, No. 8, pp. 709-737.

Bobe, B. J. and Taylor, D. W. (2010), 'Use of management control systems in university faculties: evidence of diagnostic versus interactive approaches by the upper echelons', *Working paper*, Deakin University Australia.

Bonner, J. M. (2005), 'The influence of formal controls on customer interactivity in new product development', *Industrial Marketing Management,* Vol. 34, No. 1, pp. 63-69.

Bonner, J. M., Ruekert, R. W. and Walker, O. C. (2002), 'Upper management control of new product development projects and project performance', *Journal of Product Innovaion Management,* Vol. 19, No. 3, pp. 233-245.

Brignall, S. (1997), 'Contingent rationale for cost system design in services', *Management Accounting Research*, Vol. 8, No. 3, pp. 325-346.

Brownell, P. and Dunk, A. S. (1991), 'Task uncertainty and its interaction with budgetary participation and budget emphasis; some methodological issues and empirical investigation', *Accounting, Organizations and Society*, Vol. 16, No. 8, pp. 693-703.

Bruns W. J. and Waterhouse, J. H. (1975), 'Budgetary control and organisational structure', *Journal of Accounting Research*, Vol. 13, No. 2, pp. 177-203.

Burns, T. and Stalker, G. (1961), *The management of innovation*, London: Tavistock.

Caldwell, D. F., Chatman, J. A. and O'Reilly, C. A. (1990) 'Building organisational commitment: A multifirm study', *Journal of Occupational Psychology*, Vol. 63, No. 3, pp. 245-261.

Cardinal, L. B. (2001) 'Technological innovation in the pharmaceutical industry: the use of organisational control in managing research and development', *Organisational Science*, Vol. 12, No. 1, pp. 19-36.

Cardinal, L. B., Sitkin, S. B. and Long, C. P. (2004), 'Balancing and rebalancing in the creation and evolution of organisational control', *Organisation Science*, Vol. 15, No. 4, pp. 411-431.

Carless, S. A. (2009), 'Psychological testing for selection purposes: a guide to evidence-based practice for human resource professionals', *The International Journal of Human Resource Management*, Vol. 20, No. 12, pp. 2517-2532.

Chan, S. H. (2006), 'Organisational identification and commitment of members of a human development organisation', *Journal of Management Development*, Vol. 25, No. 3, pp. 249-258.

Chandler, A. D. (1962), *Strategy and structure: Chapters in the History of the American Industrial Enterprise*, Cambridge MA: MIT Press.

Chapman, C.S. (1998), 'Accountants in organisational networks', *Accounting, Organizations and Society*, Vol.23, No. 8, pp. 737-766.

Chenhall, R. H. (1986), 'Authoritarianism and participative budgeting: a dyadic analysis', *The Accounting Review*, Vol. 61, No. 2, pp. 263-272.

Chenhall, R. H. (1997), 'Reliance on manufacturing performance measures, total quality management and organisational performance', *Management Accounting Research*, Vol. 8, No. 2, pp. 187-206.

Chenhall, R. H. (2003), 'Management control systems design within its organisational context: findings from contingency-based research and directions for the future', *Accounting, Organizations and Society*, Vol. 28, No. 2-3, pp. 127-168.

Chenhall, R. H. (2007), 'Theorising contingencies in management control systems research', *In:* Chapman, C. S., Hopwood, A. G. & Shields, M. D. (eds.) *Handbook of Management Accounting Research.* Oxford: Elsevier.

Chenhall, R. H. and Morris, D. (1986), 'The impact of structure, environment and interdependencies on the perceived usefulness of management accounting systems', *Accounting Review,* Vol. 61, No. 2, pp. 16-35.

Chenhall, R. H. and Morris, D. (1995), 'Organic decision and communication processes and management accounting systems in entrepreneurial and conservative business organisations', *Omega,* Vol. 23, No. 5, pp. 485-497.

Chia, Y. (1995), 'Decentralization, management accounting (MCS) information characteristics and their interaction efects on managerial performance: a Singapore study', *Journal of Business Finance and Accounting,* Vol. 22, No. 6, pp. 811-830.

Chong, V. K. and Chong, K. M. (2002), 'Budget goal commitment and informational effects of budget participation on performance: A structural equation modeling approach', *Behavioral Research in Accounting,* Vol. 14, pp. 65-87.

Chow, I. H. (1994), 'Organisational commitment and career development of Chinese managers in Hong Kong and Taiwan', *The International Journal of Career Management,* Vol. 6, No. 4, pp. 3-9.

Churchill, N. and Lewis, V. (1983), 'The five stages of small business growth', *Harvard Business Review,* Vol. 61, No. 3, pp. 30-50.

Ciavarella, M. A. (2001), 'Linking high involvement environments to the organisational life cycle: a descriptive and prescriptive approach', *Academy of Management Proceedings*, August, pp.1-6.

Cohen, A. (1992), 'Antecedents of organisational commitment across occupational groups: a meta-analysis', *Journal of Organisational Behaviour,* Vol. 13, No. 6, pp. 539-558.

Cook, J. and Wall, T. (1980), 'New work attitude measures of trust, organisational commitment and personal need non-fulfillment', *Journal of Occupational Psychology,* Vol. 53, No. 1, pp. 39-52.

Crawford, J. C. and Nonis, S. (1996), 'The relationship between boundary spanner's job satisfaction and the management control system', *Journal of Managerial Issues*, Vol. 8, No. 1, pp. 118-131.

Cronbach, L. J. (1951) Coefficient alpha and the internal structure of tests. *Psychometrika,* 16, 297-334.

Danish, R. Q. and Usman, A. (2010), 'Impact of reward and recognition on job satisfaction and motivation: An empirical study from Pakistan', *International Journal of Business and Management*, Vol. 5, No. 2, pp. 159-167.

Davila, T. (2000), 'An emprical study on the drivers of management control systems' design in new product development', *Accounting, Organizations and Society,* Vol. 25, No. 4-5, pp. 383-409.

Davila, T. (2005), 'An exploratory study on the emergence of management control system: formalizing human resources in small growing firms', *Accounting, Organizations and Society,* Vol. 30, No. 3, pp. 223-248.

Dewettinck, K. and Buyens, D. (2006), 'Linking behavioural control to employee outcomes: testing two explanations using motivation theories', *Academy of Management Annual Meeting Proceedings, pE 1-6.*

Dillman, D.A. (2007), *Mail and Internet Surveys: The Tailored Design Method*, John Wiley and Sons, Inc.: New York U.S.

Dixon, J. R. (1992), 'Measuring manufacturing flexibility: An empirical investigation', *European Journal of Operational Research,* Vol. 60, No. 2, pp. 131-143.

Dodge, H. R. and Robbins, J. E. (1992), 'An empirical investigation of the organisational life cycle model for small business development and survival', *Journal of Small Business Management,* Vol. 30, No. 1, pp. 27-37.

Drazin, R. and Kazanjian, R. K. (1990), 'A reanalysis of Miller and Friesen's life cycle data', *Strategic Management Journal*, Vol. 11, No. 4, pp. 319-325.

Drazin, R. and Van de Ven, A. H. (1985), 'Alternative forms of fit in contingency theory', *Administrative Science Quarterly,* Vol. 30, No. 4, pp. 514-539.

Driver, M. (2001), 'Activity-based costing: a tool for adaptive and generative organisational learning?' *The Learning Organisation,* Vol. 8, No. 3, pp. 94-105.

Edgar, F. and Geare, A. (2005), 'Employee voice on human resource management', *Asia Pacific Journal of Human Resources*, Vol. 43, No. 3, pp. 361-380.

Efferin, S. and Hopper, T. (2007), 'Management control, culture and ethnicity in a Chinese Indonesian company', *Accounting, Organizations and Society,* Vol. 32, No. 3, pp. 223-262.

Eisenhardt, K. M. (1985), 'Control: Organisational and economic approaches', *Management Science,* Vol. 31, No. 2, pp. 134-149.

Eisenhardt, K. M. and Bourgeois, L. J. (1988), 'Politics of strategic decision making in high velocity environments: Towards a mid-range theory', *Academy of Management Journal,* Vol. 31, No. 4, pp. 737-770.

Elizur, D. and Meni, K. (2001) 'Values and organisational commitment', *International Journal of Manpower,* Vol. 22, No. 7, pp. 593-599.

Euske, K. J. and Riccaboni, A. (1999), 'Stability to profitability: Managing interdependencies to meet a new environment', *Accounting, Organizations and Society,* Vol. 24, No. 5-6, pp. 463-481.

Ezzamel, M. (1990), 'The impact of environmental uncertainty, managerial autonomy and size on budget characteristics', *Management Accounting Research,* Vol. 1, No. 3, pp. 181-197.

Ferreira, A. (2002), *Management Accounting and Control System Design and Use: An Exploratory Study in Portugal.* Lancaster University.

Ferreira, A. and Otley, D. (2009), The design and use of management control systems: An extended framework for analysis. *Management Accounting Research,* Vol. 20, No. 4, pp. 263-282.

Fisher, F. (1995), 'Contingency-based research on management control systems: categorization by level of complexity', *Journal of Accounting Literature,* Vol. 14, pp. 24-53.

Flamholtz, E. G. (1990), *Growing Pains: How to make the Transition from an Entrepreneurship to a Professionally Managed Firm,* San Francisco: Jossey-Bass.

Flamholtz, E. G. (1995), 'Managing organisational transitions: Implications for corporate and human resource management', *European Management Journal,* Vol.13, No. 1, pp. 39-51.

Flamholtz, E., Das, T. and Tsui, A. (1985), 'Toward an integrative framework of organisational control', *Accounting, Organizations and Society,* Vol. 10, No. 1, pp. 35-50.

Fletcher, C. and Williams, R. (1996), 'Performance management, job satisfaction and organisational commitment', *British Journal of Management,* Vol. 7, No. 2, pp. 169-179.

Foote, D. A. and Seipel, S. J. (2005), 'Employee commitment and organisational policies', *Management Decision,* Vol. 43, No. 2, pp. 203-219.

Fornell, C. & Larcker, D. 1981. Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research,* Vol. 18, No. 1, pp. 39-50.

Foster, G. and Horngren, C. (1988), 'Flexible manufacturing systems: cost management and cost accounting implications', *Journal of Cost Management,* Fall, pp. 16-24.

Foster, G. amd Swenson, D. W. (1997), 'Measuring the success of activity-based cost management and its determinants', *Journal of Management Accounting Research,* Vol. 9, pp. 107-139.

Frankfort-Nachmias, C. and Nachmias, D. (1996), *Research Methods in the Social Sciences, 5th edition,* New York: St. Martin's Press.

Frucot, V. and Shearon, W. T. (1991), 'Budgetary participation, locus of control, and Mexican managerial performance and job satisfaction', *The Accounting Review,* Vol. 66, No. 1, pp. 80-99.

Fullerton, R. R. and McWatters, C. S. (2002), 'The role of performance measures and incentive systems in relation to the degree of JIT implementation', *Accounting, Organizations and Society,* Vol. 27, No. 8, pp. 711-735.

Galbraith, J. R. (1977) *Organisation Design,* Addison-Wesley, Reading, MA.

Galunic, D. C. and Anderson, E. (2000), 'From security to mobility: Generalised investments in human capital and agent commitment', *Organisation Science,* Vol. 11, No. 1, pp. 1-20.

Gerdin, J. (2005), 'Management accounting system design in manufacturing departments: an empirical investigation using a multiple contingencies approach', *Accounting, Organizations and Society,* Vol. 30, No. 2, pp. 99-126.

Gerdin, J. and Greve, J. (2004), 'Forms of contingency fit in management accounting research – a critical review', *Accounting, Organizations and Society,* Vol. 29, No. 3-4, pp. 303-326.

Gillespie, N. A., Walsh, M., Winefield, A. H., Dua, J. K. and Stough, C. (2001), 'Occupational stress in universities: staff perceptions of causes, consequences and moderators of stress', *Work & Stress,* Vol. 15, No. 1, pp. 53-72.

Goddard, A. (1997), 'Organisational culture and budgetary control in a UK local government organisation', *Accounting and Business Research,* Vol. 27, No. 2, pp. 111-123.

Gormley, D. K. and Kennerly, S. (2010), 'Influence of work role and perceptions of climate on faculty organisational commitment', *Journal of Professional Nursing,* Vol. 26, No. 2, pp. 108-115.

Gosselin, M. (1997), 'The effects of strategy and organisational structure on the adoption and implementation of activity-based costing', *Accounting, Organizations and Society,* Vol. 22, No. 2, pp. 105-122.

Gosselin, M. (2005), 'An empirical study of performance measurement in manufacturing firms', *International Journal of Productivity and Performance Management,* Vol. 54, No. 5-6, pp. 419-437.

Govindarajan, V. (1988), 'A contingency approach to strategy implementation at the business-unit level: integrating administrative mechanisms with strategy', *Academy of Management Journal,* Vol. 31, No. 4, pp. 828-853.

Govindarajan, V. and Fisher, J. G. (1990), 'Strategy, control systems and resource sharing: effects on business-unit performance', *Academy of Management Journal,* Vol. 33, No. 2, pp. 259-285.

Govindarajan, V. and Gupta, A. K. (1985), 'Linking control systems to business unit strategy: impact on performance', *Accounting, Organizations and Society,* Vol. 10, No. 1, pp. 51-66.

Granlund, M. and Taipaleenmaki, J. (2005), 'Management control and controllership in new economy firms - a life cycle perspective', *Management Accounting Research,* Vol. 16, No. 1, pp. 21-57.

Gray, B. (1990), 'The enactment of management control systems: A Critique of Simons', *Accounting, Organizations and Society,* Vol. 15, No. 1-2, pp. 145-148.

Greiner, L. E. (1972), 'Evolution and revolution as organisations grow', *Harvard Business Review,* Vol. 50, No. 4, pp. 37-46.

Guest, D. (1987), 'Human resource management and industrial relations', *Journal of Management Studies,* Vol. 24, No. 5, pp. 503-521.

Guilding, C. (1999), 'Competitor-focused accounting: an exploratory note', *Accounting, Organizations and Society,* Vol. 24, No. 2, pp. 583-595.

Gupta, A. K. and Govindarajan, V. (1984), 'Business unit strategy, managerial characteristics, and business unit effectiveness at strategy implementation', *Academy of Management Journal*, Vol. 27, No. 1, pp. 25-41.

Gupta, Y. P. and Chin, D. C. W. (1993), 'Strategy making and environment: an organisational life cycle perspective', *Technovation,* Vol. 13, No. 1, pp. 27-44.

Guzzo, R. A., Noonan, K. A. and Elron, E. (1994), 'Expatriate managers and the psychological contract', *Journal of Applied Psychology*, Vol. 79, No. 4, pp. 617-626.

Hanks, S. H., Watson. C. J., Jansen, E. and Chandler, G. N. (1993), 'Tightening the life-cycle construct: a taxonomic study of growth stage configurations in high-technology organisations', *Entrepreneurship Theory & Practice,* Vol. 18, No. 2, pp.5-30.

Haire, M. (1959), 'Biological models and empirical history of the growth of organisations. *In:* Haire, M. (ed.) *Modern Organisational Theory.* John Wiley & Sons: New York.

Harrison, G. L., McKinnon, J. L., Panchapakesan, S. and Leung, M. (1994), 'The influence of cutlure on organisational design and planning and control in Australia and the United States compared with Singapore and Hong Kong', *Journal of International Financial Management and Accounting,* Vol. 5, No. 3, pp. 242-261.

Henri, J. (2006a), 'Organisational culture and performance measurement systems', *Accounting, Organizations and Society,* Vol. 31, No. 1, pp. 77-103.

Henri, J. (2006b), 'Management control systems and strategy: A resource-based perspective', *Accounting, Organizations and Society,* Vol. 31, No. 6, pp. 529-558.

Henri, J. (2008), 'Taxonomy of performance measurement systems', *In:* Epstein, M. J. and Lee, J. Y. (eds.) *Advances in Management Accounting*. Emerald Group Publishing Ltd.

Hill, N. T. (2000), 'Adoption of costing systems in US hospitals: An event history analysis 1980-1990', *Journal of Accounting and Public Policy,* Vol. 19, No. 1, pp. 41-71.

Hofstede, G. (1983), 'The cultural relativity of organisational practices and theories', *Journal of International Business Studies,* Vol. 14, No. 2, pp. 75-89.

Hofstede, G. (1998), 'Attitudes, values and organisational culture: disentangling the concepts', *Organisation Studies*, Vol. 19, No. 3, pp. 477-492.

Hofstede, G. and Bond, M. H. (1988), 'The Confusius connection: from cultural roots to economic growth', *Organisational Dynamics*, Vol. 16, No. 4, pp. 5-21.

Hopwood, A. G. (1972), 'An empirical study of the role of accounting data in performance evaluation', *Journal of Accounting Research,* Vol. 10, No. 1, pp. 156-182.

Hoque, Z. and James, W. (2000), 'Linking balanced scorecard measures to size and market factors: impact on organisational performance', *Journal of Management Accounting Research,* Vol. 12, pp. 1-17.

Hoque, Z., Mia, L. and Alam, M. (2001), 'Market competition, computer-aided manufacturing and use of multiple performance measures: an empirical study', *The British Accounting Review*, Vol. 33, No. 1, pp. 23-45.

Horngren, C., Bhimani, A., Datar, S. M. and Foster, G. (2002), *Management and cost accounting*, Prentice Hall, Pearson Education Limited: Harlow.

House, R.J. (1996) 'Path-goal theory of leadership lessons, legacy, and a reformulated theory', *The Leadership Quarterly*, Vol. 7, No. 3, pp. 323-52.

Hrebiniak, L. G. and Alutto, J. A. (1972), 'Personal and role-related factors in the development of organisational commitment', *Administrative Science Quarterly*, Vol. 17, No. 4, pp. 555-573.

Imoisili, O. A. (1985), *Task complexity, budget style of evaluating performance and managerial stress: an empirical investigation.* University of Pittsburgh.

Imoisili, O. A. (1989), 'The role of budget data in the evaluation of managerial performance', *Accounting, Organizations and Society*, Vol. 14, No, 1, pp. 325-335.

Ingersoll, G. L., Kirsch, J. C., Merk, S. E. and Lightfoot, J. (2000), 'Relationship of organisational culture and readiness for change to employee commitment to the organisation', *Journal of Nursing Administration*, Vol. 30, No. 1, pp. 11-20.

Ittner, C. D. and Larcker, D. F. (1995), 'Total quality management and the choice of information and reward systems', *Journal of Accounting Research,* Vol. 33 (suppl.), pp. 1-34.

Ittner, C. D. and Larcker, D. F. (1997), 'Quality strategy, strategic control systems, and organisational performance', *Accounting, Organizations and Society*, Vol. 22, No. 3-4, pp. 295-314.

Ittner, C. D., Larcker, D. F. and Meyer, M. W. (2003), 'Subjectivity and the weighting of performance measures: Evidence of a balanced scorecard', *The Accounting Review*, Vol. 78, No. 3, pp. 725-758.

Iverson, R. D. (1996), 'Employee acceptance of organisational change: the role of organisational commitment', *The International Journal of Human Resource Management,* Vol. 7, No. 1, pp. 122-149.

Iverson, R. D. and Buttigieg, D. M. (1999), 'Affective, normative and continuance commitment: Can the "right kind" of commitment be managed', *Journal of Management Studies*, Vol. 36, No. 3, pp. 307-333.

Iverson, R. and Roy, P. (1994), 'A Causal model of behavioural commitment: Evidence from a study of Australian blue-collar employees', *Journal of Management*, Vol. 20, No. 1, pp. 15-41.

Jaeger, A. M. and Baliga, B. R. (1985), 'Control systems and strategic adaptation: lessons from the Japanese experience', *Strategic Management Journal*, Vol. 6, No. 2, pp. 115-134.

Jaramillo, F., Mulki, J. P. and Marshall, G. W. (2005), 'A meta-analysis of the relationship between organisational commitment and salesperson job performance: 25 years research', *Journal of Business Research*, Vol. 58, No. 6, pp. 705-714.

Jensen, M. C. (1998), *Foundations of Organisational Strategy*, Harvard University Press, Cambridge: Massachusetts.

Jermias, J. and Setiawan, T. (2008), 'The moderating effects of hierarchy and control systems on the relationship between budgetary participation and performance', *The International Journal of Accounting*, Vol. 43, No. 3, pp. 268-292.

Johnson, W. H. A. (2011), 'Managing university techology development using organisational control theory', *Research Policy*, Vol. 40, No. 6, pp. 842-852.

Joiner, T. A. and Bakalis, S. (2006), 'The antecedents of organisational commitment: the case of Australian casual academics', *International Journal of Educational Management*, Vol. 20, No. 6, pp.439-452.

Kalagnanam, S. S. and Lindsay, R. M. (1999), 'The use of organic models of control in JIT firms: generalizing Woodward's findings to modern manufacturing practices', *Accounting, Organizations and Society*, Vol. 24, No. 1, pp. 1-30.

Kallunki, J. P. and Silvola, H. (2008), 'The effect of organisational life cycle stage on the use of activity-based costing', *Management Accounting Research*, Vol. 19, No. 1, pp. 62-79.

Karami, A., Analoui, F. and John, C. (2004), 'Strategic human resource management and resource-based approach: The evidence from the British manufacturing industry', *Management Research News*, Vol. 27, No. 6, pp. 50-68.

Karsh, B., Boojke, C., and Sainfort, F. (2005), 'Job and organisational determinants of nursing home employee commitment, job satisfaction and intention to turnover', *Ergonomics*, Vol. 48, No. 10, pp. 1260-1281.

Kayis, B. and Kara, S. (2005), 'The supplier and customer contribution to manufacturing flexibility: Australian manufacturing industry's perspective', *Journal of Manufacturing Technology Management*, Vol. 16, No. 7, pp.733-752.

Kazanjian, R.K. (1988), 'Relation of dominant problems to stages of growth in technology-based new ventures', *Academy of Management Journal*, Vol. 31, No. 2, pp. 257-279.

Kazanjian, R. K. and Drazin, R. (1990), 'A stage-contingent model of design and growth for technology based new ventures', *Journal of Business Venturing*, Vol. 5, No. 3, pp. 137-150.

Kazlauskaite, R., Buciuniene, I., and Turauskas, L. (2006), 'Building employee commitment in the hospitality industry. *Baltic Journal of Management*, Vol. 1, No. 3, pp. 300-314.

Ketchand, A. A. and Strawser, J. R. (1998), 'The existence of multiple measures of organisational commitment and experience-related differences in a public accounting setting', *Behavioural Research in Accounting,* Vol. 10, pp. 109-137.

Ketchand, A. A. and Strawser, J. R. (2001), 'Multiple dimensions of organisational commitment: implications for future accounting research', *Behavioural Research in Accounting,* Vol. 13, pp. 221-251.

Kim, S. (2002), 'participative management and job satisfaction: Lessons for management leadership', *Public Administration Review,* Vol. 62, No. 2, pp. 231-241.

Kimberly, J. R. and Miles, R. H. (1980), *The Organisational Life Cycle*, Jossey-Bass: San Francisco.

Kloot, L. (1997), 'Organisational learning and management control systems: responding to environmental change', *Management Accounting Research,* Vol. 8, No. 1, pp. 47-73.

Kober, R. (2010), 'The emergence and utilization of management control systems in a high growth firm', *Working paper presented at Accounting & Finance Association of Australia and New Zealand.* Christchurch, New Zealand.

Kober, R., Ng, J. and Paul, B. (2003), 'Change in strategy and MCS: a match over time?', *Advances in Accounting,* Vol. 20, pp.199-232.

Kober, R., Ng, J. and Paul, B. (2007), 'The interrelationship between management control mechanism and strategy', *Management Accounting Research,* Vol. 18, No. 4, pp. 425-452.

Kompass Australia (2010), *Peter Isaacson Publications*, Victoria, Australia.

Lam, T. and Zhang, H. Q. (2003), 'Job satisfaction and organisational commitment in the Hong Kong fast food industry', *International Journal of Contemporary Hospitality Management,* Vol. 15, No. 4, pp. 214-220.

Lambooij, M., Flache, A., Sanders, K. and Siegers, J. (2007), 'Encouraging employees to co-operate: the effects of sponsored training and promotion practices on employees' willingness to work overtime', *International Journal of Human Resource Management,* Vol. 18, No. 10, pp. 1748-1767.

Landry, S. P., Wood, L. M. and Lindquist, T. M. (1997), 'Can ABC bring mixed results?', *Management Accounting,* Vol. 78, No. 9, pp. 28-33.

Langfield-Smith, K. (1997), 'Management control systems and strategy: a critical review', *Accounting, Organizations and Society,* Vol. 22, No. 2, pp. 207-232.

Langfield-Smith, K. (2007), 'A Review of quantitative research in management control systems and strategy', *In:* Chapman, C. S., Hopwood, A. G. and Shiled, M. D. (eds.) *Handbook of Management Accounting Research.* Oxford: Elsevier.

Lau, C. and Woodman, R. C. (1995), 'Understanding organisational change: a schematic perspective', *Academy of Management Journal,* Vol. 38, No. 2, pp. 537-554.

Lautizi, M., Heather, Laschinger, H. K. S. and Ravazzolo, S. (2009), 'Workplace empowerment, job satisfaction and job stress among Italian mental health nurses: an exploratory study', *Journal of Nursing Management,* Vol. 17, No. 4, pp. 336-452.

Leach-Lopez M. A., Stammerjohan, W. W., and Tigsby Jr, J. T. (2008), 'An update on budgetary participation, locus of control, and the effects on Mexican managerial performance and job satisfaction', *The Journal of Applied Business Research*, Vol. 24, No. 3, pp. 121-133.

Lee, C. L. and Yang, H. J. (2011), 'Organisation structure, competition and performance measurement systems and their joint effects on performance. *Management Accounting Research,* Vol. 22, No. 2, pp. 84-104.

Lee, H. L. and Whang, S. J. (2005), 'Higher supply chain security with lower cost: Lessons from total quality management', *International Journal of Production Economics,* Vol. 96, No. 3, pp. 289-300.

Lester, D. L., Parnell, J. A. and Carraher, S. (2003), 'Organisational life cycle: a five-stage empirical scale', *The international Journal of Organisational Analysis,* Vol. 11, No. 4, pp.339-354.

Libby, T. and Waterhouse, J. H. (1996), 'Predicting change in management accounting systems', *Journal of Management Accounting Research,* Vol. 8, pp. 137-150.

Lillis, A. M. and Van Veen-Dirks, P. M. G. (2008), 'Performance measurement system design in joint strategy settings', *Journal of Management Accounting Research,* Vol. 20, pp. 25-57.

Lippitt, G. L. and Schmidt, W. H. (1967), 'Crises in a developing organisation', *Harward Business Review*, Vol. 45, No. 6, pp. 102-112.

Lockwood, N. R. (2007), 'Employee engagement for competitive advantage: HR's strategic role: strategic human resource', *Management Research Quarterly*, Vol. 1, pp. 1-12.

Lok, P. and Crawford, J. (2004), 'The effect of organisational culture and leadership style on job satisfaction and organisational commitment A cross-national comparison', *Journal of Management Development*, Vol. 23, No. 4, pp. 321-338.

Lok, P. and Crawford, J. (2001), 'Antecedents of organisational commitment and the mediating role of job satisfaction', *Journal of Managerial Psychology,* Vol. 16, No. 8, pp. 594-613.

Lok, P. and Crawford, J. (1999), 'The relationship between commitment and organisational culture, subculture, leadership style and job satisfaction in organisational change and development', *Leadership & Organisation Development Journal,* Vol. 20, No. 7, pp. 365-373.

Macintosh, N. B. (1994) *Management Accounting and Control Systems,* Wiley: New York.

Mackenzie, S. B., Podsakoff, M. and Aheame, M. (1998), 'Some possible antecedents and consequences of in-role and extra-role salesperson performance', *Journal of Marketing,* Vol. 62, No. 3, pp. 87-98.

Maiga, A. S. and Jacobs, F. A. (2005), 'Antecedents and consequences of quality performance', *Behavioral Research in Accounting,* Vol. 17, pp. 111-131.

Makhija, M. V. and Ganesh, U. (1997), 'The relationship between control and partner learning in learning-related joint ventures', *Organisation Science,* Vol. 8, No. 5, pp. 508-527.

Mallak, L. A. and Kurstedt, H. A. (1996), 'Using culture gap analysis to manage organisational change', *Engineering Management Journal,* Vol. 8, No. 2, pp. 35-41.

Malmi, T. and Brown, D. A. (2008), 'Management control systems as a package - Opportunities, challenges and research directions', *Management Accounting Research,* Vol. 19, No. 4, pp. 287-300.

Manufacturing Industry Brief (2008-2009), *Department of Innovation Industry, Science and Research.* Available at: http://www.innovation.gov.au/Section/Industry/Documents/DIISR_manuf_rpt_web_version.pdf. Access date: 11th Oct. 2011.

Mathieu, J. E. and Zajac, D. M. (1990), 'A review and meta-analysis of the antecedents, correlates, and consequences of organisational commitment', *Psychological Bulletin,* Vol. 108, No. 2, pp. 171-194.

McKinnon, J. L., Harrison, G. L., Chow, C. W. and Wu, A. (2003), 'Organisational culture: association with commitment, job satisfaction, propensity to remain, and information sharing in Taiwan', *International Journal of Business Studies,* Vol. 11, No. 1, pp. 25-44.

Merchant, K. (1990), 'The effects of financial controls on data manipulation and management myopia', *Accounting, Organizations and Society,* Vol. 15, No. 4, pp. 297-313.

Merchant, K. A. (1981), 'The design of the corporate budgeting system: influences on managerial behaviour and performance', *The Accounting Review,* Vol. 56, No. 4, pp. 813-829.

Merchant, K. A. (1984), 'Influences on departmental budgeting: an empirical examination of a contingency model', *Accounting, Organizations and Society,* Vol.9, No. 3-4, pp.291-307.

Merchant, K. A. (1998), *Modern management control systems*. Prentice-Hall, Upper Saddle River: NJ.

Merchant, K., Chow, C. W. and Wu, A. (1995), 'Measurement evaluation and reward of profit centre managers: a cross sectional field study', *Accounting, Organizations and Society,* Vol. 20, No. 7-8, pp. 619-638.

Merchant, K. A. and Otley, D. T. (2007), 'A review of the literature on control and accountability', *In:* Chapman, C. S., Hopwood, A. G. and Shield, M. D. (eds.) *Handbook of Management Accounting Research.* Oxford: Elsevier.

Merchant, K. A. and Van der Stede, W. A. (2003), *Management Control Systems: Performance Measurement, Evaluation and Incentives*, Prentice-Hall: London, U.K.

Merchant, K. A. and Van Der Stede, W. A. (2007), *Management Control Systems* , 2nd ed. Prentice Hall, Pearson Education Limited: Harlow, Essex, England.

Metcalfe, B. and Dick, G. (2001), 'Exploring organisation commitment in the police: Implications for human resource strategy', *An International Journal of Police Strategies & Management*, Vol. 24, No. 3, pp. 399-419.

Metcalfe, B. and Dick, G. (2002), 'Is the force still with her? Gender and commitment in the police', *Women in Management Review,* Vol. 17, No. 8, pp. 392-403.

Meyer, J. P. (1997), 'Organisational Commitment', *International Review of Industrial and Organisational Psychology*, Vol. 12, pp. 175-228.

Meyer, J. P. and Allen, N. J. (1987), 'Organisational commitment: Toward a three-component model', *Research Bulletin, 660. Department of Psychology, The University of Western Ontario, London*.

Meyer, J. P. and Allen, N. J. (1997), *Commitment in the workplace: theory, research and application,* Sage: Thousand Oaks CA.

Meyer, J. P., Allen, N. J. and Gellatly, I. R. (1990), 'Affective and continuance commitment to the organisation: evaluation of measures and analysis of concurrent and time-lagged relations', *Journal of Applied Psychology*, Vol. 75, No. 6, pp. 710-720.

Meyer, J. P. and Smith, C. A. (2000), 'HRM practices and organisational commitment: Test of a mediation model', *Canadian Journal of Administrative Sciences,* Vol. 17, No. 4, pp. 319-331.

Mia, L. (2000), 'Just-in-time manufacturing, management accounting systems and profitability', *Accounting and Business Research,* Vol.30, No. 2, pp.137-151.

Mia, L. and Clarke, B. (1999), 'Market competition, management accounting systems and business unit performance', *Management Accounting Research,* Vol. 10, No. 2, pp. 137-158.

Miles, R. W. and Snow, C. C. (1978), *Organisational strategy, structure and process,* McGraw Hill: New York.

Miller, D. and Friesen, P. H. (1982), 'Innovation in conservative and entrepreneurial firms: two models of strategic momentum', *Strategic Management Journal,* Vol. 3, No. 1, pp.1-25.

Miller, D. and Friesen, P. H. (1984), 'A longitudinal study of the corporate life cycle', *Management Science,* Vol. 30, No. 10, pp. 1161-1183.

Mintzberg, H. (1989), *Minzberg on Management*. The Free Press: New York.

Mital, A., Desai, A., Subramanian, A. and Mital, A. (2008), *Product development: a structured approach to consumer product*. Elsevier Inc., Oxford: U.K.

Moores, K. and Sharma, D. (1998), 'The influence of environmental uncertainty on performance evaluation style and managerial performance', *Accountability and Performance,* Vol. 4, No. 2, pp. 1-16.

Moores, K. and Yuen, S. (2001), 'Management accounting systems and organisational configuration: a life-cycle perspective', *Accounting and Business Research,* Vol. 26, No. 4-5, pp. 351-389.

Morris, T., Lydka, H. and O'Creevy, M. F. (1993), 'Can commitment be managed? A longitudinal analysis of employee commitment and human resource policies', *Human Resource Management Journal*, Vol. 3, No. 3, pp. 21-42.

Morrow, M. and Connolly, T. (1994), 'Practical problems of implementing ABC', *Accountancy*, Vol. 5, No. 3, pp. 76-80.

Moulang, C. (2007), 'Does "style of use" of performance measurement systems impact on individual creativity? An empirical analysis', Working paper, Monash University Australia.

Mowday, R. T., Porter, L. W. and Steers, R. M. (1982), *Employee-organisational linkages: the psychology of commitment, absenteeism, and turnover,* Academic Press: New York.

Naranjo-Gil, D. and Hartmann, F. (2007), 'Management accounting systems, top management team heterogeneity and strategic change', *Accounting, Organizations and Society*, Vol. 32, No. 7-8, pp. 735-756.

O'Conner, N. (1995), 'The influence of organisational culture on the usefulness of budget participation by Singaporean-Chinese managers', *Accounting, Organizations and Society,* Vol. 20, No. 5, pp. 383-403.

Oliver, R. L. and Anderson, E. (1994), 'An empirical test of the consequences of behaviour and outcome-based sales control systems', *Journal of Marketing*, Vol. 58, No. 4, pp. 53-67.

Oppenheim A. N. (1992) *Questionnaire Design, Interviewing and Attitude Measurement*. Pinter: London.

O'Reilly, C. (1989), 'Corporations, culture, and commitment: Motivation and social control in organisations', *California Management Review,* Vol. 31, Summer, pp. 9-25.

O'Reilly, C. A. and Chatman, J. A. (1996), 'Culture as social control: Corporations, cults, and commitment', *Research In Organisational Behavior,* Vol. 18, pp. 157-200.

O'Reilly, C. A., Chatman, J. A. and Caldwell, D. F. (1991), 'People and Organisational Culture: A Profile Comparison Approach to Assessing Person-Organisation Fit', *Academy of Management Journal*, Vol. 34, No. 3, pp. 487-516.

Otley, D. (1978), 'Budget use and managerial performance', *Journal of Accounting Research,* Vol. 16, No. 1, pp. 122-149.

Otley, D. T. and Berry, A. (1994), 'Case study research in management accounting and control', *Management Accounting Research,* Vol. 5, No. 1, pp. 45-65.

Ouchi, W. G. (1977), 'The relationship between organisational structure and organisational control', *Administrative Science Quarterly*, Vol. 22, pp. 95-113.

Ouchi, W. G. (1978), 'The transmission of control through organisational hierarchy', *Administrative Science Quarterly,* Vol. 21, No. 2, pp.173-192.

Ouchi, W. G. (1980), 'Markets, bureaucracies, and clans', *Administrative Science Quarterly,* Vol. 25, No. 1, pp. 129-141.

Perrow, C. (1986), *Complex Organisations*. Random House: New York, U.S.

Phoenix, T. (2006), 'Benefits Compensation', *International Foundation of Employee Benefit Plans,* Vol. 43, No. 9, pp. 11-14.

Porter, L. W., Steers, R. M., Mowdat, R. T. and Boulian, P. V. (1974), 'Organisational commitment, job satisfaction, and turnover among psychiatric technicians', *Journal of Applied Psychology,* Vol. 59, No. 5, pp. 603-609.

Porter, M. (1980), *Competitive Strategy,* The Free Press: New York.

Quinn, R. E. and Cameron, K. (1983), 'Organisational life cycles and criteria of effectiveness', *Management Science,* Vol. 29, No. 1, pp. 33-51.

Ramaswami, S. N. (1996), 'Marketing controls and dysfunctional employee behaviours: a test of traditional and contingency theory postulates', *Journal of Marketing,* Vol. 60, No. 2, pp. 105-120.

Ramos, M. and Hidalgo, F. G. (2003), 'From diagnostic to interactive style of management control', *Management Research News,* Vol. 26, No. 5, pp. 21-31.

Rayton, B. A. (2006), 'Examining the interconnection of job satisfaction and organisational commitment: an application of the bivariate probit model', *International Journal of Human Resource Management,* Vol. 17, No. 1, pp. 139-154.

Richman, A. L., Civian, J. T., Shannon, L. L., Hill, E. J. and Brennan, R. T. (2008), 'The relationship of perceived flexibility, supportive work-life policies, and use of formal flexible arrangements and occasional flexibility to employee engagement and expected retention. Community', *Work & Family*, Vol. 11, No. 2, pp. 183-197.

Riketta, M. (2002), 'Attitudinal organisational commitment and job performance: a meta-analysis', *Journal of Organisational Behaviour,* Vol.23, No. 3, pp. 257-266.

Rockness, H. O. and Shields, M. D. (1984), 'Organisational control systems in research and development', *Accounting, Organizations and Society*, Vol. 9, No. 2, pp. 165-177.

Rodwell, J. J., Kienzle, R. and Shadur, M. A. (1998), 'The relationship among work-related perceptions, employee attitudes and employee performance: the integral role of communication', *Human Resource Management,* Vol. 37, No. 3-4, pp. 277-293.

Russell, R. H. (1996), 'Providing access: the difference between sharing and just reporting corporate information', *Information Strategy: The executive's journal,* Vol.12, No. 2, pp. 28-33.

Sahoo, C. K. and Das, S. (2011), 'Employee empowerment: A strategy towards workplace commitment', *European Journal of Business and Management*, Vol. 3, No. 11, pp. 46-54.

Samson, D. and Daft, R. L. (2005), *Management,* Thomson: Sydney.

Sandelin, M. (2008), 'Operation of management control practices as a package - A case study on control system variety in a growth firm context', *Management Accounting Research,* Vol. 19, No. 4, pp. 324-343.

Sandino, T. (2007), 'Introducing the first management control systems: Evidence from the retail sector', *The Accounting Review,* Vol. 82, No. 1, pp. 265-293.

Scott, T. W. and Tiessen, P. (1999), 'Performance measurement and managerial teams', *Accounting, Organizations and Society,* Vol. 24, No. 3, pp.263-285.

Scupin, R. (1998), *Cultural anthropology: A global prespective,* Upper Saddle River, Prentice Hall: New Jersey.

Shields, M. D., Deng, F. J. and Yutaka, K. (2000), 'The design and effects of control systems: tests of direct- and indirect-effects models', *Accounting, Organizations and Society,* Vol. 25, No. 2, pp. 185-202.

Shields, J. and Shields, M. (1998), 'Antecedents of participative budgeting', *Accounting, Organisations and Society,* Vol. 23, No. 1, pp. 49-76.

Shore, L.M. and Tetrick, L.E. (1991), 'A construct validity study of the survey of perceived organisational support', *Journal of Applied Psychology,* Vol. 76, No. 5, pp. 637-643.

Silvola, H. (2008), 'Do organisational life cycle and venture capital investors affect the management control systems used by the firm?', *Advances in Accounting,* Vol. 24, No. 1, pp. 128-138.

Simons, R. (1987a), 'Accounting control systems and business strategy: an empirical analysis', *Accounting, Organizations and Society,* Vol. 12, No. 4, pp. 357-374.

Simons, R. (1987b), 'Planning, control, and uncertainty: a process view', *In:* Burns, W. J. and Kaplan, R. S. (eds.) *Accounting and Management: Field Study Perspectives.* Boston: Harvard Business School Press.

Simons, R. (1990), 'The role of management control systems in creating competitive advantage: new perspectives', *Accounting, Organizations and Society,* Vol. 15, No. 1-2, pp. 127-143.

Simons, R. (1991), 'Strategic orientation and top management attention to control systems', *Strategic Management Journal,* Vol. 12, No. 1, pp. 49-62.

Simons, R. (1994), 'How new top managers use control systems as levers of strategic renewal', *Strategic Management Journal,* Vol. 15, No. 3, pp. 169-189.

Simons, R. (1995), *Levers of control: how managers use innovative control systems to drive strategic renewal,* Harward Business School Press: Boston, Massachusetts.

Simons, R. (2000), *Performance measurement & control systems for implementing strategy,* Prentice Hall: Upper Saddle River, New Jersey.

Singleton, R. A. and Straits, B. C. (2005), *Approaches to Social Research,* Oxford University Press: New York.

Sivakumar, K. and Nakata, C. (2001), 'The stampede toward Hofstede's framework: Avoiding the sample design pit in ross-cultural research', *Journal of International Business Studies,* Vol. 32, No. 3, pp. 555-574.

Smeenk, S. G. A., Eisinga, R. N., Teelken, J. C. and Doorewaard, J. A. C. M. (2006), 'The effects of HRM practices and antecedents on organisational commitment among university employees', *International Journal of Human Resource Management,* Vol. 17, No. 2, pp. 2035-2054.

Smith, K. G., Mitchell, T. R. and Summer, C. E. (1985), 'Top level management priorities in different stages of the organisational life cycle', *Academy of Management Journal,* Vol. 28, No. 4, pp. 799-820.

Snell, S. A. (1992), 'Control theory in strategic human resource management: the mediating effect of administrative information', *Academy of Management Journal,* Vol. 35, No. 2, pp. 292-327.

Snell, S. A. and Dean, J. (1994), 'Strategic compensation for integrated manufacturing: the moderating effects of jobs and organisational inertia', *Academy of Management Journal,* Vol. 37, No. 5, pp. 1109-1140.

Snell, S. A. and Youndt, M. A. (1995), 'Human resource management and firm performance: Testing a contingency model of executive controls', *Journal of Management,* Vol. 21, No. 4, pp. 711-737.

Sproles, G. B. and Kendall, E. L. (1986), 'A methodology for profiling consumers' decision-making styles', *Journal of Consumer Affairs,* Vol. 20, No. 2, pp. 267-279.

Stallworth, L. (2004), 'Antecedents and consequences of organisational commitment to accounting organisations', *Managerial Auditing Journal,* Vol. 19, No. 7, pp. 945-955.

Steers, R. M. (1977), 'Antecedents and outcomes of organisational commitment', *Administrative Science Quarterly,* Vol. 22, No. 1, pp. 46-56.

Su, S., Baird, K. and Blair, B. (2009), 'Employee organisational commitment: the influence of cultural and organisational factors in the Australian manufacturing industry', *The International Journal of Human Resource Management,* Vol. 20, No. 12, pp. 2494-2516.

Taormina, R. J. (1999), 'Predicting employee commitment and satisfaction: the relative effects of socialization and demographics', *International Journal of Human Resource Management,* Vol. 10, No. 6, pp. 1060-1076.

Tekavcic, M., Peljhan, D. and Sevic, Z. (2008), 'Levers of control: Analysis of management control systems in a Slovenian company', *Journal of Applied Business Research,* Vol. 24, No. 4, pp. 96-104.

Thompson, J. D. (1967), *Organisations in Action,* McGraw-Hill: New York, U.S.

Tseng, L. Y. and Lee, T. S. (2011), 'Can high-tech companies enhance employee task performance through organisational commitment*?*', *International Journal of Business Administration*, Vol. 2, No. 2, pp. 94-113.

Tsui, A. S., Pearce, J. L., Porter, L. W. and Tripoli, A. M. (1997), 'Alternative approaches to the employee-organisation relationship: Does investment in employees pay off?', *Academy of Management Journal*, Vol. 40, No. 5, pp. 1089-1121.

Tuomela, T. S. (2005), 'The interplay of different levers of control: a case study of introducing a new performance measurement system', *Management Accounting Research,* Vol. 16, No. 3, pp. 293-320.

Ueno, S. and Wu, A. (1993), 'The comparative influence of culture on budget control practices in the United States and Japan', *International Journal of Accounting,* Vol. 28, pp. 659-674.

Vakola, M. and Nikolaou, I. (2005), 'Attitudes towards organisational change: what is the role of employees' stress and commitment?', *Employee Relations*, Vol. 27, pp. 160-174.

Van de Ven, W. A. (2000), 'The relationship between two consequences of budgetary controls: budgetary slack creation and managerial short-term orientation', *Accounting, Organisations and Society,* Vol. 25, No. 6, pp. 609-622.

Varona, F. (1996), 'Relationship between communication satisfaction and organisational commitment in three Guatemalan organisations', *The Journal of Business Communication,* Vol. 33, No. 2, pp. 111-140.

Wallace, J. E. (1995), 'Corporatist control and organisational commitment among professionals: the case of lawyers working in law firms', *Social Forces,* Vol. 73, No. 3, pp. 811-840.

Walsh, J. P. and Seward, J. K. (1990), 'On the efficiency of internal and external corporate control mechanisms', *Academy of Management Review,* Vol. 15, No. 3, pp. 412-458.

Whitley, R. (1999), 'Firms, institutions and management control: the comparative analysis of coordination and control systems', *Accounting, Organizations and Society*, Vol. 24, No. 5-6, pp. 507-524.

Wiener, Y. (1982), 'Commitment in organisations: a normative view', *Academy of Management Review,* Vol. 7, No. 3, pp. 418-428.

Widener, S. K. (2007), 'An empirical analysis of the levers of control framework', *Accounting, Organizations and Society*, Vol. 32, No. 7-8, pp. 757-788.

Wilkes, F. M., Samuels, J. M. and Creenfield, S. M. (1996), 'Investment decision making in UK manufacturing industry,' *Management Decision,* Vol. 34, No. 4, pp. 62-71.

Yousef, D. A. (2000), Organisational commitment and job satisfaction as predictors of attitudes toward organisational change in a non-western setting. *Personnel Review*, Vol. 29, No. 5, pp. 567-592.

Zeffane, R. (1995), 'Organisational commitment and perceived management styles: The Public-Private Sector Contrast', *Management Research News*, Vol. 18, No. 6-7, pp. 9-20.