

Studying MCS package design through managers' incremental control choices

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Abstract

Aware of the dangers of studying control elements in isolation, many management control systems (MCS) researchers try to explain and observe of the design of packages of control in aggregate, using various approaches to capture the 'complete' picture of management control. However such approaches are challenging to conceptualise, conduct and communicate. In this paper we offer an alternative entry point to studying the design of MCS packages, by recognising that they will be the result of choices made by individual managers, who, we propose, design incremental control solutions to mitigate and manage the perceived potential for control problems. Not only is this relation – between a perceived control problem potential and an incremental control solution – relatively simple to observe; it also provides the starting point for a series of useful questions, which if pursued by future research, may complement existing approaches to studying the design of MCS packages in organisations.

Keywords: Management control system packages, design, control problems, control solutions, incremental managerial choices, residual risk

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1. Introduction

For over thirty years, accounting researchers have recognised the need to study management control systems (MCS) as a 'package' (Abernethy & Chua 1996; Daft & Macintosh 1984; Dent 1990; Fisher 1995; Otley & Berry 1980). This recognition is based on an awareness that if inter-related controls are examined in isolation of each other, then studies risk producing partial, inconsistent, piecemeal or spurious results (Fisher 1995 Chenhall 2003 Flamholtz, Das & Tsui 1985; Malmi & Brown 2008 Abernethy & Brownell 1997). In response, there has been considerable effort to study organisations' MCS holistically, whereby researchers have used various strategies to develop comprehensive inventories of controls and to explain how control elements relate to one another, to their organisational contexts and to organisational outcomes. However, while the intent to capture a 'complete' picture of management control is an admirable, if not ambitious objective, it also presents several challenges in conceptualising, conducting and communicating MCS research. The objective of this paper is to explore whether an alternative approach to studying MCS packages is possible; one that still considers the multiplicity and interactivity of management controls, but without the onus of studying them in their entirety.

Our starting point is entertaining the notion is that in their pursuit of completeness, package researchers may have been too hasty in disregarding the value of studying individual elements or smaller subsets of controls (Grabner & Moers 2013). After all, MCS packages will consist of different control elements, developed by different people, at different times, with different purposes in mind (Ferreira & Otley 2009; Otley 2016; Tessier & Otley 2012). Therefore, it

seems feasible, even meaningful, to study MCS packages through the control choices made by individual managers, provided that we are precise about the process how choices are made; the substantive nature of what those choices are; and, of course, how individual choices aggregate to form an overall package of control.

In this paper, we propose of some initial conceptualisations addressing these issues, based on some practical assumptions about the decision scenarios faced by individual managers' at the micro-level of organisations (Granlund & Lukka 1998). For example, given the multiplicity of people who can influence the design of an organisation's MCS, as well as managers' own cognitive constraints, it is unlikely that all control choices will occur simultaneously at a single, discrete point in time (Brown, Malmi & Booth 2015; Fisher 1995; Malmi & Brown 2008; Otley 2016; Simon 1957). Rather control patterns will emerge incrementally in a process of 'ongoing elaboration' (Hopwood 1987). In addition, we characterise managers' control choices as an activity of problem-solving, whereby they design control solutions to mitigate and manage the perceived potential for control problems. As a consequence, individual choices aggregate across an organisation as multiple managers attend to common or alternative control problems; furthermore, control choices aggregate through time, as each successive incremental control solution influences managers' future perceptions of the potential for control problems.

By proposing this incremental micro-level view of MCS packages, we respond to Otley's (2016) call for new ways of investigating MCS packages. In prioritising the study of individual managers' choices we offer future research a pragmatic way to adopt a 'package approach' without the necessity of capturing a 'complete' picture of management control. Perhaps more significantly, we do not see studying managers' own micro-level accounts as contradictory to existing holistic approaches. Instead we suggest that it opens a series of useful questions - about

the types and origins of managers' perceptions of potential control problems; the nature and reasons for selecting control solutions; and, how these choices and perceptions may change over time - which may complement and ideally extend macro-level theories and approaches to studying the design of MCS packages in organisations.

The remainder of the paper is organised as follows. In Section 2 we provide an overview of prevailing MCS packages approaches by reviewing the reasons why it is necessary to study MCS as a package and the strategies researchers have used to address these concerns. Most of these approaches are designed to capture a holistic, aggregate picture of organisations' management control, which in itself presents several challenges in conceptualising, conducting and communicating MCS research. Therefore, in Section 3, we present an alternative approach built from the simple, intuitive idea that MCS packages comprise of many elements designed through a series of incremental choices made by multiple managers over time. In Section 4, we then elaborate the empirical and conceptual opportunities to build on and complement existing conceptual approaches to explaining MCS in organisations. Finally, the paper concludes in Section 5.

2. Existing approaches to studying MCS packages: trying to capture the complete picture

A MCS package can be conceived of as the array of mechanisms, devices, practices and systems which ensure employees make decisions and behave in ways that contribute to the achievement of an organisation's goals (Abernethy & Chua 1996; Flamholtz 1983; Flamholtz, Das & Tsui 1985; Malmi & Brown 2008; Otley & Berry 1980). Packages are characterised, rather obviously, by the presence of multiple control elements, such as types of planning, measurement,

administrative, socio-ideological or reward-based controls (Malmi & Brown 2008).¹ However, more than that, the elements within a package are connected through various inter-relationships. Some controls may exist completely independently; others may act as substitutes for each other; and others may be mutually reinforcing, designed to be ‘internally consistent’ by operating together to achieve similar ends (Abernethy & Chua 1996; Chenhall & Moers 2015; Grabner & Moers 2013; Davila 2005; Otley 2016). These interrelationships (or lack thereof) are significant insofar as they help describe the architecture and operation of an MCS package, and consequently explain in what circumstances it may be used and with what effects (Bedford & Malmi 2015; Malmi & Brown 2008).

2.1 Why study MCS as a package?

Many scholars, having recognised the existence of MCS packages in organisations, have been critical of ‘reductionist’ approaches that study controls in isolation from one another (Fisher 1995; Grabner & Moers 2013; Malmi & Brown 2008; Otley 1980). They raise several different concerns which form the foundation of advocacy for ‘package’ approaches to studying MCS.

At a very basic level, there is a need to accurately portray how managers’ enact control in organisations. If managers use multiple MCS, then a package approach is obviously necessary in to develop faithful accounts of management control (Abernethy & Brownell 1997; Anderson et al. 2014; Fisher 1995). It also serves as a risk management strategy that protects researchers from the danger of wrongfully assuming, *a priori*, which mechanisms will be important in a particular setting. Given the variety of control options at managers’ disposal, it would seem prudent to investigate a comprehensive range of MCS to mitigate the risk of overlooking mechanisms

¹ This is just one way of conceptualising the different types of MCS. Other well-known frameworks include those of Ferreira and Otley (2009); Flamholtz (1996); Merchant and Van der Stede (2012); Ouchi (1977, 1979, 1980); Simons (1995).

central to managers' efforts to control. This also allows researchers to remain open to the discovery of unique, novel or otherwise unexpected control practices (Ahrens & Chapman 2004). For example, researchers have contributed to streams concerning the management control of innovation (Davila 2000; Jørgensen & Messner 2010) or social enterprises (Chenhall, Hall & Smith 2010) by showing the role of more 'programmed' MCS, which beforehand had been considered of little benefit in those types of settings. Furthermore, a reductionist approach potentially limits our understanding of how controls operate to the pre-defined categories within MCS frameworks (Davila 2005).² Managers may use MCS together in systematic subsystems (Brown, Malmi & Booth 2015; Macintosh & Daft 1987), patterns (Van der Meer-Kooistra & Vosselman 2000) or configurations (Bedford & Malmi 2015; Bedford & Sandelin 2015); this is only revealed by observing how multiple mechanisms operate simultaneously.

Ignoring the existence and nature of relationships between controls also undermines our understanding of why MCS are used. For example, within a contingency perspective, a failure to recognise inter-dependent operation of two or more control elements could lead to erroneous conclusions about the association between controls and organizational contextual factors (Chenhall 2003; Fisher 1995). More so, the existence of certain MCS may influence the selection of others (Davila 2005). For example, certain controls are chosen to ensure the overall package has 'internal consistence' (Abernethy & Chua 1996; Grabner & Moers 2013; Johansson & Siverbo 2011). Alternatively two or more control elements may be chosen to create dynamic tension or to balance one another (Mundy 2010; Simons 1995). Also, there may be pertinent

² An excellent counter example is the case by Alvesson and Karreman (2004) who show the complex interrelationship in the operation of socio- and technocratic forms control; so much so that bureaucratic and output elements (e.g. performance measurement, incentives, hierarchical structures) could be considered hidden sources of socio-ideological control. As the authors argue, this questions "common ideas on the existence of pure and alternative forms of control and the assumption that technocratic and socio-ideological controls are mutually exclusive and function in different organizations and situations" (Alvesson & Karreman 2004, p.442).

reasons why an organisation would opt for a more loosely coordinated package of controls; separate systems may be required to attend to conflicting objectives or control problems (Dekker 2004; Mundy 2010); or to manage activities over different time frames or organisational levels.

Overlooking interrelationships may also cause researchers to make ill-informed judgements about the effectiveness of MCS. Some control elements share complementarities, meaning that the level of their 'performance' is dependent upon their simultaneous operation (Grabner & Moers 2013 Milgrom & Roberts 1995). Likewise, as managers may use MCS combinations to achieve certain objectives, it would seem more appropriate to evaluate and compare the effectiveness of combinations or sub-systems rather than single control elements. In addition, it is only by studying a range of mechanisms across multiple settings that we can understand if managers use the different MCS (or MCS combinations) to achieve the same outcomes, i.e. to observe substitute (Abernethy & Chua 1996; Dent 1990; Fisher 1995 or equifinal relations (Flamholtz, Das & Tsui 1985; Gerdin 2005; Sandelin 2008).

Finally, the types of outcomes from different MCS are not necessarily homogenous; rather MCS produce a wide range of effects (Luft & Shields 2003). As each MCS may play a disproportionate role in influencing different outcomes, a package approach would appear necessary to unpick the complex web of relations attributing each MCS with their own effect.

2.2 Holistic approaches to studying MCS packages

In charactering what it means to adopt a 'package approach', it would appear that studying multiple control elements would be a necessary but insufficient condition. Although providing a comprehensive 'inventory' of MCS reduces the risk of omitting an important control element, package approaches also involve some consideration of how controls may be interrelated

(Nelson & Machin 1976). Within existing literature, researchers who have adopted this ‘package thinking’ mindset, have by and large, aimed to study MCS holistically. This is evident in how they have prioritised a concern for ‘completeness’ in their conceptual and empirical strategies.

Conceptually, holism is reflected in the development of MCS typologies (e.g. Malmi & Brown 2008; Merchant & Van der Stede 2012; Simons 1995) or what Caglio and Ditillo (2008, p. 866) describe as “exhaustive taxonomies of comprehensive patterns different kinds of controls”. The aim of these frameworks is to account for, describe, categorise all the possible types of MCS found in an organisation. Studies typically select, apply and if necessary extend these frameworks; and are pressed to provide suitable justification for partial applications of these frameworks (Chenhall & Moers 2015).

Empirically, package researchers typically have observed MCS through case studies or cross-sectional surveys.³ Case studies, which most often focus on a single organisational setting, observe MCS mechanisms through the collection of data from interviews with managers, internal documents, observation, which are analysed by developing rich accounts of the operation of MCS within their particular organisational context. These include, for example, in-depth single case studies that show the detail of how controls interact and influence behaviour (e.g. Alvesson & Karreman 2004 Chenhall, Hall & Smith 2010); longitudinal case studies showing how packages develop and evolve over time (e.g. Abernethy & Chua 1996; Sandelin 2008) or more explanatory comparative case that reveal patterns of about MCS within and between organisational sites (e.g. Sutton & Brown 2016). Survey researchers have developed sophisticated instruments to gather responses from a large cross-section of organisations. These

³ A third empirical strategy that is being more widely adopted is cross-sectional field studies, where researchers collect a combination of qualitative and quantitative information from managers across a sample of organisations (e.g. Phua, Abernethy & Lillis 2011)

responses have been analysed using factor analysis and regression (e.g. Auzair & Langfield-Smith 2005; Chenhall, Kallunki & Silvola 2011); although more recently researchers have used a variety of configurational methods (Gerdin & Greve 2004). These include cluster analysis, to understand characteristics of groups of organisations (e.g. Auzair 2015; Bedford & Malmi 2015; Johansson & Siverbo 2011); profile deviation analysis (PDA), that compare pre-defined ideal types with configurations in practice and identify performance implications of that deviation (e.g. Bedford & Malmi 2015); and qualitative comparative analysis (QCA) (e.g. Bedford & Sandelin 2015) that compares multiple cases and considers the interaction between control practices and outcomes.

2.3 Challenges in capturing the 'complete' picture'

As valuable as these contributions have been in providing comprehensive accounts and explanations of MCS combinations, taking a holistic package approach presents a range of difficulties to researchers which make these types of studies considerably challenging to conceptualise, conduct and communicate.

In the conceptual stages, researchers are confronted with the need to justify their selection of what MCS elements they will study, and which to omit (Chenhall & Moers 2015). As Bedford and Malmi (2015) argue the extensiveness of MCS mechanisms makes construct selection difficult, whereby researchers, without a clear sense of which items should be prioritised, need to balance parsimony with comprehensiveness in terms of the categories of control they study.

The data collection required to capture the entirety of an organisation's MCS package also quite daunting. It is often quite time consuming, although it is also often difficult to predict ex ante exactly how much empirical observation will be required to gain a complete picture of the

control configuration. This means that researchers often need to develop long, detailed survey instruments, or spend significant periods in the field until they reach ‘saturation’ (Eisenhardt 1989). This may also affect potential research sites, reducing their willingness to respond or participate in a study. There are also concerns about how to gain insight into an organisation’s entire control package: it is unlikely that a single respondent or interviewee will have knowledge of all the components, their relations and their effects (Malmi & Brown 2008). Furthermore, because of the presence of legacy or redundant systems, researchers need to find ways to disentangle the existence of MCS from their actual use.

In their analysis, researchers need to find ways to transform and classify the mechanisms and relations that exist in practice into more abstract constructs from the MCS literature. There are difficulties in then inferring relations between the MCS combinations and their context, and also the effects of different combinations (Bedford & Malmi 2015; Bedford & Sandelin 2015; Gerdin & Greve 2004). Also, given the mass of empirical material package studies typically encompass, researchers face a formidable the challenge of striking a balance in specificity or accuracy in their analysis with broader relevance of explanation (Chapman 1997).

Finally, package studies are notoriously difficult to communicate, particularly within the bounds of academic journal articles (Malmi & Brown 2008). Perhaps the most significant communication challenge is being able to describe the detail of the observed packages, yet at the same time, move beyond ‘mere description’, and also provide explanations and worthy theoretical contributions. Furthermore, as researchers are using more novel techniques, there is an added requirement to describe, explain and justify their methods to both reviewers and readers, as credible approaches (e.g. Bedford & Sandelin 2015).

3. An alternative approach to studying MCS packages: the role of managers' design choices

Given these challenges, one wonders if there is an alternative way to study MCS packages that still considers the multiplicity and interactivity of controls, but without the onus to study them in their entirety. We propose that such an approach is possible by acknowledging, rather simply, that our challenges in studying MCS packages likely parallel managers' difficulties in designing them. Therefore, in this section we develop an alternative research strategy inspired by individual managers' own design control choices (Flamholtz, Das & Tsui 1985; Grabner & Moers 2013), which presumably, when aggregated, comprise an organisation's MCS package.⁴ There are three interrelated considerations shaping our initial conceptualisation of these micro-level design choices: first, the process by which control choices are made; second, their substantive nature; and third, how individual control choices aggregate to form an organisation's MCS package.

3.1 The process of MCS choices: incremental

If we acknowledge that organisation' control packages is made up of different combinations of control elements, some of which will be intentionally and tightly coupled, some less coordinated or operating completely independently of one another, how can we describe the processes by

⁴ Our approach is not dissimilar to that proposed by Grabner and Moers (2013), who advocate for studying the micro-level - at the level of 'systems' rather than 'packages' - in order to understand the relations between management control 'practices'. They propose an analytical model explicating an individual manager's decision scenario in selecting interdependent practices. Our approach, described further in this section, differs in at least three respects. First, is the centrality of manager's perception of control problems (section 3.2); although Grabner and Moers (2013) identify control problems as a consideration in empirical analysis, it is not quite clear how this relates to their formal models. Second, we have an incremental view of control choices; whereas Grabner and Moers (2013) focus on non-sequential complementarities, i.e. where practices have bi-directional performance effects and choices to be made at one point of time by a single decision maker. Third, rather than developing predictive model managers' decision scenarios, we instead give primacy to a managers own accounts. An interesting area for future research is to examine the degree to which it is possible to bridge accounts with formal models. We will return to this issue in section 4.

which these configurations, combinations or packages are designed? Much existing MCS literature builds from assumptions from contingency theory; this posits that control structures remain static until such a point that they become so misaligned with organisational contingencies as to warrant a wholesale change to the archetype to achieve fit once more (Donaldson 2001). However, this depiction of periodic, punctuated adaptations sits at odds with our broader understanding of management accounting change (Nixon & Burns 2005). Furthermore, it seems problematic if we acknowledge that managers may lack the necessary cognitive and organisational capacities to design and implement entire MCS configurations at a single point in time (Brown, Malmi & Booth 2015; Fisher 1995; Malmi & Brown 2008; Otley 2016; Simon 1957).

Delving a little deeper, MCS packages are unlikely to emerge at a singular, holistic, discrete point in time, because of inherent cognitive bounds to managers' decision making (Simon 1957). Although they may have 'feasible foresight' and intention to act rationally, by their inherent nature, human beings cannot know or predict all future contingencies; thus, managers are "intendedly rational, but only limitedly so" (Simon 1957, p. xxiv). By assuming 'bounded rationality', we recognise managers do not have infinite resources to search for all possible alternatives (ranging from a single control element to a theoretically infinite combination of controls); to evaluate how each design alternative may interact with the organizational context; to anticipate the consequences of all possible control combinations, particularly those involving complex inter-relationships between control elements. These cognitive bounds introduce limits to the complexity of a design decision made by any single individual, necessitating them to make subsequent or supplementary choices at a future point in time.

In addition, unless an organisation is small or highly centralised, there is rarely a single omniscient designer; instead, there are many. Various control elements are developed by different people, at different times, with different purposes in mind (Ferreira & Otley 2009; Otley 2016).⁵ They are dispersed throughout the organisation, operating in different subunits, at different hierarchical levels, adapting ‘global’ systems and creating local MCS (Granlund & Lukka 1998). The implication of this multiplicity of organisational members with discretion over MCS design is that no one person has the agency to make wholesale changes to an organisation’s entire configuration of control (Grabner & Moers 2013; Otley 2016).

Therefore, an individual manager’s design choices will be incremental, in the sense that cognitive and organisational constraints will compromise their ability to make singular, once-off, holistic ‘package’ designs; instead, managers will make a series design choices over time, each building on the next.

3.2 The nature of MCS choices: problem-solving

Our second consideration concerns how to describe the substantive nature of managers’ control choices. Obviously this requires some level of abstraction, as it is impossible to describe the nuance of the multitude of control choices made by managers in organisations. Nonetheless, one possibility is to view the design of MCS through the lens of ‘control problems’ and ‘control solutions’. This conceptual approach has several advantages which lend it to studying MCS packages; however, some adaptation is required to translate it to the level of an individual manager’s control choices.

⁵ With increased size, complexity, functional specialisation, and external turbulence there is a need for decentralisation of decision rights over operational activities to lower-level managers; similarly, it seems necessary to decentralise the rights to adapt organisational control elements.

‘Control problems’ and ‘control solutions’ are the two central constructs of a conceptual approach used by researchers to predict associations between context-specific imperatives for control and their respective control responses (Caglio & Ditillo 2008; Vosselman & Meer-Kooistra 2009; Vosselman 2012). In this view, a control problem describes the reasons for “why observed control patterns or control structures exist” (Vosselman 2012, p.5); some need for MCS, which if unmet would presumably result in negative consequences for the organisation. Correspondingly, a control solution reflects the combination of various control elements, such as systems, structures and devices that form ‘stable responses’ to address a given control problem (Anderson & Dekker 2010; Caglio & Ditillo 2008; Vosselman & Meer-Kooistra 2009; Vosselman 2012). Owing to its rationalist, instrumental origins (Vosselman & Meer-Kooistra 2009), researchers tend to expect some sort of alignment, either in the long term or on average, between control problems, which vary in their severity, and the types or intensity of control solutions, which vary in their relative cost (Johansson & Siverbo 2011).

There are two appealing aspects of framing manager’s control choices through the lens of control problems and solution. First is the flexibility of the notion of ‘control solutions’, which accommodates some of the concerns of package advocate. In their seminal review, Caglio and Ditillo (2008) conceive of ‘control solutions’ at varying levels of analysis and breadths of scope, ranging from single cost accounting techniques; various MCS; to entire control patterns or archetypes. Control solutions can thus comprise of multiple control elements, and also that it can describe managerial responses at different organisational levels. Furthermore, by focusing our attention on the central imperatives for control, researchers are challenged to consider how managers may use different control elements in combination to address the same underlying control problem (Brown, Malmi & Booth 2015; Caglio & Ditillo 2008; Dekker 2004; Flamholtz

1983; Flamholtz, Das & Tsui 1985; Grabner & Moers 2013; Malmi & Brown 2008; Otley 1980).⁶ The second appealing aspect of this approach is its intuitive ‘problem-solving’ logic, which, through the notion of ‘control problems’, elucidate practical concerns that drive MCS choices.⁷ Control problem-based explanations include, for example, a manager’s desire to motivate behaviour, to coordinate activity or to provide information necessary for decision-making (Flamholtz 1996; Merchant & Van der Stede 2012 Brown, Malmi & Booth 2015 Mundy 2010); these appear to resonate with our attempt to describe individual managerial control choices.

However, as it stands, the logic and constructs of control problems and solutions have predominantly been used to explain management control at macro-levels, such as the general propensity of certain control patterns observed across a population of organisational sites. In order to frame our description of individual managers’ control choices at the micro-level *within* organisations, several conceptual modifications may be warranted.

The first, relatively minor modification relates to expected scope of the control solution.

Although some, such as Vosselman (2012), argue that alignment between control problems and solutions is achieved by the deliberate, rational decision making of a central human actor, in light of the multitude of managers and the constraints on their choices (see Section 3.1), it seems necessary to temper this assumption. Also, this implies that all control solutions embody high levels of intentionality and agency on the part of managers, (i.e. none are created by more

⁶ This does not imply that more typical contingency-based approach prevents the study the multiple or even inter-dependent control elements (Grabner & Moers 2013); however, there has been a tendency for researchers using contingency approaches to study control elements in isolation from one another (Chenhall 2003; Dent 1990; Fisher 1995; Malmi & Brown 2008; Otley 1980; Otley 2016).

⁷ We can trace this view of MCS design as problem-solving as early as the work of Ansari (1977, p. 101), who prioritised the perspective and concerns of the designer, and described the existence of ‘design problems’ that were “generic and common to all echelons of an organization”.

passive, regulatory or accidental means), and also that control problems are only ‘solved’ through the actions and responses of management (i.e. latent structures or systems play no part in addressing control concerns). As a consequence, we suggest it is more useful to focus on their ‘incremental control solutions’.

The second, more major modification concerns our use of the notion of a ‘control problem’. Although at a macro-level there may be cross-sectional associations between control problems and solutions, it is unlikely that the ‘control problem’ itself will trigger managers’ control responses. For one, ‘objective’, exogenous control problems might simply not be that obvious. They will be less salient, at least temporarily, whenever managers have achieved some degree of resolution. Furthermore, managers are not simply reactive, myopic or passive agents, waiting for control problems to arise; rather, contingent on their experience and foresight, they can anticipate potential control problems and design control solutions in advance (Neumann 2010)⁸. That is, whilst some management controls are ‘reactive’, others can be ‘proactive’, where “the controls are designed to prevent problems before the organization suffers any adverse effects on performance” (Merchant & Van der Stede 2012, pp. 5-6).⁹ Thus, if we assume managers can be proactive, then control solutions will not necessarily be triggered by a realised ‘clear’ control problem or lower performance (cf. Donaldson 2001).¹⁰ Instead, we propose that control choices

⁸ This assumption of ‘foreseeable foresight’ is important: without it we would not expect managers to anticipate hazards nor to develop mitigating control responses in the first place (Williamson 1996).

⁹ Naturally, we expect there will be variation in managers’ awareness of control risks, with more astute managers proactively mitigating anticipated control problems, whilst others ignore or overlook control risks even as they become realised as dysfunctional effects for the organisation. We will return to this issue in Section 4.

¹⁰ This proactive view of differs from the traditional contingency perspective, which posits that change only will occur once negative performance effects have been realised. For example, Donaldson (2001, p.15) states: “...organizations fail to make needed adaptive change until their performance has deteriorated substantially, so that there is a clear problem to be solved...As long as the organization maintains a level of performance that is at or above the satisficing level...managerial decision making is not engaged”.

will be prompted by managers' perceptions of the potential for control problems (Dekker 2008; Nicholson, Jones & Espenlaub 2006).

3.3 Pulling it all together: the incremental control choices that form MCS packages

Pulling these insights together, we propose that it is possible to study the design of elements within a control package by examining managers individual control choices, specifically the choice of an incremental control solution in response to a perceived potential control problem. We propose that these choices, when aggregated, form the organisation's MCS package. Further, we suggest that aggregation may occur in at least three ways.

First, control choices will aggregate when managers respond to alternative control problems. Existing research reveals that different types of control problems tend to be associated with alternative management controls (Dekker 2004; Gulati & Singh 1998). This fits with the general notion that it is difficult for a single control configuration to satisfactorily attend to the need to ensure goal congruent behaviour and whilst simultaneously providing sufficient information to mitigate uncertainty and aide decision making (Brown, Malmi & Booth 2015; Davila 2000). Therefore MCS packages will comprise of different controls, or combinations of controls that managers have chosen to address alternative control problems (Brown, Malmi & Booth 2015; Grabner & Moers 2013).

Second, control choices will aggregate through the choices made by multiple managers across an organisation. Different managers, at different hierarchical levels, in different organisational units, responding to common or separate potential control problems will each make incremental control solutions that together comprise the organisation's entire package of control (Ferreira & Otley

2009). In this sense, the organisation's MCS package will represent the sum result of all the control choices made up to a given point in time (Boland Jr, Sharma & Afonso 2008).

The third, and perhaps most significant way control choices will aggregate is through time. At the level of an individual manager, the implementation of an incremental control solution may shape their future perceptions of control problem potential; thus, through time, a manager attending to the same underlying control problem, will 'trial and error' different control elements, building different combinations to address the potential for that control problem. This temporal effect is reflected in Boland Jr, Sharma and Afonso (2008, p. 901), who argue that:

*"...Our ideas about what the system is, how it came to be, what its missions are, how its cultures operate, why its routines are the way they are, its current situation and trajectory, etc., are all ways in which the history of the decomposed firm is manifest to us at a given moment in time. Designing its management control system takes place within this understanding, and while not always perfect, **that pre-understanding of the system is part of the problem space for the logic of its management control design...**" (emphasis added)*

To put it another way, unless a manager is in a rare situation where they encounter a truly emerging control problem, (e.g. in early phases of a start-up), then their perceptions of its potential will be shaped by, amongst other things, their consideration the adequacy of pre-existing controls and structures (Malmi & Brown 2008; Otley 2016; Grabner & Moers 2013; Sandino 2007; Sutton & Brown 2016).

Significantly, these three different ways choices aggregate are not mutually exclusive, but rather likely co-exist to create a complex web of interrelationships between control choices. For example, pre-existing control structures may be the result of a manager's own prior decisions, but also other managers' choices. Unless each control system designer operates in a completely

demarcated domain (e.g. in a standalone subunit that operates in isolation), control decisions made by one manager influence, impinge or shape the control choices of others (Strauss, Nevries & Weber 2013). Furthermore, pre-existing control structures may not necessarily have been designed to address a manager's focal control concern, but may still otherwise influence their perception of it occurring. Clearly control choices do not necessarily have to be fully coordinated for them to still be inter-related.¹¹ These choices will inter-relate as each adjustment or addition to controls will influence a manager's own future control choices, and also the control choices made by other organisational members.

4. Implications of studying incremental control choices

Studying the relation between a perceived control problem potential and an incremental control solution offers future researchers of MCS packages some pragmatic empirical advantages compared to the more holistic approaches. However, an incremental approach is not necessarily contradictory to prevailing research; rather, taking this micro-level view may open some useful conceptual questions, that if pursued, could not only be informed by current constructs, but potentially complement and extend our existing macro-level conceptualisations of the design of MCS packages.

4.1 Empirical advantages of focusing on incremental control choices

From an empirical design perspective, a natural starting point for future research would be simply to study the individual control choices made by managers. This would entail directly observing the changes managers make to control arrangements, and collecting their accounts for

¹¹ This is crucial, as to view individual control choices as independent from one another would imply a return to reductionist approach, and thus invite the concerns raised in Section 2.1.

why they made such choices. Empirical material could be collected through open-ended survey instruments or better yet, by conducting first-hand interviews with individual managers.

In addition, researchers should ideally incorporate some longitudinal element into their research designs. This is important not only to be able to establish some degree of cause and effect between a perceived problem and response, but also to be able to observe and capture the incremental change in control arrangements. One approach might be to identify a recent adjustment to MCS and ask managers to retrospectively explain their rationality for why this occurred. A perhaps even stronger approach would be to first gather managers' perceptions about a given control scenario, observe how they respond, and then follow-up to ask about how they perceive the effect of the incremental control change. These temporal lags between perceptions and choice need not be long; in fact they likely would be quite brief, as the intent of this approach is to study the accumulation of many small-scale changes made to control configurations, rather than larger, long-term configuration-level patterns over the long term.

This incremental approach has several pragmatic advantages. Perhaps most obviously, the focal relation - between a manager's perception of potential control problem and an incremental control solution - is relatively simple for researchers to access. Also, as the unit of analysis is a choice made by an individual, it is completely appropriate for researchers to gather data from single respondents, which alleviates the imposition of more complex or lengthy data collection processes. In addition, reducing the scope of analysis is likely to make communication of the design and results easier.

4.2 Opening up some useful conceptual questions

The central challenge of an incremental approach will likely be in the latter analysis and extrapolation phases of projects. Researchers will need to find ways to be able to relate or abstract from managerial accounts to MCS constructs and explanations. We explore some of the possibilities of how they might approach this by exploring a series of further research questions.

4.2.1 What are the types of perceived control problems?

Dating back to Anthony (1952), researchers have been using the term ‘control problem’ to explicate reasons for why control systems are selected, designed and used within organisations; however, closer examination of the literature reveals that it is hardly settled in its definition or usage.¹² By surveying managers in different hierarchical levels and organisational settings about their reasons for making adjustments to control we can gain further clarity about the nature of control problems, and extend the way we use them in our theorising about MCS.

An area requiring clarification, for instance, is the types and classification of control problems. Many researchers, for example, refer to ‘the control problem’ of MCS as the general need to influence organizational actors to behave in ways which contribute to the achievement of an organization’s goal (e.g. Anthony 1965; Czarniawska-Joerges 1988; Flamholtz, Das & Tsui 1985; Malmi & Brown 2008; Otley 1994). Some have broken this down further to ascribe control systems more distinct organisational roles; whilst there is obvious overlap in these categorisations there is still variation.¹³ Whilst the somewhat illusive notion of ‘control problem’

¹² There is also slippage in the exact wording used, with researchers also describing ‘control concerns’, ‘control considerations’, ‘design problems’ or ‘control hazards’

¹³ For example, Flamholtz (1996) decomposes the control problem into four ‘functions of control’: to motivate people to make goal congruent decisions and actions; to coordinate the efforts of different organisational subunits; to provide performance information; and to implement planning and strategy. In comparison, Merchant and Van der Stede (2012), first delineate between control problem avoidance strategies (e.g. outsourcing, centralisation, automation) that limit the exposure to behavioural problems, before then decomposing the control problem of behavioural alignment into three types: lack of proper direction, lack of motivation, and personal limitations. Most

has been used with more consistency in the specific domain of inter-firm MCS (e.g. Caglio & Ditillo 2008; Dekker 2004, 2008; Gulati & Singh 1998; Håkansson & Lind 2006; Johansson & Siverbo 2011; Neumann 2010; Nicholson, Jones & Espenlaub 2006; Vosselman 2012)¹⁴, there are still idiosyncrasies in how the types are categorised.¹⁵

Both intra- and inter-firm MCS streams of research could benefit from efforts to collect and analyse managers' own accounts about why they make certain design choices. From these accounts we can infer their imperatives for incremental changes in MCS, and relate these rationales to our existing categories, which could be clarified and extended. In addition, existing categories have been limited to rather functionalist, efficiency-seeking reasons for MCS design; there remains scope to expand the subset of commonly studied control problems to consider other imperatives not yet captured by these frameworks.

Researchers could also explore and clarify, through discussions with managers in practice, what other dimensions may be useful, besides their substantive type, in categorising control problems. That is, what dimensions may be meaningful in explaining variation in managers' decision making about control. For example, problems may also differ in terms of their timing, i.e. when they occur, or their relative scope, ranging from a problem that is endemic across the

recently Brown, Malmi and Booth (2015) propose a five-way categorisation: lack of direction, unwanted actions, ensuring effort, personal limitations and lack of appropriate information.

¹⁴ This may have been made feasible by the frequent use of a common theoretical lens (i.e. transaction cost economics), but also perhaps because the inter-firm setting forces researchers to consider how and why controls are used when the conventional imperatives of ensuring internal employees' behaviour cannot be so easily assumed (Hopwood 1996).

¹⁵ Most studies use Das and Teng's distinction between 'relational risk' and 'performance risk' in strategic alliances (Das & Teng 1996, 1998, 2001), to conceive of at least two types of control problems: the imperative to align the interests of autonomous partners who may otherwise behave opportunistically; and the need to ensure effective execution of activities occurring across organizational boundaries (Caglio & Ditillo 2008; Dekker 2004; Gulati & Singh 1998). However, once again there is some variation in the precise categorisation of inter-firm control problem types. Whereas both Caglio & Ditillo (2008) and Van der Meer-Kooistra & Vosselman (2006) propose a three-way split of inter-organizational control problems into coordination, appropriation and cooperation, others simply distinguish coordination from appropriation or opportunism issues (Dekker 2004; Speklé 2001; Vosselman 2012).

organisation to problem that is more idiosyncratic to a specific set of activities (Neumann 2010; Sutton & Brown 2016).

4.2.2 What affects managers' perceptions of perceived risk of control problems

Having established the broad range of control problem types, researchers could then examine whether there are systematic influences on how managers' perceive the potential for these to occur. The value of pursuing this line of enquiry would be to work backwards from managers' accounts, to compare these influences to our existing conceptions of control problems, specifically the notion of residual risk (Anderson et al. 2014; Anderson, Dekker & Van den Abbeele 2016; Ding, Dekker & Groot 2013), and potentially to the broader set of contextual factors researchers have tried to link to MCS design (Chenhall 2003; Luft & Shields 2003).

Existing conceptions of control problems are often based on the assumption that the severity of a given control problem varies with the parameters of certain antecedent factors (Caglio & Ditillo 2008; Dekker 2004). For example, in the inter-firm setting, researchers propose that the risk of partner opportunism (cooperation or appropriation control problems) is higher in the context of high asset specificity, uncertainty, dependence or lower competition (Dekker 2004, 2008; Johansson & Siverbo 2011; Speklé 2001); or that coordination control problems are more severe for activities that are more complex and have higher task interdependence (Dekker 2004, 2008). Researchers also recognise that this combination of contextual factors tend to describe some latent level of 'ex ante' risk, which is then conditioned by pre-existing control systems or structural characteristics to create 'residual risk' (Anderson & Dekker 2005; Anderson, Dekker & Van den Abbeele 2016; Dekker 2008; Johansson & Siverbo 2011). These studies typically measure for residual risk using the error term of two-stage regression models, that represents the

deviation from a predicted ‘efficient’ control choice, given the parameters of certain antecedent variables (i.e. given the ‘ex ante risk’ of the control problem). However, there is a danger that managers’ perceive the potential of control problems in a different way from researchers’ predictive models. For example, in order to predict an ‘efficient’ control choice researchers rely on relative cross-sectional survey data about antecedent factors and control elements; it seems questionable whether managers have access to this relative data (collected across multiple organisations), let alone compute residual risk in a similar fashion to researchers. Most recently, a study by Anderson, Dekker and Van den Abbeele (2016) surveyed managers perceptions of risk in strategic alliances, finding that while managers perception of risk correlated with their residual estimation, it was not perfect, indicating that these two variables are distinct.¹⁶

Careful analysis of managerial accounts for making certain MCS choices, coupled with systematic examination of the context of those accounts (e.g. the presence of certain organisational characteristics, the existence of other MCS), could provide a way to interrogate and extend our models of ex ante and residual risk. Working backwards, researchers could unpick the influences managers’ perceptions, and compare these to the components of theoretical models. In addition, by examining cross-sectional and temporal variation in managerial accounts, researchers may also be able to explore the role of other factors, such as expertise or change in organisational performance, in modifying their awareness of the potential for control problems.

4.2.3 How can we characterise incremental control solutions?

¹⁶ In addition, they showed that managers perceptions appeared to correlate more strongly with the residual estimation than simply the contextual factors alone (i.e. with ‘residual risk’ rather than ‘ex ante risk’), providing some support for the notion that pre-existing control structures and systems shape managers’ perceptions of the potential for control problems (Anderson, Dekker & Van den Abbeele 2016).

As discussed earlier, control solutions have been conceived at different levels of analysis (Caglio & Ditillo 2008), from entire structural archetypes or patterns of control (e.g. Speklé 2001; Van der Meer-Kooistra & Vosselman 2000), various combinations of individual MCS (e.g. Dekker 2004; Neumann 2010), to specific contractual elements (e.g. Anderson & Dekker 2005; Ding, Dekker & Groot 2013). However, what still remains to be explored is how we might characterise incremental control solutions.

If managers choose to adopt a new control element or combination of elements then our existing frameworks of MCS, which describe types of mechanisms will likely be sufficient.¹⁷ However, managers' responses may also involve modifications or extensions to pre-existing MCS; dismantling of dysfunctional MCS; or the use of 'control avoidance' strategies (Merchant & Van der Stede 2012). If this is the case, it would seem we may need more extensive and systematic ways of describing these other sorts of control solutions (Davila 2005). In addition, researchers could also explore the degree to which managers consciously build control solutions to be interrelated with existing systems.

4.2.4 How systematic are managers' selection of control solutions to perceived control problems?

With sufficient observations across a wide range of settings, researchers could then start to examine the robustness of the central relation itself, by investigating how systematic the association managers control choices are in response to perceived control problems. This particular question lends itself to large scale survey questionnaires; however, once patterns of association (or lack thereof) have been observed, there remains scope to use follow-up interviews

¹⁷ Although as discussed in Section 2.1 researchers should remain open to the discover of new or unexpected modes of control.

to explain these results. In particular, one area they could focus on would be to explain the lack of systematic associations. Such cases may be rich sites to explore the role of heterogeneity in managers' cognition and rationalities. Alternatively, interviews may reveal that while managers share similar views about their desired control response, they may differ in their organisational agency.

4.2.5 How does a manager's perception of risk change over time?

In Section 3.3 we proposed that implementation of incremental control solutions subsequently modify managers' perception of the potential control problems, which in turn shapes future decisions about the design of additional control elements. Future researchers could explore the degree to which this is actually the case, and then whether there are systematic patterns in how perceptions changes.

For example, this incremental building of control elements within an organisation, raises a question as to what end? Do managers, for example, add different control elements with the aim of continually reducing the risk control problems over time? An efficiency-seeking logic would posit that they would continue this process until all possible control options have been exhausted and all that remains is some minimal residual control loss (Sutton & Brown 2016)¹⁸. A series of control system choices may also end if managers make a trade-off decision regarding the 'cost of control', when the cost of perceived control problem becomes less than the expected additional cost of implementing another control element (Anderson, Dekker & Van den Abbeele 2016).

A particularly rich site for exploring changes in managers' perceptions over time may be the control choices in early-stage organisations (Davila 2005; Davila, Foster & Li 2009). In these

¹⁸ This is akin to the 'residual loss' in agency theory (Jensen & Meckling 1976).

types of organisations, not only may there be fewer managers making control choices simultaneously, but also the influence of pre-existing control solutions on managers' perceptions of the potential for control problems is likely to be diminished, at least initially. Therefore these may provide 'cleaner' empirical opportunities to observe the types and sources of perceived control problems, separate from the confounding effects control solutions (Sandino 2007). Thus one might expect managers' initial perceptions to be closer to models of 'ex ante risk'. In addition, by tracking managers' choices over time, researchers can observe the degree to which perceptions of control problem potential are influenced by incremental control choices, and whether their perceptions become more closely associated with models of 'residual risk'.

5. Conclusion

In this paper we have proposed an alternative strategy to study MCS packages that centres on the incremental control choices made by individual managers, who design control solutions to mitigate and manage the perceived potential for control problems. Furthermore, we propose that the aggregation of these choices, across different managers and also through time, forms the basis of an organisation's MCS package.

This strategy responds to Otley's (2016) call for new ways of investigating MCS packages, by providing an alternative way for conceiving the design of MCS that accommodates the existence of multiple control elements, without presuming a singular holistic design. Instead, the design of controls can be depicted as an emergent ongoing process, where managers anticipate likely control risks and experiment with combinations of control elements. As we have elaborated, this more incremental approach potentially opens opportunities for future research to examine MCS combinations through the patterns of short-term micro-level choices, which may not only be

readily accessible but also meaningful in understanding the package-level patterns we observe at the macro-level in the long-term.

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