

Copyright © and Moral Rights for this thesis and, where applicable, any accompanying data are retained by the author and/or other copyright owners. A copy can be downloaded for personal non-commercial research or study, without prior permission or charge. This thesis and the accompanying data cannot be reproduced or quoted extensively from without first obtaining permission in writing from the copyright holder/s. The content of the thesis and accompanying research data (where applicable) must not be changed in any way or sold commercially in any format or medium without the formal permission of the copyright holder/s.

When referring to this thesis and any accompanying data, full bibliographic details must be given, e.g.

Thesis: Yaobo Wang (2014) "The Combination of Management Control Practices", University of Southampton, Southampton Business School, PhD Thesis, pp 1-196.

**University of Southampton**

Faculty of Social Sciences

Department of Accounting

Business Studies and Management

**The Combination of Management Control Practices**

By

**Yaobo Wang**

**ORCID: 0009-0002-4339-6423**

Thesis for the degree of Doctor of Philosophy

05 June 2024 Word count: 59230

## Table of Contents

Abstract.....	11
Chapter 1 Introduction .....	12
1.1 Research Background .....	12
1.2 Research Motivations.....	14
1.3 Objectives and Research Questions .....	15
1.4 Methodology .....	16
1.5 Overview of Three Papers.....	18
1.5.1 Paper 1: A Systematic Literature Review of MC Combination .....	19
1.5.2 Paper 2: Complexity of MC Combination .....	19
1.5.3 Paper 3: Dynamic of MC combination .....	20
1.5.4 The Link of Three Papers.....	21
1.6 Overarching Contribution .....	21
1.7 Structure of the Thesis .....	22
Chapter 2: The Combination of MC practices: A Systematic Literature Review .....	22
2.1 Introduction.....	22
2.2 Methodology .....	26
2.2.1 Planning and Identifying the Necessity .....	26
2.2.2 Identification of Studies .....	27
2.2.3 Selection of Studies.....	28
2.3 Descriptive Analysis and Synthesis of Reviewed Literature .....	29
2.4 The Insight on MC Configuration Research .....	43
2.4.1 The Conceptualization of MC Configuration .....	43
2.4.2 The Synergised Findings of MC Configuration Research .....	48
2.4.3 Research methods in MC Configuration Studies.....	52
2.5 The Insights of Research on Inter-relationship among MC Practices.....	54
2.5.1 Insights on Interdependence .....	57

2.5.2 System vs Package Debate.....	59
2.5.3 Tension .....	63
2.5.4 Antecedents and Outcomes .....	65
2.6 Control problems .....	72
2.7 Conclusion .....	74
Chapter 3: The Combination of MC Practices: A Case Study .....	75
3.1. Introduction.....	75
3.2. Literature Review and Theory .....	77
3.2.1. MC Combination and Complexity.....	77
3.2.2. Concept and Extension of Coupling Theory.....	78
3.2.3 Coupling in Management Control Literature.....	83
3.3. Methodology .....	84
3.3.1. Case study .....	84
3.3.2. The Rationale of Case Selection .....	85
3.3.3. Data Collection .....	85
3.3.4 Data Analysis .....	86
3.3.5 Validity and Reliability .....	86
3.4. Empirical Findings.....	93
3.4.1. MC Practices in Case Company .....	93
3.4.2. MC Couplings in Hierarchy Domain.....	96
3.4.3 MC Couplings in Workflow Domain.....	103
3.4.4 The Comparison Between Hierarchy Domain and Workflow Domain .....	109
3.5. Discussion.....	111
3.5.1. The Complex Use of MC Practices in Operational Context.....	111
3.5.2 The Complex combinations of MC practices in Operational Context.....	112
3.6. Conclusion .....	114
Chapter 4: The Dynamic of MC combination: A Case Study.....	115
4.1. Introduction .....	115
4.2. Literature Review and Theoretical Constructs.....	117
4.2.2. The Dynamic of MC Combination.....	119

4.2.3. Coupling Theory Approach.....	121
4.2.4. Institutional Logic Theoretical Approach .....	122
4.3. Methodology .....	124
4.3.1. Case Selection Rationale.....	124
4.3.2. Data Collection .....	125
4.3.3. Data Analysis .....	126
4.3.4 Validity and Reliability .....	127
4.4. Findings.....	129
4.4.1. Government-Orientation Stage (2001-2012) .....	129
4.4.2. Hybrid Business-Like Stage (2013-2022) .....	135
4.4.3. The Dynamic Between the Both Stages.....	140
4.5. Discussion .....	144
4.5.1. Dynamic of MC combination .....	144
4.5.2. Complexity of MC Combination .....	146
4.5.3. Institutional Complexity in MC Combination .....	146
4.5.4. Control Problem.....	147
4.6. Conclusion .....	149
Chapter 5: Conclusion.....	149
5.1 Relativeness and Comparativeness of Three papers .....	149
5.2 Main Findings .....	150
5.2.1 Answering Question One .....	151
5.2.2 Answering Question Two.....	152
5.2.3 Answering Question Three.....	153
5.3 Contributions of the Thesis .....	154
5.3.1 Theoretical Contributions .....	154
5.3.2 Practical Implications.....	156
5.4 Limitations .....	157
5.5 Future Research Direction .....	158
Reference .....	160
Appendix 1.....	178

Appendix 2.....	179
Appendix 3: Interviewee Information.....	181
Appendix 4 Interview Questions .....	184
Appendix 5 Archive Documents .....	185
Appendix 6: The illustration of institutional logics, control problems and MC practices.....	186
Appendix 7: The pictures of ET thematic speeches and seminars.....	192
Appendix 8: A template of project budget about the material arrangement .....	193
Appendix 9: Ergo Form Submission.....	195

## Table of Figures

Figure 1-1: Link of Three Papers.....	20
Figure 1-2: Thesis Structure.....	21
Figure 2-1: Design Process of Systematic Literature Review.....	25
Figure 2-2: Filtering Process.....	28
Figure 3-1: Different Couplings.....	79
Figure 3-2: Process of Annual Budget.....	94
Figure 3-3: PM in NE.....	95
Figure 3-4: Workflow Domain.....	103
Figure 4-1: The Model of MC Combination Dynamic Based on Institutional Logic and Coupling theory.....	124

## Table of Tables

Table 2-1: Journal Informational of Reviewed Literature.....	29
Table 2-2: Research Design Characteristic of Reviewed Literature.....	31
Table 2-3: Configuration Research.....	45
Table 2-4: Interrelationship Research.....	56
Table 2-5 Antecedent and Outcome.....	66
Table 3-1: The Coupling Dimensions.....	81
Table 3-2: Constructs and Coding.....	88
Table 3-3: Validity and Reliability.....	86
Table 3-4: Couplings in Hierarchy Domain.....	102
Table 3-5: Combinations in Workflow Domain.....	108
Table 3-6: The Use of MC Practices .....	109
Table 3-7: Different MC Couplings in Two Domains.....	110
Table 3-8: The Different Coupling Dimensions of Same Couplings in Two Domains.....	110
Table 4-1: Validity and Reliability.....	128
Table 4-2: Dynamic of Individual MC practices.....	141
Table 4-3: The Dynamic of MC Combination.....	143



## **Research Thesis: Declaration of Authorship**

Print name: Yaobo Wang

Title of thesis: The Combination of Management Control Practices

I declare that this thesis and the work presented in it is my own and has been generated by me as a result of my own original research.

I confirm that:

1. This work was done wholly or mainly while in candidature for a research degree at this University.
2. Where any part of this thesis has previously been submitted for a degree or any other qualification at this University or any other institution, this has been clearly stated.
3. Where I have consulted the published work of others, this is always clearly attributed.
4. Where I have quoted from the work of others, the source is always given. With the exception of such quotations, this thesis is entirely my own work.
5. I have acknowledged all main sources of help.
6. Where the thesis is based on work done by myself jointly with others, I have made clear exactly what was done by others and what I have contributed myself.

Signature: ..... Date: .....

## **Acknowledgements**

During the completion of this doctoral thesis, I would like to express my deep gratitude to many people for their support and help, which enabled me to successfully pass this important stage in my academic career.

First of all, I would like to express my sincere gratitude to my supervisors (Dr Pingli Li, Dr Mohamoud Al-Sayed, Dr Yu (Jack) Gong). Your knowledge, patient and meticulous guidance, and deep understanding of the research field provided me with a solid academic foundation. Throughout my doctoral career, your careful guidance and motivation enabled me to make continuous progress and overcome various difficulties and challenges in research. Your leadership has been the beacon of my academic exploration, and I deeply feel that my achievements have come from your support.

At the same time, I would like to express my sincere gratitude to Dr Oliver Marnet, Dr Faizul Haque and Dr Xue Bai who participated in my progression reviews and final thesis defense. Thank you for taking the time to review my papers carefully and for your valuable suggestions. I benefitted a lot from your profound questions and professional opinions, which greatly improved my research. I will continue to use your suggestions as a guide to continuously improve my research.

Special thanks go to the interviewees in my case companies. Thank you for providing me with the opportunities to develop my research. These companies gave me many practical ideas and suggestions, which vastly benefitted my research progress.

Finally, I would like to thank my family and friends who have been my strong support in my academic journey. When I encountered difficulties and setbacks, it was their support and love that inspired me to persevere and overcome all difficulties.

I sincerely thank everyone who has cared and supported me on my academic path. It is you who have allowed me to continue to grow and meet new academic challenges. In the future, I will continue to work hard and contribute to the academic community.

## Abstract

The combination of management control (MC) practices has become a topic of great and enduring interest and concern in management accounting literature. Traditional contingency-based MC research has been criticized about over-emphasizing the benefit from MC practices fitting with organizational context and thus ignoring the benefit from internal consistency among MC practices. Building on this, more and more scholars recognized that the functions and characteristics of individual MC practices may be linked to other MC practices, rather than being only impacted from organizational contexts. Thus, MC researchers are now paying more attention to the combination of MC practices. As the development of MC combination research, a system vs package debate emerges for illustrating MC combination. To address the debate, different views about the debate arose, such as 'irreconcilable dualism', 'unseparated and reconcilable two concepts' and 'goes beyond the duality'. However, the emergence of these various views to some extent reflects that MC combination is not thoroughly studied and needs to be further explored, such as what, why and how MC practices are linked to each other. To extent our understanding of MC combination, the thesis was designed to explore the nature and characteristics of the construct and examining it in operation at organizational level. To achieve the objective, three independent and related papers are conducted. The first paper synthesized MC combination literature to elaborate the overview of MC combination by a systematic literature review. We identified two MC combination research streams and discuss how MC combination is studied in both streams. Some research gaps and future research directions are highlighted. The second and third paper, by conducting case studies, empirically explore how MC combination is operated under institutional environment to address organizational objectives. Both papers illustrate the complexity and dynamic of MC combination, respectively. Thus, the thesis, on the one hand, contributes to enrich the understanding of MC combination and theorizing MC combination. On the other hand, the thesis provides practical implications by contributing to researchers for future research and practitioners like organizational managers for considering the design of MC practices.

## Chapter 1 Introduction

### 1.1 Research Background

Since the term ‘management control’ (MC) was coined by Anthony (1965), MC practices have evolved as a growing research area in the accounting domain. Initially, Anthony (1965) suggested that MC was a series of processes by which organizational managers could influence other members of an organization to implement organizational strategies. He separated MC from strategic control, as he considered strategic control a process by which organizational strategies were decided. Criticizing such separation, Malmi and Brown (2008) further developed the MC concept as a series of organizational systems, rules, mechanisms, processes, and activities that are executed to guide and influence employee behaviour. This widely recognised definition includes strategic control used to direct employees, which was excluded from Anthony’s (1965) definition<sup>1</sup>. As the clarification of MC concept, the importance of studying MC is further highlighted. MC, as a series of organizational practices, can drive managers to use information involved in MC practices to monitor and direct the behaviour of organizational members, thereby achieving the congruence between organizational goals and members’ self-interest (Otley, 2016; Van der Kolk, 2020; Tucker and Alewine, 2022). The importance drives researchers to further explore the design and use of MC.

However, the development of MC concepts suggests that MC is a broad and complex construct, which may post difficulties in how MC researchers abstract specific MC practices from broader organizational practices to understand the design and use of MC practices (Chenhall, 2003; Malmi and Brown, 2008). The focus on a particular MC practice may lead to bias. For instance, initially, MC researchers focused on the use of accounting MC, particularly budgetary control, which was usually viewed as the centrepiece of MC practices (e.g., Bruns and Waterhouse, 1975; Covaleski and Dirsmith, 1983; Preston et al., 1992). Non-accounting MC practices, such as administrative control and culture control, were greatly under-explored which has been seen as limiting a comprehensive understanding of MC practices (Malmi and Brown, 2008; Malmi, et al., 2020). To advocate a comprehensive understanding of MC, scholars developed some MC frameworks to present the coverage of MC practices, such as Malmi and Brown’s (2008) MC framework including five types of MC, and Merchant and Van der Stede’s (2007) objective-of-control framework including four types of MC.

Moreover, early MC research was conducted in isolation from the holistic characteristics of

---

<sup>1</sup> There is further discussion about MC conceptualization in the first paper.

organizations (Macintosh and Daft, 1987), and has been criticized for limiting the understanding of the actual functions of MC practices in organizations (Otley, 1980). In the event, contingency theory was increasingly brought into the MC area in the 1970s (Otley, 2016). Contingency theory highlights the important effect of organizational context on the various uses and functions of MC practices (Chenhall, 2003). In other words, the theory emphasizes appropriate matching of MC practices to specific organizational contexts. The ill-fit between MC practices and changed organizational context may cause the increase of organizational cost (Siggelkow, 2002), which may drive organizations to adjust the use of individual MC practices to fit the contexts.

However, with the development of MC frameworks, more and more scholars recognized that the functions and characteristics of individual MC practices may be linked to other MC practices, rather than being only impacted from organizational contexts (Merchant and Van der Stede, 2007; Malmi and Brown, 2008; Grabner and Moers, 2013). If this is the case, conclusions drawn from studying MC practices individually may be misleading (Malmi and Brown, 2008; Merchant and Otley, 2020). Thus, traditional contingency-based MC literature has been criticized for over-emphasizing the benefit from MC practices fitting with organizational context and thus ignoring the benefit from internal consistency among MC practices (Chenhall, 2003; Grabner and Moers, 2013). It is increasingly suggested that, whether organizations are concerned with performance/pay-off specification (Grabner and Moers, 2013); testing if MC combination can result in positive performance or demand specification; testing if environmental factors can positively result in MC combination (Masschelein and Moers, 2020), the internal consistency of MC combination can yield larger benefits than only focusing on individual MC practices (Grabner and Moers, 2013; Masschelein and Moers, 2020; Bedford, 2020). Building on this, MC researchers are now paying more attention to the combination of MC practices (Grabner and Moers, 2013; Bedford, et al., 2019; Bedford, 2020; Merchant and Otley, 2020).

In general, based on these aspects, research on the combinations of MC practices has attracted scholarly attention to the MC area. This thesis is focused on extending our understanding of MC combination in terms of its characteristics, shape and operation. In next section, the thesis further discusses the current state and development of MC combination research and thus highlights existed gaps that the thesis will be addressed.

## 1.2 Research Motivations

MC combination research developed in the 1980s with Otley (1980) coining the term ‘MC package’ to emphasize that MC practices can also be viewed as components of a wider combination of individual practices as a control package ‘*which can only be evaluated as a whole*’. (Otley,1980, p. 422).

Hence, a mutual effect among MC practices rather than treating all of them as independently operated is assumed (Otley, 1980). However, the specific research content of MC combination, such as, what, why and how MC practices are linked to each other, was generally implicit in the initial MC research. Similarly, Chenhall (2003) emphasized the importance of studying the relationships of MC practices. He argued (p. 131) that studying individual MC practices in isolation from other MC practices may cause ‘*serious model under-specification*’ and reported ‘*spurious findings*’. Thus, scholars take many efforts to study the characteristics of MC combination.

The field of MC combination research witnessed significant advancement, mainly attributable to the work of Malmi and Brown, in 2008, which greatly contributed to the substantial progress in this domain. Malmi and Brown (2008) developed an MC framework which integrates all possible types of MC practices applicable to organizations into a whole. They (2008; p. 291) argued that these MC practices were not fully coordinated because ‘*different systems are often introduced by different interest groups at different times*’. However, Malmi and Brown did not further account for the specific relationships among MC practices, which left an extensive research gap about what the relationships are and how MC practices are interrelated (Grabner and Moers, 2013). To further clarify MC combination research, Grabner and Moers (2013) discussed the MC combination as a system or a package. Their research pushed MC combination research in a new, more sophisticated direction, and thus formed a ‘system versus package’ debate. Grabner and Moers (2013, p. 408) emphasized that:

*‘MC practices form a system if the MC practices are interdependent and the design choices take these interdependencies into account. In contrast, MC as a package represents the complete set of control practices in place, regardless of whether the MC practices are interdependent and/or the design choices take interdependencies into account’.*

According to the study of Graber and Moers (2013), it is suggested that the core of the debate is to explore how MC practices are interdependent and independent. To further discuss the debate and clarify MC combination, much of scholars conducted research to illustrate whether

MC practices are combined as a system or a package.

In the process of studying the debate, some different views emerged. Grabner and Moers (2013) argued that MC system and MC package should be viewed as two distinctive research directions and concepts, echoing the view of some scholars (e.g., Demartini and Otley, 2020; Gerdin, 2020) who consider MC system and MC package as an irreconcilable dualism. In contrast, the other view suggests that the two constructs, system and package, are unseparated and reconcilable (e.g., Bedford et al., 2016; Bedford, 2020). Both cannot be treated as two independent constructs. Furthermore, another view that goes beyond this debate (e.g., Cooper et al., 2019; Merchant and Otley, 2020) suggests that MC combination research might consider more combinational ways, such as loose coupling (Demartini and Otley, 2020), system of systems (Bourne et al., 2017) and bricolage (Cooper et al., 2019), etc, rather than only discussing system and/or package.

Although scholars elaborate the rationale of their views, these different views reflect that the nature and characteristic of MC combination do not reach a consensus. The link and connection of MC practices are still not clearly illustrated. Moreover, Merchant and Otley (2020, p. 3) pointed out that MC combinations are complex and continually change, because MC practices *'can be related in various ways and along different underlying characteristics that will vary across elements of a single organization and over time'*. However, it is still under-explored about how MC practices are combined in a complex and dynamic manner. According to Merchant and Otley (2020), MC combination can be further clarified by two aspects. First, MC research should take a more comprehensive and holistic view of MC combination in order to truly understand the nature of MC combinations (Bedford et al., 2016; Bedford, 2020). Second, much of the current MC research is not well connected with the actual practical situation of practitioners. Thus, MC combination area can be contributed by studying with a closer and deeper understanding of practice. Therefore, this thesis is an endeavour to contribute to nature and characteristic of MC combination by synthesizing extant MC combination works and further exploring the complexity and dynamic of MC combination at firm level.

### **1.3 Objectives and Research Questions**

This thesis aims to extend our understanding of MC combination by exploring the nature and characteristics of the construct and examining it in operation at organizational level. To do so, the following research questions were identified:

- 1- What are the key themes and emerging trends in the MC combination literature?

- 2- How can multiple MC practices be multiply combined in organizations?
- 3- How does institutional context contribute to shaping and reshaping MC combinations in organizations?

To answer the above questions, this thesis first synthesized the MC combination literature, both theoretical and empirical, to present an overview of MC combination's related concepts, review different research paths of MC combination, and discuss the antecedents and outcomes of MC combinations. Furthermore, the thesis presents the results of two case studies that empirically explore the complexity of MC combination, focusing on the multi-dimensional nature of MC combinations and the MC combinations change from a longitudinal perspective to reveal the antecedents and organizational contextual factors that affect the dynamics of MC combination evolution in practice.

#### **1.4 Methodology**

Conducting three studies to achieve the objectives of the thesis, this section briefly introduces the methodology from three aspects: research philosophy, research approach and research strategy.

##### ***Research Philosophy***

Research philosophy is viewed as the fundament of research (Bryman and Bell, 2015). Discussing the research philosophy is necessary when illustrating the rationale for selection of the research strategy. Thus, ontology and epistemology are identified as two mainstream research philosophies in this thesis.

Ontology is one of the research philosophy branches. It concerns the nature of reality and social entities, and deals with the nature of existence (Okasha, 2016). In other words, ontology discusses what reality and the world is. Moreover, the results of research under ontology are not identified as right or wrong, as different people with different cultures, value and experience may produce different views of the same thing (Bryman and Bell, 2015). Thus, conducting research usually starts by considering if the ontological assumptions will be adopted.

Two positions, objectivism and constructionism, are included within ontology (Bryman, 2001). The thesis considered constructionism. Constructionism, as another position of ontology, emphasizes that social phenomena are constructed based on individual behaviour (Bryman and Bell, 2015). It is dependent on individual perceptions and beliefs. In organization and management areas, constructivism indicates that human actions to some extent construct the



organizations and/or culture, rather than merely following the preliminary rules existing in the culture/organization (Jankowicz, 2005). For this thesis, exploring the characteristic of MC combination in an organization is a complex and dynamic process. MC combination can be constructed and developed by organizational actors rather than having an independent existence, which conforms to the definition of constructivism.

Epistemology, as the other research philosophy, focuses on how human consciousness interacts with reality. Epistemology is about studying how knowledge is interpreted and acquired (Bryman and Bell, 2015). Researchers should consider the epistemology after they have confirmed the ontological positions. Final acceptance of the epistemology will directly affect adoption of the research strategies (Bryman, 2001).

There are two main positions in the epistemology of research, which are positivism and interpretivism. The thesis adopts interpretivism. Interpretivism assumes that reality is subjective. It emphasizes the words and meanings researchers interpret. In this situation, the interpretivist rejects absolute facts, but focuses on facts which are based on perceptions (Okasha, 2016). Thus, the conclusions under interpretivism result from the interpretations of participants (Easterby-Smith et al. (1991); Saunders et al., 2012). For this thesis, the study of MC combination is a process of deeply interpreting the observed and collected data in organizations. It requires the researcher to understand in depth employees' behaviour. Thus, it adopts an interpretivism position.

### ***Research Approach***

Deciding what research approach to use is a precondition of guiding data collection and analysis (Saunders et al., 2012). Empirical studies of the thesis adopt an abductive approach.

Abductive approach has been viewed as a combination of deductive approach and inductive approach. It allows researchers to move back and forth between pre-perception theoretical framework and empirical analysis, which enables the development and extension of theory (Kovács and Spens, 2005). The approach was appropriate to the thesis. Theoretical approaches were firstly identified in the process of data collection and analysis. In the situation, employing theories can be analysed back and forth (theory matching). Thus, the iterative data analysis between the theory and case data enables the amendment and construction of employed-theories-related frameworks.

### ***Research Strategy***

After acceptance and confirmation of the research philosophies, the strategies of the thesis can

be divided into two aspects: a systematic literature review research strategy and case study research strategy. The two research strategies can comprehensively help us answer the research questions of the thesis.

To synthesize and review MC combination literature, this thesis adopted a systematic literature review (SLR) by referencing Tranfield et al. (2003). While traditional literature reviews, often referred to as narrative reviews (Greenhalgh et al., 2018), are not usually an attempt to clarify explicit research questions and rigorous methodology, an SLR is designed to locate, appraise and synthesize existing literature relating to the research questions by following an explicit and rigorous methodology to offer informative and evidence-based answers (Petticrew and Roberts, 2008; Boland et al., 2017). Thus, in the SLR, four steps are typical of the methodology, which are: planning, identification of studies, selection of studies, and data synthesis and analysis. The SLR strategy enables us to review the MC literature in order to synthesize and understand current research directions and perspectives of MC combinations in terms of its concepts, working mechanisms, and factors and outcomes. Thus, more gaps and future research can be highlighted.

In addition, empirical studies of MC combination in the thesis adopt a case study strategy. Case study, as the main qualitative research strategy (Bryman and Bell, 2015), has been widely used as an intense study of a single or less units for reflecting and generalizing for one larger or more units. It usually investigates small samples/cases in depth and/or over time (Easterby-Smith, 1991), focusing on the interpretation and comprehension of information, phenomena and data reflected by selected cases, which benefits the exploration of reality and development of theory (Van der Kolk et al., 2020). The combination of MC practices is complicated and multidimensional. Case study can be conducive to exploring in depth how different MC practices can be combined and related within a certain setting. It provides more robust empirical evidence to deeply probe and investigate the multiple MC combinations and can thus be regarded as the ‘most promising study mode’ in the area (Sandelin, 2008). In general, case study strategy helps us to understand and answer what, why and how MC practices can be combined in an organization.

### **1.5 Overview of Three Papers**

This thesis focuses on exploring the characteristics of MC combination by reviewing the MC combination literature and offering empirical evidence of the complexity and dynamic of MC combination. To achieve this purpose, the thesis consists of three papers providing a

comprehensive understanding and new insights for MC combinations research. The first paper provides theoretical foundations and research directions for the studies of the second and third papers. The thesis objective is addressed according to the three papers. In the following section, the core objectives, main content and contributions of the three papers are briefly introduced.

### ***1.5.1 Paper 1: A Systematic Literature Review of MC Combination***

Although extant works on MC combination have provided variable perspectives and enhanced our understanding of the nature and effectiveness of MC practices, these perspectives are fragmented and there is no systematically synthesized knowledge on how the actual MC practices are combined in organizations and the effectiveness of such combinations. The purpose of this paper was to provide a comprehensive overview of the existing research on the design and use of MC combination. A structured SLR was conducted to identify the contributions from existing studies and the gaps for future research (Tranfield et al., 2003; Boland et al., 2014).

Paper 1 systematically organized MC combination literature by identifying two main research streams: configuration and interrelationship. Both streams clearly guide the research directions of MC combinations and thus help researchers to further explore the internal working mechanism among MC practices. Moreover, the SLR to some extent provides useful information for company managers to solve control problems and enhance management control.

### ***1.5.2 Paper 2: Complexity of MC Combination***

Paper 1 highlighted the expected research about complexity and variety of combinations among MC practices. To fill the gaps presented in Paper 1, a case study was conducted to explore how MC practices can be multi-dimensionally combined, as presented in Paper 2. Although the system versus package of MC combination has become mainstream discussion in MC research, the actual operations of MC practices in companies are multiple. The links and connections of MC practices are various, and combinations are complex and diverse (Cooper et al., 2019). They cannot be simplistically and generally defined by two terms (Demartini and Otley, 2020). Paper 2 aimed to clarify how these multiple MC practices can be combined by multiple dimensions and ways. Thus, the paper illustrates the ‘complexity’ of MC combination. To do so, the paper used and extended the concept of coupling theory. Loose coupling emphasizes the degrees and paths of MC coupled combinations. An MC coupling theoretical framework was finally developed. Coupling bond, coupling dimensions and coupling domains form the core content of the framework.

Paper 2 contributes to MC combinations in four aspects. Firstly, the paper provides a relatively comprehensive set of MC practices rather than focusing on MC sub-parts. Secondly, the employment of coupling theory (three core contents) enhances understanding of the complex MC combination, and thus further develops the ‘system and package’ concept. Different coupled combinations (tight, loose and decoupling) among MC practices are highlighted in different coupling domains. Thirdly, practitioners can benefit from the study by implementing MC practices to achieve different outcomes. Fourthly, the research enriches and extends the role of Information Systems (ISs) on MC combinations.

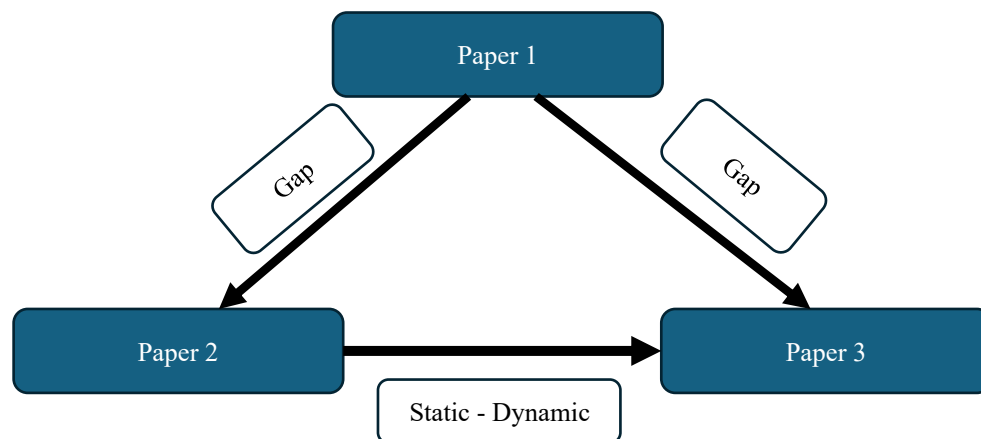
### ***1.5.3 Paper 3: Dynamic of MC combination***

Paper 2 explores the complexity of MC combination in a case company at a given point in time by highlighting coupling theory. However, it is possible that the relationship among MC practices will continually change due to the change of organizational context. Mundy (2010) suggested that the change of enterprises’ strategic forces is continual and varied due to the complex nature of internal and external organizational context, which may result in change in the relationship of MC practices. Likewise, Mouritsen et al. (2022) highlighted that MC combination may present differently at different time points. Thus, it could be implied that the network of MC practices is operated in a dynamic process (Van der Kolk, 2020). Research on the dynamic of MC combination benefits our understanding of the complex interaction and change in this interaction of MC practices over time. According to Martin (2020, p.1), *‘I encourage management control researchers to consider how the dynamic nature of the firm results in changing organizational contexts and differing paths to control system design.’* Martin (2020) called for an evolutionary lens to explore MC combination, because the evolutionary lens allows researchers to understand the path dependency of MC combination, and thus highlights the evolutionary nature of MC combination over time.

To define the combination and highlight the dynamic, the paper draws upon coupling theory (Orton and Weick, 1990) and institutional logic. The paper explores how MC practices are coupled to a different degree during different periods with the change of internal and external organizational context over time. In general, the paper explores how pressures and expectations embedded in different institutional logics in different periods impose on the shaping and reshaping of the MC combination in the case company. Paper 3 contributes to MC combination by characterizing the dynamic of MC combination and highlighting the dependence path of MC practices. According to longitudinal research, the paper helps us understand how MC practices are combined, and how the combination changes over time.

### 1.5.4 The Link of Three Papers

The thesis adopted a three-paper route. Although the content of three papers are relatively independent, there are links among the three papers. To explore the operation and use of MC combination, the thesis firstly conducted a SLR to organize the empirical and theoretical findings of extant works and elaborate gaps and further research directions. These gaps and future research provide the enlightenment and motivations for the other empirical studies. Based on the findings of paper 1, the paper 2 and paper 3 were designed to explore the complexity and dynamic of MC combination. In addition, paper 1 organized the use of theories on literature, which provides a rationale of using coupling theory on both empirical studies. Moreover, paper 2 was conducted to explore complexity of MC combination in a static manner. However, the characteristic of MC combination may be contributed by exploring the change of MC combination in organizations over time. Thus, paper 3 was conducted to study MC combination in a dynamic manner. Figure 1-1 highlights the link of the three papers.



### 1.6 Overarching Contribution

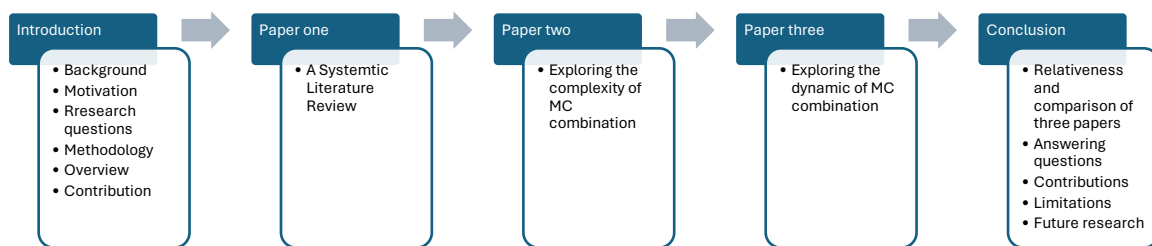
According to the conceptual and empirical studies of the thesis, it can theoretically and empirically contribute to the MC combination research. First, the thesis organizes and synthesizes existing MC combination knowledge, which clarifies the current research directions and status of MC combination research and extends the understanding of MC combination. The findings of thesis enlighten researchers to understand how multiple MC practices are combined and what sub-areas of MC combination research are still worth exploring. Second, empirical studies of the thesis further discuss the actual operation of MC combination in organizations. These studies highlight the process and operation of MC combination in the real world, which contributes to the understanding of how MC practices are actually combined. Both studies also clarify why and how contexts affect MC combinations to

resolve control problems and address organizational objectives and goals. The discuss of institutional context enhances the understanding why MC practices are combined and thus contribute to the characteristic of MC combination. Third, the thesis, by an SLR and two case studies, provides researchers with information about what MC theories have been applied, what MC theories may be suitable to apply, and even what theories can be further developed. As Bedford (2020, p. 2) states, ‘*developing theory about how and why combinations of MC practices contribute to, or hinder, the resolution of control problems should be the primary aim of functionalist MC research regardless of the perspective taken.*’ Moreover, empirical studies employed coupling theory to explore MC combination, which contributes to the application of coupling theory in MC area. Fourth, empirical studies practically help organizational managers to consider what and how actual MC practices can be used and combined to effectively direct their subordinates, and thus achieve organizational goals.

### 1.7 Structure of the Thesis

As **Figure 1-1** shows, the thesis adopts a journal style that consists of three papers. The introduction chapter briefly introduces the background, motivation, objective, methodology, and overview of the three papers and their contribution. The detailed content of the three papers is presented in the next three chapters. Finally, a conclusion chapter is presented to elaborate the findings and discussion from the three papers and thus form a conclusion.

**Figure 1-2: Thesis Structure**



## Chapter 2: The Combination of MC practices: A Systematic Literature Review

### 2.1 Introduction

Management control (MC) practices combination has become a topic of great and enduring interest in management accounting literature (e.g., Malmi and Brown, 2008; Grabner and Moers, 2013; Van der Kolk et al., 2020; Bedford, 2020). The topic originated from Otley (1980),

who proposed a ‘package’ term and emphasized that MC practices can be gathered into a wider control package. In the opinion of Otley (1980, p. 422), MC combination means ‘*extensive interdependencies*’ between MC practices rather than treating all of them as independently operated practices. However, the progress of MC combination research was slow until the early 2000s. Following the criticism of conventional contingency research in management accounting area about the assumption of MC independence (Grabner and Moers, 2013), researchers recognised that the benefits of using a particular MC practice not only depend on its fit with contextual factors but also upon how it works in conjunction with other practices (Chenhall, 2003; Grabner and Moers, 2013). Chenhall (2003, p. 131) further argued that studying MC practices in isolation from other MC practices may cause ‘*the potential for serious model under specification*’ and ‘*report spurious findings*’. MC combination with internal consistency may produce greater benefits for organizations than the use of individual MC practices (Grabner and Moers, 2013).

To explore the specific characteristic of MC combination, different concepts and research perspectives on MC combination have gradually emerged, including the concepts of internal consistency and interdependence (e.g., Grabner and Moers, 2013), the system vs package debate (e.g., Bedford et al., 2016; Bedford, 2020; Demartini and Otley, 2020), and the multiplicity and complexity of MC combination (e.g., Cooper et al., 2019; Merchant and Otley, 2020). Moreover, environmental uncertainty (Otley, 2016) and organizational strategic variability (Widener, 2007; Bedford et al., 2016) demand or result in the co-existence and variable combinations of different MC practices. Merchant and Otley (2020, p.2) emphasized that the study of MC combination needs to deal with factors and outcomes, which ‘*is considerably more complex than just defining some MCSs as packages*’. It is challenging to decide how heterogeneous MC practices can be combined and embedded in a specific organization under certain circumstance to execute effective control (Malmi and Brown, 2008; Bedford et al., 2016; Barros and Ferreira, 2019).

While various research perspectives and concepts have enhanced our understanding on MC practices combination, these complex, fragmented and even conflicted knowledge may confuse researchers and practitioners with what the true characteristic of MC combination is, how MC practices are combined under organizational context and performance, and which research directions are valuable to study. These questions are still implicit and need to be further explored. Therefore, the paper aims to systematically synthesize existing studies on the design and use of MC combination for providing explicit evidence about the characteristic of MC

combination and research directions and gaps for future research. The paper can be used by researchers and practitioners as a reference point to explore possible future research and practical implications for MC combination (Ali and Miller, 2017).

Furthermore, the scope of the literature review depends on the use of MC definitions. The concepts and roles of MC determine what practices to include in the studies of MC combination and have impacts on the interpretation and implications of research results. The variations and ambiguities of MC concepts in current research may lead to fragmented findings about MC combination (Malmi and Brown, 2008). In this situation, clarifying the MC concepts and roles is the foundation of studying MC combination.

Since the term ‘management control’ (MC) was proposed by Anthony (1965), a variety of terms for management control practices have been used in management accounting studies, including *management control* (MC), *management accounting system* (MAS) and *management accounting and controls* (MAC). Although these terms are not exclusive and, to some extent, can be used interchangeably (Chenhall, 2003), some differences can still be identified.

While MAS provides accounting information-based routines and procedures to direct decision-making and planning, and acts as a means of control for influencing employee behaviour (Simons, 1995; Langfield-Smith, 2007; Garcia Osma et al., 2018), it may be criticized for ignoring the effect of other controls, such as culture control (Dechow and Mouritsen, 2005; O’Grady et al., 2016). Chenhall (2003) suggested that ‘MC’ comprises MAS in conjunction with other controls like personnel control and social control. However, in contrast to Chenhall’s (2003) broad scope of MC terminology, some scholars, such as Malmi and Brown (2008) and Merchant and Van der Stede (2007) restricted their consideration of MC practices to guiding employee behaviour. This narrower MC concept excludes the components of MAS that support decision-making not just for directing employee behaviour, such as planning designed only for ex-ante decision-making without performance evaluation (Malmi and Brown, 2008). This narrow use of the ‘MC’ concept seems to neglect the full function of management accounting systems in supporting decision-making (Henri and Wouters, 2020; Kennedy and Widener, 2008, Fullerton et al., 2013). Moreover, recent studies call for the consideration of both MC’s roles of ‘*supporting decision-making*’ and ‘*directing employees’ behaviour*’ (Henri and Wouters, 2020; Tucker and Alewine, 2022). While the *decision-supporting* role emphasizes data and information gathered and aggregated in an efficient way for processing transactions and decision-making (e.g., Moores and Yuen, 2001), the *decision-influencing* role concerns directing employee behaviour and promoting goal congruence (Henri and Wouters, 2020;



Tucker and Alewine, 2022). Tucker and Alewine (2022) emphasized that focus on the dual roles of MC is extremely limited in the existing literature but is non-negotiable, as MC dual roles benefit further consideration of the combination of multiple MC practices. Thus, to synthesize the knowledge of MC combination comprehensively and completely, our review paper uses the term, 'MC' to include the two roles.

Whilst there are some literature review papers considering the research on MC combinations (e.g., Otley, 2016; Löfstål and Jontoft, 2017; Van der Kolk, 2019), our paper was the first SLR to focus on the combination of MC practices. Otley's (2016) review on contingency theory in MC research mentioned the combinations of MC practices in the system vs package debate. However, he did not characterize the combination in depth, as this was not the focus of his study. Similarly, Löfstål and Jontoft (2017) studied the tension of MC practices, but the literature review focused on the relationship between the tension and innovation of MC practices rather than an overview of MC combination. Van der Kolk (2019) focused on the MC combination but limited this to research in the public sectors. To date, there has been no systematic review providing a comprehensive overview of MC combination research. Our paper, therefore, fills this void.

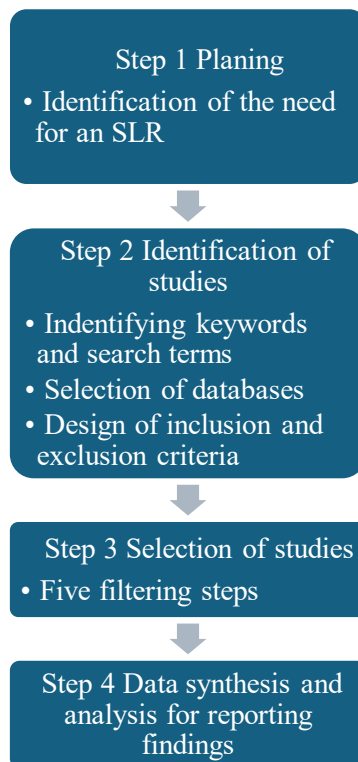
Our paper contributes to the MC research in the following aspects. Firstly, the paper provides a comprehensive overview of the use of theories on MC combination literature. The analysis suggest what theories are applied on the research, which provides thoughts for the choice of theories on future MC combination research. Secondly, the paper synthesizes fragmented and various research perspectives and concepts into two streams: MC configuration research and MC interrelationship research. Under both streams, the paper not only analyzes how MC practices are combined but also analyzes the conceptualization and effect of antecedents, outcomes and control problems, which contributes to theorizing MC combination. Moreover, some research directions and gaps under both streams are highlighted. Thirdly, the paper contributes to practical application. The paper enhances the understanding of practitioners, like organization managers, about MC combination, which to some extent enlightens them about the consideration of design of MC combination.

The paper is structured into seven sections. The following section 2.2 describes the method and process of systematic review. In Section 2.3, a descriptive analysis of the reviewed articles is elaborated. Discussion of the results about two streams continues in Section 2.4 and Section 2.5, respectively. An important issue, control problem that is important for both streams, is reviewed discussed in Section 2.6. Finally, a conclusion is drawn upon in Section 2.7.

## 2.2 Methodology

An SLR is identified as an explicit, effective and reproducible method to evaluate and synthesize existing research and work on a special topic, identifying the existing contributions and gaps (Tranfield et al., 2003; Boland et al., 2014; Lueg and Radlach, 2016). While traditional literature reviews, often referred to as narrative reviews (Greenhalgh et al., 2018) do not usually attempt to clarify explicit research questions and rigorous methodology, the SLR is designed to locate, appraise and synthesize existing literature by following an explicit and rigorous methodology in order to offer an informative and evidence-based conclusion (Perttcrew and Roberts, 2008; Boland et al., 2014). This review followed the steps suggested by Tranfield et al. (2003), as shown in **Figure 2-1**.

**Figure 2-1 Design Process of Systematic Literature Review**



### 2.2.1 Planning and Identifying the Necessity

Accounting, Organizations and Society (AOS) Journal published a special issue, namely ‘*Management control as system or package*’, about the combinations of MC practices in October 2020. Most papers in the special issue stated that although the growing body of literature on combinations of MC practices makes significant contributions and insights, study

of the theme is still under-developed. Merchant and Otley (2020) claimed that learning about the problems and issues of MC practices faced by practitioners is a way to contribute to the study of MC practice combinations. In this sense, providing a comprehensive and systematic literature review on the relationships and combinations of MC practices to improve understanding of the theme seemed to be necessary.

### ***2.2.2 Identification of Studies***

This step was to decide on the search strategies for selecting relevant papers (Tranfield et al., 2003). This review involved three search strategies: identification of keywords and search terms, selection of databases, and design of inclusion and exclusion criteria.

First, based on the research objectives and the main topics defined earlier, the initial search strings included the following key terms: “management control”, “system”, “package”, “relationship” and “combination”. To include all umbrella terms, we followed an iterative process for the keyword structure presented by Davarzani et al. (2016) and determined the structured keywords as “management control” OR “management accounting” OR “performance management”; “system” OR “information system” OR “ERP” OR “Enterprise Resource Planning”; “package” OR “multiple practices”; “relationship” OR “tension” OR “interdependence” OR “combination”. Moreover, an asterisk “\*” was used to expand the range of possible articles due to different derivatives for the same terms; for instance, “interdependent” is derived from “interdependence”. In addition, the Boolean operator “OR” was also used to allow synonyms, and “AND” to connect different keywords (Boland et al., 2014).

Second, multiple databases, including Scopus, Web of Science, EBSCO and ScienceDirect were used to benefit from the richness of literature and sensitivity of the review process (Lim et al., 2019), and to reduce the risk of absence of literature (Boland et al., 2014). The four databases covered almost all journals and citations which provided a comprehensive and detailed review database (Lueg and Radlach, 2016).

Third, appropriate and accurate inclusion and exclusion criteria not only clarify which studies should be included or excluded but can also help authors to clearly locate review questions (Boland et al., 2014). For this review, three inclusion criteria and three exclusion criteria were used. First, we included articles published in English academic journals ranked higher than or equal to 2\* in the Academic Journal Guide (AJG)<sup>2</sup> 2021, and excluded grey literature,

---

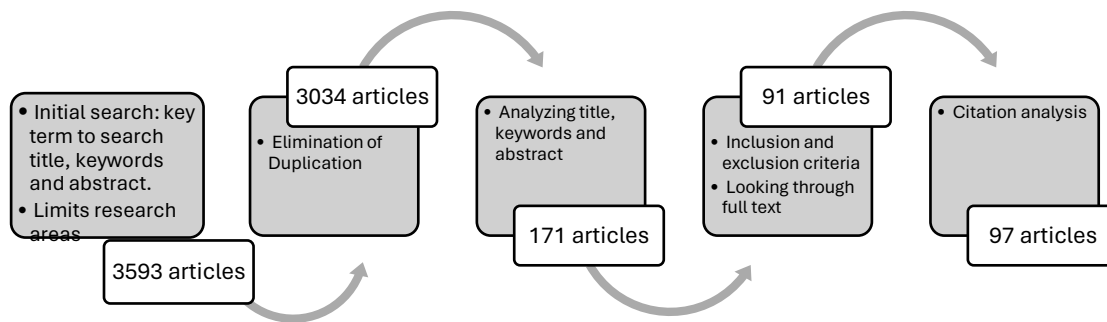
<sup>2</sup> AJG is the new name of the well-known Chartered Association of Business Schools (ABS) journals list.

conference articles, working papers, commentaries, editorials, book review articles, dissertations and books (Boland et al., 2014). It was appropriate to use AJG as a means of quality assessment. Tranfield et al. (2003) stated that assessing the fit between research methodology and research questions is the main means of quality assessment of reviewed articles. AJG focuses on the area of business and management studies. It provides a relatively comprehensive guide to which business and management studies journals are high-quality, based on peer reviews, editorial and expert judgements and citations. Although ABS has been criticized for its subject bias (Hoepner and Unerman, 2012), it is still the most frequently used ranking list for business academics (Skjølsvik et al., 2017; Mingers and Yang, 2017). Nevertheless, we acknowledge the risk of omitting some relevant papers by adopting the ABS list, and took steps to mitigate this risk, as described in Section 2.3. Second, we limited the publishing time to being from the 1980s, as the MC combination concept emerged in the early 1980s, and the ‘package’ of MC terms was first proposed by Otley (1980). Moreover, articles covering the topic in the area of management accounting or management control combination were included to correspond with the review objectives.

### ***2.2.3 Selection of Studies***

Five filtering steps, as shown in **Figure 2-2**, were followed to enhance the accuracy and reliability of the selection of studies, based on Lim et al. (2019). Firstly, an initial search was conducted based on the defined search terms covering title, keywords and abstract of literature (Lueg and Radlach, 2016). We limited the initial search to management, business and accounting areas to reduce the number of unrelated articles. This resulted in 3,593 hits including Scopus (831), Web of Science (366), EBSCO (818) and ScienceDirect (1578). After eliminating the duplications and unrelated articles by analysing the titles, keywords and abstracts, 168 articles remained. In the fourth step, we looked through the full text of the 171 articles, considering the inclusion and exclusion criteria. Some articles were further eliminated as they only focused on the use and design of single practice rather than the relationship of multiple MC practices, which was unrelated to the topic about the exploration of MC practices combination. Finally, we checked the references of the selected articles to mitigate the risk of missing articles by using the ABS list (Boland et al., 2014), and six more articles were added. Thus, 97 articles were identified and included in the final review.

**Figure 2-2 Filtering Process**



### 2.3 Descriptive Analysis and Synthesis of Reviewed Literature

In this section, we conduct descriptive analysis to show an overview of the filtered literature. The bibliographical information and research design characteristics of 94 reviewed articles are presented in **Tables 2-1** and **2-2**.

As shown in **Table 2-1**, we observed a general upward trend from 1987 to 2023, and a sharp increase from 2015. Publications from 2015 onwards account for around 74% (73) of the total reviewed articles. The published academic journals were distributed in three fields: accounting field, general management field and sector studies field. The majority (90) of articles were published in the accounting field, while six articles were in the general management field and one article was in the sector studies field. The distribution of journals fields suggests that MC combination research mainly contributes to accounting area development. Although accounting disciplines were dominant, the presence of non-accounting disciplines highlighted the flow of knowledge cross-disciplines (Hiebl, 2018), which suggests the possibility of MC combination research in interdisciplinary elements. Moreover, 62% (60 articles) were published by leading journals in the accounting area, namely *Accounting, Organizations and Society* (AOS), *Contemporary Accounting Research* (CAR), *Management Accounting Research* (MAR), *European Accounting Research* (EAR) and *Accounting, Auditing and Accountability Journal* (AAAJ). The sum percentage of AJG 3 and 4 level journals went up to 69% (67 articles), which provides evidence of the overall high quality of the reviewed articles.

**Table 2-1: Journal Informational of Reviewed Literature**

Journal Field and Title (AJG Rating)	Year																							
	1987	1998	2000	2001	2003	2005	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	Total
Accounting	1	1		1	1	4	1	4	2	1	2	1	3	1	8	8	2	2	8	16	5	13	4	90
Accounting and Business Research (3)														1			1							2
Accounting and Finance (2)																			1			2		3
Accounting Research Journal (2)																						1		1
Accounting, Auditing and Accountability Journal (3)									1										1		2		1	5
Accounting, Organizations and Society (4)	1	1		1	1	3	1						2		2	1			2	12			1	29
Advances in Management Accounting (2)																1								1
The British Accounting Review (3)																							1	1
Contemporary Accounting Research (4)																			1		1	1		3

European Accounting Review (3)																					1	3		4	
Financial Accountability and Management (3)																							1		1
Journal of Accounting and Organizational Change (2)												1		1									2	1	6
Journal of Accounting Literature (3)																									1
Journal of Applied Accounting Research (2)																									2
Journal of Management Accounting Research (2)																									1
Journal of Management Control (2)																									5
Management Accounting Research (3)			1			1		4		1	1	1				2	4						2	3	20
Qualitative Research in																2	1					2		1	6

Accounting and Management (2)																								
<b>General Management</b>														1				1	1	1	1	1	6	
Journal of Business Research (3)																			1	1		2		
International Journal of Quality and Reliability Management (2)														1								1		
Public Money and Management (2)																	1					1		
Journal of Business Economics (2)																		1				1		
Review of Managerial Science (2)																					1	1		
<b>Sector Studies</b>															1							1		
Journal of Cleaner Production (2)															1							1		
<b>Total</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>4</b>	<b>1</b>	<b>4</b>	<b>1</b>	<b>1</b>	<b>2</b>	<b>1</b>	<b>3</b>	<b>2</b>	<b>8</b>	<b>9</b>	<b>2</b>	<b>2</b>	<b>9</b>	<b>17</b>	<b>6</b>	<b>15</b>	<b>5</b>	<b>97</b>

Table 2-2: Research Design Characteristic of Reviewed Literature

Authors	Year	Streams				Employed MC Roles			Research Sites	Sector				Research Method			Sample size (number of organizations)	Time Frame		Size of Sample	Country(ies) of Sample	Employed Theory(ies)
		Configuration Stream	Interrelationship Stream	Both Streams	Others	Decision-influencing	Decision-supporting	Both		Private	Public	Both	Others	Quantitative	Qualitative	Conceptual		Cross-section	Longitudinal			
Macintosh and Daft (1987)	1987		✓					✓	90 major departments from twenty			✓		✓			20	✓		n. a	USA and Canada	n. a



									organizations in five sectors of the economy												
Chenhall and Langfield-Smith (1998)	1998	✓					✓		Manufacturing firms from the <i>Business Review Weekly</i> list of Australia	n. a						140	✓		L	Australia	Contingency theory
Reid and Smith (2000)	2000	✓					✓		Firms which have contracted with 18 Enterprise Trusts in Scotland	✓						150	✓		n. a	UK	Contingency theory
Moores and Yuen (2001)	2001	✓					✓		The clothing and footwear Industry in Victoria, New South Wales and Queensland	✓						49	✓		n. a	Australia	Life-cycle theory/configuration theory
Chenhall (2003)	2003		✓				✓								✓						Contingency theory
Collier (2005)	2005		✓				✓		Australian-based packaging equipment supplier in Sydney	✓					✓				n.a	Australia	Management control theory
Dechow and Mouritsen (2005)	2005		✓				✓		A world leading manufacturer and the largest industrial group in Denmark	✓					✓				L	Denmark	Actor-network theory
Gerdin (2005)	2005	✓					✓		Manufacturing companies in different lines of business in Sweden	n. a						132	✓		n. a	Sweden	n. a
Quattrone and Hopper (2005)	2005		✓				✓		Two multinational organizations: A sales and distribution function at the European HQ of a Japanese MNO, and an American MNO	✓					✓				L	Japan, UK, France, USA	Actor-network theory
Widener (2007)	2007		✓				✓		US companies	n. a						976	✓		n. a	USA	Contingency theory
Langfield-Smith (2008)	2008		✓			✓			A Water safe alliance studied as part of a larger research project on the development of control systems						✓				n.a	Australia	Transaction cost economics
Malmi and Brown (2008)	2008		✓			✓									✓						n. a

Sandelin (2008)	2008		✓			✓		An entrepreneurial Internet access services firm	✓					✓		1		✓	n.a	No specific (Europe)	Management control theory
Hyvönen et al. (2008)	2008		✓				✓	An organization of the Finnish Defence Forces		✓				✓		1		✓	n.a	Finland	Institutional theory
Cruz et al. (2009)	2009		✓			✓		A joint venture, operating a portfolio of hotels, set up by one of the leading GCs in the hospitality sector and a Portuguese family-owned company			✓			✓		1		✓	L	Portugal	Institutional theory
Mundy (2010)	2010		✓			✓		The European headquarters of a highly successful multinational financial services organization	✓					✓		1	✓		L	No specific (Europe)	n. a
Cäker and Siverbo (2011)	2011	✓				✓		JVs in Swedish municipalities		✓				✓		3		✓	n. a	Sweden	n. a
Chenhall et al. (2011)	2011		✓				✓	Russian industrial firms in the St. Petersburg region			✓		✓			100	✓		n.a	Russia	Social network theory
Gond et al. (2012)	2012	✓					✓							✓							Configuration theory
Fullerton et al. (2013)	2013		✓				✓	Participants who registered for at least one of the annual Lean Accounting Summits from 2005 to 2008	n. a				✓			125	✓		n. a	n. a	Contingency theory
Grabner and Moers (2013)	2013		✓			✓								✓							Complementarity theory/contingency theory
Strauss et al. (2013)	2013	✓					✓	Service industry German firm	✓					✓		20	✓		n.a	Germany	Institutional theory
Eldridge et al. (2014)	2014		✓			✓		A European high technology start-up company	✓					✓		1		✓	L	No specific (Europe)	n. a
Gong and Ferreira (2014)	2014		✓			✓		Large Australian firms from a publicly available database Kompas.	✓				✓			129	✓		L	Australia	Agency theory

Auzair (2015)	2015	✓				✓			Service organizations operating in Australia	✓				✓			149	✓		n.a	Australia	n. a
Bedford (2015)	2015		✓			✓			Independent companies or strategic business units (SBUs) from the database of CPA Australia	n. a				✓			400	✓		SML	Australia	n. a
Bedford and Sandelin (2015)	2015	✓				✓								✓								Configuration theory
Bedford and Malmi (2015)	2015	✓				✓			Firms from database of Certified Practising Accountants of Australia	n. a				✓			400	✓		SML	Australia	Configuration theory
Evans and Tucker (2015)	2015		✓				✓		Australia's leading carbon abatement and renewable energy companies	✓				✓			1		✓	L	Australia	Management control theory
King and Clarkson (2015)	2015	✓				✓			Professional service organizations (GPs) in Australia			✓		✓			120	✓		n.a	Australia	Configuration theory/Transaction cost economics
Chenhall and Moers (2015)	2015		✓				✓							✓								n. a
Schäffer et al. (2015)	2015		✓			✓			A medium-sized family-oriented German corporation	✓				✓			1		✓	L	Germany	Institutional theory
Bedford et al. (2016)	2016			✓			✓		Firms or SBUs from database of the Certified Practising Accountants of Australia (CPAA)	✓				✓			400	✓		SML	Australia	Configuration theory
Bouten and Hoozée (2016)	2016		✓			✓			A company that is headquartered in Verrebroek in Belgium and is part of the large French Altrad Group	✓				✓			1	✓		L	Belgium	n. a
Gschwantner and Hiebl (2016)	2016		✓			✓								✓								n. a
Heinicke et al. (2016)	2016		✓			✓			German firms	✓				✓			276	✓		M	Germany	Organization design theory

Kruis et al. (2016)	2016	✓				✓		Business units in the Netherlands	✓				✓			217	✓		n. a	Netherlands	Configuration theory/contingency theory
Nuhu et al. (2016)	2016		✓				✓	Public sector organizations in Australia		✓			✓			101	✓		n.a	Australia	Synergy theory
O'Grady et al. (2016)	2016		✓				✓	A global logistics provider in New Zealand	✓				✓			1	✓		L	New Zealand	Contingency theory
O'Grady et al. (2016)	2016		✓			✓		A large multinational logistics company headquartered in New Zealand	✓				✓			1	✓		L	New Zealand	n. a
Otley (2016)	2016		✓				✓							✓							Contingency theory
Curtis and Sweeney (2017)	2017		✓				✓	A company in the medical devices industry in USA	✓				✓			1	✓		L	USA	n. a
Lövstål and Jontoft (2017)	2017		✓			✓								✓							n. a
Johansson (2018)	2018		✓			✓		Standalone SBUs in the largest companies in Sweden	n. a				✓			120	✓		L	Sweden	Contingency theory
Kapiyangoda and Gooneratne (2018)	2018		✓				✓	An operating company of a multinational corporation in Sri Lanka				✓	✓			1	✓		L	Sri Lanka	Institutional theory
Akroyd et al. (2019)	2019		✓			✓		New Zealand's fastest growing company	✓				✓			1		✓	n.a	New Zealand	Complementarity theory
Barros and Ferreira (2019)	2019		✓			✓								✓							n. a
Bénet et al. (2019)	2019		✓				✓							✓							n. a
Bürkland et al. (2019)	2019		✓			✓		Two case firms operating in the fields of pharmaceuticals and medicine	✓				✓			2	✓		n.a	n. a	Social systems theory
Cooper et al. (2019)	2019		✓			✓		Offices and plants of a global corporation with HQ in a European country	✓				✓			1		✓	L	No specific (Europe)	Sense-making theory

Bedford et al. (2019)	2019		✓			✓			Irish firms in innovative industries	n. a				✓			90	✓		SML	Ireland	n. a
Gerdin et al. (2019)	2019		✓			✓			SBUs in the largest private companies in Sweden	✓				✓			103	✓		L	Sweden	Complementarity theory/situational strength theory
Gomez-Conde et al. (2019)	2019		✓				✓		Brazilian hotel sectors	✓				✓			89	✓		n. a	Brazil	n. a
Van der Kolk (2019)	2019		✓			✓									✓							n. a
Bedford (2020)	2020			✓		✓									✓							Configuration theory/coupling theory
Berg and Madsen (2020)	2020		✓			✓			An assurance company	✓				✓			1		✓	n. a	Norway	Management fashion theory
Braumann et al. (2020)	2020		✓			✓			Austrian small and medium-sized non-financial companies	n. a				✓			198	✓		SM	Australia	Complementarity theory
Choi (2020)	2020		✓			✓									✓							n. a
Demartini and Otley D (2020)	2020		✓			✓			Branches and business departments	n. a				✓			140	✓		n.a	n. a	Coupling theory
Gerdin (2020)	2020		✓			✓			A Swedish university		✓			✓			1	✓		n.a	Sweden	Institutional theory/complementary theory
Speckbacher and Wabnegg (2020)	2020		✓			✓			R&D- dependent organizations in German-speaking countries	✓				✓			282	✓		n.a	No specific (German-speaking countries)	n. a
Henri and Wouters (2020)	2020		✓				✓		Canadian manufacturing firm			✓		✓			310	✓		SML	Canada	Contingency theory
Merchant and Otley (2020)	2020		✓			✓									✓							n. a
Kristensen and Nielsen (2020)	2020	✓					✓								✓							Configuration theory/contingency theory

Lill (2020)	2020		✓			✓			Eighty-six accountancy students from a large university in the Midwest participated in the experiment	n. a									n.a	USA	Psychological distance	
Malmi et al. (2020)	2020		✓			✓			For-profit companies from different countries	✓										n. a	Australia, Canada, Austria, Belgium, Germany, Denmark, Finland, Norway, Sweden	Agency theory
Martin (2020)	2020		✓			✓									✓							Contingency theory/coupling theory/life-cycle theory
Speklé and Widener (2020)	2020		✓			✓									✓							n. a
Masschelein and Moers (2020)	2020		✓					✓							✓							Complementarity theory
Van der Kolk et al. (2020)	2020		✓			✓			The municipality of Bluetown		✓				✓					n. a	Netherlands	Complementarity theory
Carlsson-Wall et al. (2021)	2021				✓	✓			Swedish Migration Agency		✓				✓					n. a	Sweden	Sense-making theory
Damayanthi et al. (2021)	2021		✓					✓	A leading apparel group in Sri Lanka	✓					✓					n. a	Sri Lanka	Institutional theory
Einhorn et al.	2021	✓						✓	German firms in trade, service, and production industries	✓					✓					ML	German	Configuration theory
Felicio et al. (2021)	2021	✓				✓			Public organizations yielded by Directorates-General of the Portuguese Government		✓				✓					n. a	Portugal	Contingency theory/institutional theory
Hofmann and	2021		✓			✓									✓							Psychological theory

Indjejikian (2021)																						
Pasetti et al. (2021)	2021		✓			✓			A large food retail cooperative operating in Italy	✓					✓		1	✓		L	Italy	n. a
Simons and Dávila (2021)	2021		✓			✓			A consumer products and industrial goods company headquartered in Germany						✓		1		✓	L	Germany	Entrepreneurship theory
Akinyele et al. (2022)	2022		✓			✓			Eighty-eight graduate and undergraduate business students	n. a					✓		1	✓		n. a	n. a	Social norm activation theory/organizational citizenship behaviour theory
Barretta and Noto (2022)	2022		✓			✓			A public interorganizational programme of Tuscany Regional Administration (TRA) in Carrara					✓			1	✓		n. a	Italy	n. a
Barros and Ferreira (2022)	2022		✓			✓			An innovative branch of a larger Portuguese group	✓					✓		1	✓		n. a	Portugal	n. a
Bedford and Ditillo (2022)	2022		✓			✓			Private equity (PE) firms in Italy	✓					✓		6	✓		n. a	Italy	Agency theory
Frare et al. (2022)	2022	✓				✓			Startups that exited 70 different Brazilian technology-based incubators or parks	✓					✓		100	✓		S	Brazil	Configuration theory
Jiao et al. (2022)	2022		✓			✓			Not-for-profit aged care organizations in Australia					✓	✓		180	✓		L	Australia	n. a
Lou et al. (2022)	2022	✓						✓	Manufacturing companies in Mainland China	n. a					✓		203	✓		n. a	China	Configuration theory
Malmi et al. (2022)	2022	✓				✓			For-profit companies from different countries	✓					✓		584	✓		ML	Australia, Canada, Austria, Belgium, Germany, Denmark,	Cultural theory

																				Finland, Norway, Sweden	
Mouritsen et al. (2022)	2022		✓			✓			An Automaker firm	✓				✓		1	✓		L	France	Actor-network theory
Santini et al. (2022)	2022	✓				✓			Firms in Italian mechanical-engineering industry survey	n. a			✓		242	✓		M	Italy	Configuration theory/contingency theory	
Speklé et al. (2022)	2022		✓			✓			Public sector in the Netherlands		✓		✓		162	✓		n. a	Netherlands	n. a	
Strauss and Weber (2022)	2022				✓			✓	A manufacturing firm	✓				✓		1		✓	L	No specific (Europe)	Knowledge codification
Tucker and Alewine (2022)	2022				✓			✓	Apollo Program of Space sector in US		✓			✓		1	✓		n. a	USA	n. a
Toldbod and Van der Kolk	2022		✓			✓			A global manufacturing company in Europe	✓				✓		1		✓	L	No specific (Europe)	Contingency theory
Yatsenko (2022)	2022		✓			✓			Experiment: 100 undergraduate business or economics students from a large University	a. n			✓		1	✓		n. a	n. a	Social comparison theory	
Deore et al. (2023)	2023		✓			✓			Experiment: 133 post-graduate students from a large U.S. university	a. n			✓		1	✓		n. a	n. a	Psychological theory	
Tucker et al.	2023		✓			✓			Accounting schools in Australian universities	a. n				✓		1	✓		n. a	Australian	Rational choice theory
Einhorn et al.	2023	✓				✓			Largest German firms	✓			✓		112	✓		L	German	Contingency theory	
Dodd et al.	2023		✓			✓			Australian not for profit housing provider		✓			✓		1		✓	n. a	Australian	Expectancy theory
Carr and Joss	2023		✓			✓			Big 4 Accounting Firms	✓				✓		4		✓	L	Ireland	Institutional Theory
<b>Total</b>		<b>20</b>	<b>72</b>	<b>2</b>	<b>3</b>	<b>64</b>	<b>5</b>	<b>28</b>		<b>40</b>	<b>13</b>	<b>4</b>	<b>2</b>	<b>39</b>	<b>38</b>	<b>20</b>		<b>59</b>	<b>18</b>		



**Table 2-2** shows information on the research designs of 97 articles from ten aspects. These aspects reflect the current research directions and status. Firstly, in terms of methodology of literature, two aspects, ‘research method’ and ‘time frame’, are presented. The 97 reviewed articles included 39 quantitative research, 38 qualitative research and 20 conceptual research. The 20 conceptual research included five literature reviews. In terms of the characteristics of data, most articles (59) adopted cross-sectional data, while only 18 used longitudinal analysis - long-term data (usually more than one year). Moreover, in the 17 longitudinal articles, the majority used retrospective analysis. The highlighted research design features are in line with the criticism of Merchant and Otley (2020) and Martin (2020) that the extant MC combination research lacks the in-depth and dynamic exploration of actual organizations in real time.

Second, in terms of sample information, the paper highlighted five aspects: sites, sector, sample number, sample size and county(ies) of sample. In 77 empirical articles, 72 articles explicitly disclosed the countries or regions of samples. The majority (68) explored MC in western countries, while five articles’ studies focused on eastern countries including China, Japan and Sri Lanka. Only one paper, by Quattrone and Hopper (2005), covered both Asian and Western countries. While 58 articles used data from developed countries, only six articles focused on developing countries including China, Sri Lanka and Brazil. The information suggests an imbalance in the distribution of research countries. The exploration of different politico-economic social environments can benefit the multi-dimensional study of MC combination, for instance the effect of national culture on MC (Otley, 2016). In terms of sample size, nearly half of empirical literature (35) clearly suggesting the scale of organizations, which to some extent reflects that the MC combination research concerns about organizational size.

Third, the paper highlights the use of MC in articles by the column ‘Employed MC Roles’. The majority (63) of 97 articles discussed MC practices based on MC decision-influence roles, which is line with Malmi and Brown (2008)’s MC definition. Although some of them (29) covered both roles, only five articles explicitly differentiated and emphasized the use of the two roles of MC practices: Widener (2007); Fullerton et al. (2013); Gomez-Conde et al. (2019); Henri and Wouters (2020); Tucker and Alewine (2022). The uneven distribution agrees with the study of Tucker and Alewine (2022) and suggests that MC researchers should more consider different roles of MC when conducting a MC related research.

Four, **Table 2-2** presents the distribution of theories employed by those reviewed. These applied theories (68 articles) displayed a broad range, such as contingency theory, configuration theory, institutional theory, actor-network theory and complementarity theory. It

is worth noting that 12 articles employed more than one theory. For example, Kruis et al. (2016) simultaneously employed and elaborated the configuration theory and contingency theory. Among the 68 articles, contingency theory (17) was most used. Configuration theory (15) was also frequently used but focused on configuration research. Although a certain number of papers employed multiple theories, more effort is encouraged to apply and generalize more theoretical extensions contributing to MC research (Bedford, 2020).

Five, as shown in **Table 2-2**, our analysis identified two research streams of MC combination: configuration research and interrelationship research. The two streams also consist of main findings and discussions in the paper. In-depth analysis of the 97 articles suggested the existence of various research perspectives (Bedford, 2020; Merchant and Otley, 2020). However, based on the study focus of MC combination, these articles in general fall into two main research streams – configuration research and interrelationship research.

**Configuration research** focuses on holistic configurations of MC practices in organizations and their effectiveness in a specific setting. The stream is enlightened from configuration theory (e.g., Bedford and Malmi, 2015). The configuration theoretical perspective originated from organization studies and asserts that organizations can be regarded as a holistic synthesis of different organizational attributes and characteristics (Dess et al., 1993; Fiss, 2011). It assumes that organizations can be located and classified within a finite number of parsimonious models, in which organization structural components and contextual conditions are consistent (Bedford and Malmi, 2015) and are in a state of fit (Auzair, 2015). Thus, one role of configuration research is to highlight the classifications of organizations with a holistic view (Dess et al., 1993). Based on this, the study focus of MC configuration is to explore what and how multiple MC practices are grouped and clustered based on different organizational context and performance. Although. On the other hand, **interrelationship research** focuses on the in-depth relationships and interactions between MC practices, enlightened from a complementarity theoretical perspective (e.g., Grabner and Moers, 2013). Traditional MC practices research has been criticised for relying on a reductionist approach which assumes that MC practices can be studied independently and separately from other MC practices (Grabner and Moers, 2013; Otley, 2016). To address the critics, studies emerged to investigate the interrelationships among MC practices based on complementarity theory that concerns about the interdependence and interconnection of MC practices. This stream of research highlights how MC practices are fitted and related to each other (Grabner and Moers, 2013). In addition, although Bedford (2020) suggests that configuration theory enables the cluster of piecemeal of MC, which could

contribute to complementarity among MC practices, the core purpose of MC configuration is to explore the relationship between clusters of MC and organizational context and performance. Thus, while MC interrelationship research focuses on interconnection of MC practices in depth, MC configuration research does not highly concern about the interaction of MC practices.

Furthermore, to categorize the 97 articles into the two streams, we firstly scrutinized the research questions, hypotheses and objectives of these articles for initial sorting, and then analysed the employed theories and research methods to further verify the classification. Keyword searching was also employed but not as a main method, because it is possible that literature did not use the ‘configuration’ term but highlights the characteristic of configuration research (e.g., Strauss et al., 2013). Finally, 22 configuration research and 74 interrelationship studies were identified, of which two articles, Bedford et al. (2016) and Bedford (2020), not only mentioned configuration but also discussed the interrelationships among MC practices. The remaining three articles focused on the discussion of MC roles, which helps us to determine the use of the dual roles of MC (decision-supporting role and decision-influencing role). Synthesizing the articles into two main research streams, the research findings could be explicitly identified and organized, facilitating the identification of research implications and gaps.

## **2.4 The Insight on MC Configuration Research**

Following our classification of the two streams of studies, this section presents our findings on the synergised knowledge in terms of the configuration of MC practices. The research implications and gaps are also highlighted.

### ***2.4.1 The Conceptualization of MC Configuration***

Configuration refers to a multidimensional arrangement of multiple elements, mechanisms, parts and practices (Dess et al., 1993; Bedford and Malmi, 2015; Bedford and Sandlin, 2015; Lou et al., 2022). The term emphasizes the integration of distinct organizational mechanisms, also viewed as ‘gestalt’ and ‘archetype’, to present a holistic view (Dess et al., 1993). It provides a comprehensive understanding of how a large body of organizational attributes, elements or variables are classified and aggregated into a discrete number of stable patterns (Dess et al., 1993; Bedford and Malmi, 2015). These patterns represent commonality of organizations and highlight internal consistency. Moreover, the patterns may arise from ‘exogenous and endogenous forces’ (Bedford and Malmi, 2015). While exogenous forces, such as environment, structure, leadership and strategy (Miller, 1987) make up the configurations,

endogenous forces, such as ‘*internal logic, integrity and evolutionary momentum*’ (Miller, 1987, p. 697), maintain the stability and internal consistency of configurations.

In MC configuration research, configurational approach is used to explore the holistic view of MC combination, focusing on how multiple MC practices can be collectively configured in a specific organization setting/context to address one or more organizational objectives (Chenhall and Moers, 2015; Bedford, 2020). Dess et al. (1993, p.776) suggested that configurational approach concerns the ‘*relationships among elements or items representing multiple domains*’. However, in MC configuration research, the ‘relationships’ more refers to relationships between ‘MC combination’ and ‘organizational context and/or<sup>3</sup> organizational objectives/outcomes (Bedford and Malmi, 2015; Auzair, 2015) rather than overemphasizing the relationships between individual MC practices, such as no specifying how individual MC practices are interdependent and/or independent in detail (Bedford and Sandelin, 2015). Therefore, a MC configuration seems to not only include MC practices but also involve organizational context/antecedents and organizational outcomes<sup>4</sup>. The three variables are viewed as a holistic whole (Bedford and Malmi, 2015).

Based on the above understanding of configuration approach, we analysed 22 MC configuration studies including four conceptual articles by Gond et al. (2012), Bedford and Sandelin (2015), Kristensen and Nielsen (2020) and Bedford (2020). This section firstly illustrates the synergised findings of configuration research on MC combination, indicating the limitations and directions for future configuration research, followed by a review of the research methods used in MC configuration research. These findings are summarized in **Table 2-3**.

---

<sup>3</sup> MC configuration research may study MC combination based on fits of antecedents, or achievements of outcomes, or both.

<sup>4</sup> Some MC configuration literature, like Bedford and Malmi (2015), refers ‘a MC configuration’ to be ‘a combination of a series of MC practices’, and then the configuration is closely related to antecedents and outcomes. But, in the paper, we regarded a MC configuration as an assembly of ‘MC combination’, ‘antecedents’ and/or ‘outcomes’ for highlighting a holistic view of MC configuration research.

**Table 2-3: Configuration Research**

Research Themes	Characteristics	Key findings derived from reviewed articles	Selected References
<p><b>Configurational Research on MC combination</b></p>	<p>The specification of MC frameworks</p>	<p>Summarizing a variety of MC practices and/or highlighting MC categories. Including:</p> <p>F1. Malmi and Brown’s MC framework</p> <p>F2. Management practices and Management accounting practices</p> <p>F3. Formal controls and Informal controls</p> <p>F4. Objective of control framework</p> <p>F5. Lever of controls framework</p>	<p>F1: Gond, et al. (2012); Strauss et al. (2013); Bedford and Malmi (2015); King and Clarkson (2015); Malmi et al. (2022); Santini, et al. (2022); Frare et al. (2022); Bedford et al. (2016).</p> <p>F2: Chenhall and Longfield-Smith (1998); Reid and Smith (2000); Moores and Yuen (2001); Gerdin (2005); Felício, et al. (2021); Einhorn et al (2021)</p> <p>F3: Strauss et al. (2013); Auzair (2015).</p> <p>F4: Cäker and Siverbo (2011); Auzair (2015); Lou et al. (2022); Einhorn et al (2021); Einhorn et al (2021); Einhorn et al (2023)</p> <p>F5: Bedford and Malmi (2015); Kruis, et al. (2016); Bedford et al. (2016)</p>
	<p>The consideration of antecedent categories</p>	<p><b>Summarizing antecedents categories. Including:</b></p> <ol style="list-style-type: none"> <li>1. Environment</li> <li>2. Strategy</li> <li>3. Technology</li> <li>4. Leadership style</li> <li>5. National Culture</li> <li>6. Size; Age; Stock exchange; Structure</li> </ol>	<ol style="list-style-type: none"> <li>1. Reid and Smith (2000); Strauss et al. (2013); Bedford and Malmi (2015); Auzair (2015); Kruis, et al. (2016); Felício, et al. (2021); Malmi et al. (2022); Santini, et al. (2022); Einhorn et al (2021)</li> <li>2. Chenhall and Longfield-Smith (1998); Reid and Smith (2000); Moores and Yuen (2001); Gond, et al. (2012); Bedford and Malmi (2015); Auzair (2015); Kruis, et al. (2016); Felício, et al. (2021); Malmi et al. (2022); Santini, et al. (2022); Frare et al. (2022); Bedford et al. (2016)</li> <li>3. Reid and Smith (2000); Bedford and Malmi (2015); Kruis, et al. (2016); Santini, et al. (2022).</li> <li>4. Moores and Yuen (2001); Felício, et al. (2021); Einhorn et al (2021)</li> <li>5. Kruis, et al. (2016); Felício, et al. (2021); Malmi et al. (2022); Einhorn et al (2023)</li> <li>6. Gerdin (2005); Moores and Yuen (2001); Cäker and Siverbo (2011); Strauss et al. (2013); Bedford and Malmi (2015); Kruis, et</li> </ol>

			al. (2016); Malmi et al. (2022); Santini, et al. (2022); Einhorn et al (2021)
The consideration of outcome categories	<p><b>Summarizing outcomes and/or highlighting outcomes categories, including:</b></p> <p>C1: Financial performance and Non-financial performance</p> <p>C2: Effectiveness and Innovation</p> <p>C3: Goal alignment; Adaptability; Integration.</p>		<p>C1: Chenhall and Longfield-Smith (1998); Cäker and Siverbo (2011); Auzair (2015); Einhorn et al (2021)</p> <p>C2: Moores and Yuen (2001); Strauss et al. (2013); Felício, et al. (2021); Frare et al. (2022); Lou et al. (2022).</p> <p>C3: Kruis, et al. (2016); Bedford et al. (2016)</p>
The possible optimal MC configuration	<p><b>Possible optimal MC configurations including:</b></p> <p>C1. <b>Antecedents and outcomes:</b> Small, non-listed, early-stage firms that pursue financial performance and scale.  <b>MC combination:</b> Focusing on the combination of informal control practices</p> <p>C2. <b>Antecedents and outcomes:</b> Mature firms that pursues short-performance.  <b>MC combination:</b> Focusing on mechanism bureaucratic MC combination.</p> <p>C3. <b>Antecedents and outcomes:</b> Growth and relatively large but adolescent firms that pursues innovation.  <b>MC combination:</b> Focusing on organic MC combination.</p> <p>C4. <b>Antecedents and outcomes:</b> Larger and older firms that pursue the simultaneous achievement of effectiveness and innovation; financial and non-financial performance.  <b>MC Combination:</b> Using more intensive, comprehensive and demanding MC combination-</p>		<p>C1: Reid and Smith (2000); Moores and Yuen (2001); Gerdin (2005); Gond, et al. (2012); Strauss et al. (2013); Bedford and Malmi (2015); Kruis, et al. (2016); Felício, et al. (2021); Santini, et al. (2022); Frare et al. (2022).</p> <p>C2: Chenhall and Longfield-Smith (1998); Reid and Smith (2000); Moores and Yuen (2001); Cäker and Siverbo (2011); Gond, et al. (2012); Strauss et al. (2013); Bedford and Malmi (2015); Auzair (2015); Kruis, et al. (2016); Felício, et al. (2021); Malmi et al. (2022); Frare et al. (2022); Lou et al. (2022); Bedford et al. (2016); Einhorn et al (2021); Einhorn et al (2023)</p> <p>C3: Chenhall and Longfield-Smith (1998); Reid and Smith (2000); Moores and Yuen (2001); Gerdin (2005); Cäker and Siverbo (2011); Gond, et al. (2012); Strauss et al. (2013); Bedford and Malmi (2015); Auzair (2015); Kruis, et al. (2016); Felício, et al. (2021); Malmi et al. (2022); Frare et al. (2022); Lou et al. (2022); Bedford et al. (2016); Einhorn et al (2021); Einhorn et al (2023)</p> <p>C4: Moores and Yuen (2001); Gerdin (2005); Cäker and Siverbo (2011); Gond, et al. (2012); Bedford and Malmi (2015); Auzair (2015); Kruis, et al. (2016); Felício, et al. (2021); Malmi et al. (2022); Santini, et al. (2022); Frare et al. (2022); Bedford et al. (2016); Einhorn et al (2021)</p>

<b>Employed methods</b>	<b>Cluster analysis</b>	<p>1. Cluster analysis does not highlight which MC combination is unique. Rather, it emphasizes which MC combinations are possibly optimal under certain organizational contexts and expected performance.</p> <p>2. Cluster analysis provides the opportunity to categorize the MC practices, antecedents and outcomes.</p>	Chenhall and Longfield-Smith (1998); Reid and Smith (2000); Moores and Yuen (2001); Gerdin (2005); Bedford and Malmi (2015); King and Clarkson (2015); Auzair (2015); Kruis, et al. (2016); Kristensen and Nielsen (2020) (conceptual article); Santini, et al. (2022);
	<b>Regression analysis</b>	Used to analyse the relationships between a configuration and antecedents as well as outcomes or to supplement cluster analysis for testing the significance of a cluster solution.	Reid and Smith (2000); Bedford et al. (2016); Kristensen and Nielsen (2020) (conceptual article); Malmi et al. (2022); Einhorn et al (2023)
	<b>QCA</b>	Classifying these MC practices into different configurations by highlighting their importance (core, peripheral or redundant) under different context and outcomes, which provides a holistic view. However, a limited number of QCA studies is suggested.	Bedford and Sandelin (2015) and Bedford (2020) (conceptual articles); Felício, et al. (2021); Frare et al. (2022); Lou et al. (2022); Bedford et al. (2016); Einhorn et al (2021)
	<b>Case study</b>	Enabling in-depth comprehension of how MC practices are configured across organizations, but it requires multiple cases to highlight the commonality, which is relatively difficult to conduct and there may be a risk of bias against the generalizations of configuration research.	Cäker and Siverbo (2011); Strauss et al. (2013);

### ***2.4.2 The Synergised Findings of MC Configuration Research***

As shown in **Table 2-3**, the findings of this stream of research can be elaborated from three aspects, including the specification of MC categories, the consideration of antecedent and outcome categories and possible optimal MC configurations. The former both aspects are viewed as the preconditions of forming the third aspect.

#### ***2.4.2.1 The specification of MC frameworks***

The core purpose of configuration research is to cluster the array of MC practices into a manageable, limited number of configurations applicable to a sample of organizations (Bedford and Malmi, 2015; Auzair, 2015). Each configuration should identify what MC practices are included. A reasonable MC framework can present a comprehensive MC coverage and thus provide a broader understanding about the content of MC configuration (Auzair, 2015; Bedford and Malmi, 2015). Thus, this requires researchers to firstly specify or employ certain MC categories covering a series of MC practices to form an MC framework, and to then taxonomize specific MC categories of the framework for forming configurations (Bedford and Malmi, 2015). For instance, Bedford and Malmi (2015) specified a framework of six MC categories, including strategic planning, measurement, compensation, structure, policies and procedures, and socio-ideological controls. One of the literature core contributions was to classify these MC categories into different configurations and investigate which MC practices were used and underlined in each configuration. Therefore, the consideration of a comprehensive MC framework can be viewed as the prerequisite to producing MC configurations, which enriches the possibility of generating optimal MC configurations.

Moreover, the validity and reliability of MC configurations can be tested and re-tested by using different MC frameworks, which to some extent avoids the emergence of unstable and misleading findings in MC configuration research. Thus, to enhance the robustness of future research findings and ensure their validity and reliability, the paper analyzes and summarizes various MC frameworks specified in the 22 reviewed articles. In the process of analysis, it was observed that some of which overlapped in a combined framework, while some differed from each other. However, almost all of frameworks are developed based on some existing MC frameworks, using supplementation and/or trimming ways. For example, Bedford et al. (2016) specified a framework of four MC categories which uses Malmi and Brown (2008)'s MC framework but replaces cybernetic control and planning control with accounting control and simultaneously combines with levers of control (LOC) framework (Simon, 1995). Moreover, Auzair's (2015) framework combined an object-of-control framework (Merchant and Van der



Stede, 2007) with a formal and informal MC framework (Chenhall, 2003). Moreover, Chenhall and Langfield-Smith (1998) specified a different MC framework which included management techniques (like quality systems and integrating systems) and management accounting practices including traditional and contemporary practices. Some literature (e.g. Reid and Smith, 2000; Gerdin, 2005) used parts of MC practices within the framework. Thus, according to summary and analyze the use of frameworks in literature, **Table 2-3** presents five fundamental MC frameworks based on which frameworks of the 22 articles are specified. Of these, Malmi and Brown (2008)'s MC framework (framework 1) was mostly used. There are seven articles using or overlapping with the framework.

#### ***2.4.2.2 The consideration of antecedent and outcome categories***

Configuration approach assumes that an appropriate configuration is selected based on the 'fit' with organizations' contextual conditions which leads to expected outcomes. MC configuration cannot be studied in isolation from the organizational contexts and/or outcomes (Bedford and Malmi, 2015; Felício et al., 2021), because MC practices are grouped and classified based on organizational contexts and/or outcomes. Thus, in addition to specifying the MC framework, it is also important for a configuration study to decide on which antecedents and outcome measures are to be considered. In the configuration articles, six antecedent categories and three outcome categories can be summarized, as shown in **Table 2-3**. In a series of antecedents and outcomes (e.g., Bedford and Malmi, 2015; Auzair, 2015), external environment and strategy are the most commonly identified antecedents, both having been evidenced in early studies showing the strongest effect of the design and use of MC (Otley, 2016). Size, ages and stock exchange are usually simultaneously used (Bedford and Malmi, 2015). Likewise, financial measures are a commonly used outcome, which is consistent with opinions of previous MC contingency studies (Chenhall, 2007; Otley, 2016). In general, these antecedent and outcome categories provide support for subsequent studies demonstrating which and how organizational contextual conditions and expected outcomes significantly influence the 'membership of MC configurations' (Bedford and Malmi, 2015), which was further discussed in next section.

Furthermore, some articles just use a subset of antecedents in each category, such as Auzair (2015), only focusing on three antecedents: strategy, environment and age. Moores and Yuen (2001) only focus on organizational financial performance. Although these subsets highlight the most commonly used antecedents and outcomes, MC configurations that are generated under these subsets may not represent the relative optimal configurations (Bedford and Malmi, 2015) because other under-explored subsets may influence the effectiveness of MC

configurations. Thus, the use of more antecedents and outcomes can help us examine whether and explain how MC configurations are equally effective or changeable across variable antecedents and outcomes.

#### ***2.4.2.3 The possible optimal MC configuration***

MC configuration research aims to further reveal the most effective MC configuration for a group of organizations under a given organizational context. However, due to the complexity of organizational contexts, the MC configuration may not be optimal for a small number of organizations in the group. In other words, MC configuration does not mean the optimal alignments with contextual conditions but represents the most economically feasible taxonomy for all organizations in the group under the given organizational contextual conditions (Bedford and Malmi, 2015). This can be justified as the internally consistent economic benefit outweighs the cost of misalignment of contextual conditions in each MC configuration. Therefore, MC configuration research endeavors to identify and explain which MC combinations are relatively optimal (or most economically feasible) to fit organizational contexts and/ or achieve organizational outcomes.

According to a review of these MC configuration articles, the paper found that although they presented MC configurations with different amounts and names, for instance the five configurations of Bedford and Malmi (2015), four configurations of Kruis et al. (2016), six configurations of Einhorn et al. (2020) and two configurations of Santini et al. (2022), these configurations have strong commonalities with each other. Through analysing the similarity of different configurations from different articles, the paper summarized the commonalities and thus highlighted four prominent relatively optimal MC configurations from the 22 reviewed articles, as shown in **Table 2-3**. These configurations suggest how different antecedents and outcomes affect the shape of MC combination.

First, some MC configurations, such as Bedford and Malmi's (2015) 'simple control cluster', Kruis et al (2016)'s 'strategic exploitation cluster', Einhorn et al.'s (2020) 'cluster 1' and Santini et al.'s (2022) 'interpersonal control cluster' have similarly suggested that smaller organizations usually have imperfect administrative technologies and information, which enables them to pursue financial performance. These antecedents and objectives force them to place more emphasis on informal controls, such as informal strategic planning process and interpersonal control structure, centralized decision, restricted autonomy and direct supervision. Second, some mature organizations that have relatively available administrative technology, engage in defender strategy and face a relatively stable and predictable environment usually

focus on short-term performance, such as profit and goals achievement. Based on these, organizations usually adopt the mechanism of bureaucratic MC combination, emphasizing diagnostic use, tight application of accounting and diversity measurement (e.g., Bedford and Malmi's (2015) result and action control cluster; Bedford et al.'s (2016) cluster 1a; Kruis' (2016) strategic stability). Third, by contrast, relatively larger organizations in the prospector strategic context with mature technology, professional service, a relatively turbulent and unpredictable environment prefer to use organic MC combination, such as interactive use, organic administrative control and cultural input control, e.g., Bedford and Malmi's (2015) devolved control cluster; Bedford et al.'s (2016) cluster 2a; Auzair's (2015) cluster 2, which focuses more on innovation performance (Bedford and Malmi, 2015). Four, larger and older firms have high level of technology, multiple strategic priorities and complex environment. These firms pursue to the coexistence of effectiveness and innovation. Building on these, they tend to use an interaction but coordination, bureaucratic but flat hybrid MC combination which usually includes tightly emphasized accountability, strong incentives, boundary system, strategic planning, standardization, pre-action and social control (e.g. Bedford and Malmi's (2015)'s 'hybrid control cluster'; Kruis et al (2016)'s 'strategic vigilance cluster').

In general, configuration research benefits from a holistic view of MC combinations. The section synthesized conceptualization, focus and direction of MC configuration research, which provides effective evidence for future MC configuration research. Therefore, the synthesis not only facilitates the development of theorizing MC configuration, but also makes practical contribution to the use and design of MC combination under different organizational settings. However, we found that there are two potential threats of configuration research that may lead to spurious results. These threats may need to be mitigate by more future research. First, the ignorance of additional variables. Configuration research emphasizes the classification of parsimonious patterns in a limited number of ways. Even if with the effort to consider organizational contexts and practices as much as possible, there are still possible ignorations of additional MC practices that produce '*alternative combinations*' (Bedford and Malmi, 2015, p.19), and of various contingencies (Kruis et al., 2016). Responding to this risk, scholars (Merchant and Otley, 2020) advocate examining as many MC practices, antecedents and outcomes as possible when exploring the effectiveness of MC configurations. Second, configuration research may suffer from the potential threat of a static approach, configuration research data usually being collected at a single point in time. The data highlights the state of organizations at a given point in time (Martin, 2020) neglecting the impact of any change in

MC practices (Lou et al., 2022). It is suggested that a life cycle approach may provide an opportunity to moderate the risk by capturing different life-cycle stages of organizations (Moore and Yuen, 2001; Auzair, 2015; Martin, 2020). Thus, to mitigate these threats, MC researchers are expected to conduct more MC configuration research by considering MC practices as broadly as possible, looking at the dynamic of MC combination, and more scrutinizing the relationships of MC practices.

#### ***2.4.3 Research methods in MC Configuration Studies***

According to descriptive analysis, we found that MC configuration research (only 22) is scarce while MC interrelationship research (74). The finding is consistent with the argument of Bedford and Sandelin (2015) suggesting that one of the reasons about limited MC configuration research is the lack and inappropriateness of configuration research methods. An effective method enables researchers to accurately classify a mass of organizations into several groups, and thus contribute to realize and theorize the sufficient inner workings of MC configuration (Auzair, 2015; Bedford and Sandelin, 2015). Thus, an appropriate method is crucial for MC configuration research. To provide and enlighten the choice of methods in MC configuration research, we review the methodology of MC configuration studies to explain how these methods are used to generate the findings. Moreover, the benefits and potential risks are also discussed. In a total of 18 empirical configuration articles, the research methods employed include cluster analysis (9), qualitative comparative analysis (QCA) (5), regression analysis (4), and case study (2). Some articles, such as Reid and Smith (2000) simultaneously used cluster analysis and regression analysis, while Bedford et al. (2016) employed QCA and regression analysis, using multiple methods. These methods are shown in **Table 2-3**.

First, the cluster analysis, as the most frequent-use method in the area, studies MC configurations at the level of clusters of homogenous organizations (Chenhall and Langfield-Smith, 1998; Kruis et al., 2016). Cluster analysis aims to form a manageable number of homogenous and heterogenous groupings (clusters) within a sample (Bedford and Malmi, 2015), which is suitable to configuration research. Moreover, the analysis usually relates MC configurations to multiple organizational antecedents and/or outcomes (e.g., Bedford and Malmi, 2015). It emphasizes how a cluster of MC practices are 'fit' within different organizational contextual factors and different organizational outcomes (Kruis et al., 2016). Thus, cluster analysis does not highlight which MC combination is unique; rather, it emphasizes which MC combinations are possibly optimal under certain organizational contexts and expected performance. Nevertheless, the cluster analysis may be criticized for its lack of

*'the rigour of conventional statistics with no available means to test the significance of the solution presented'* (Bedford and Malmi, 2015; p. 19), which may threaten the replicability of the analysis results.

Second, regression analysis is conducted to scrutinize the relationships between a configuration and antecedents as well as outcomes (such as Chenhall et al., 2011) or to combine cluster analysis to test the significance of a cluster solution (such as King and Clarkson, 2015). Although regression analysis can test the significance of MC configurations in reaching organizational outcomes compared with cluster analysis, it is generally limited to 2 or 3-way interactions (Chenhall et al., 2011; Bedford and Sandelin, 2015). It is difficult to examine how multiple practices can be configured with multiple factors to achieve multiple outcomes.

Third, qualitative comparative analysis (QCA), as a set-theoretic method, was introduced to examine the importance of MC practices by identifying which of them within a configuration can be combined or absent when dealing with organizational objectives (Bedford et al., 2016; Bedford and Sandelin, 2015; Einhorn et al., 2020). It adopts the combined feature of quantitative and qualitative methods (Lou et al., 2022). Thus, in the QCA, different MC practices within a configuration could be identified as core, peripheral or redundant practices based on their importance, providing a holistic view of MC combination research (Bedford et al., 2016; Lou et al., 2022). For example, Bedford et al. (2016) used QCA to present how multiple practices can be combined as different configurations across organizations, of which MC practices are emphasized to varying degrees under different strategic contexts to achieve organizational effectiveness. Similarly, Felício et al. (2021) and Lou et al. (2022) used QCA to explore how different configurations of MC practices based on multiple contexts are associated with organizational objectives. Moreover, QCA seems to be viewed as a relatively complete method to address limitations of cluster analysis (Bedford and Malmi et al., 2015) and regression analysis (Bedford and Sandelin, 2015). It explicitly considers specific organizational needs and shows a broader scope of study, covering the decision-supporting and influencing roles of MC practices and their importance. However, we had only five QCA empirical literature papers (Bedford et al., 2016; Einhorn et al., 2020; Felício et al., 2021; Frare et al., 2022; Lou et al., 2022), and one conceptual paper (Bedford and Sandelin, 2015), published in our review list. The limited number of QCA studies may derive from two reasons. First, QCA in MC research is relatively new. It was first formally introduced in 2015 by a conceptual article (Bedford and Sandelin, 2015). The first empirical implication of QCA in MC combination research appeared in 2016 (Bedford et al., 2016). Second, QCA involves some coherent issues

including no necessity for test results, logical contradictions and lack of generalizability (Bedford, 2016).

Four, case study method was employed to enable in-depth comprehension of how MC practices are configured across organizations (Kennedy and Widener, 2008). However, the core characteristic of configuration research was to explore the commonality of a variety of organizational attributes and thus show different MC configurations, which basically requires the sampling of multiple organizations. Thus, case study was relatively difficult to highlight the commonality. Only two reviewed articles employed case study to explore the configurations. Cäker and Siverbo (2011) explored the configurations of vertical and horizontal control practices in three public sector joint ventures (JVs), while Strauss et al. (2013) showed the different configurations of multiple MC practices in three stages of 20 firms, namely nascent, start-up and post start-up. Although both papers used multiple cases, the risk of bias against the generalizations of configuration research still exists. Nevertheless, discussion of the different stages seems to provide a dynamic process for MC combination and contribute to the understanding and discovery of the trajectory of MC configurations and their surroundings (Martin, 2020), which also seems to moderate the threat of static approach mentioned in above section.

In general, MC configuration research can be contributed by identifying and employing appropriate research methods. Our discussion provides currently effective MC configuration research methods, which encourages MC researchers to effectively employ these methods, like combining different methods (e.g. Reid and Smith, 2000; Bedford et al., 2016), by identifying their strength and weakness.

## **2.5 The Insights of Research on Inter-relationship among MC Practices**

While configuration research emphasizes the holistic consideration of MC practices, antecedents and outcomes, a second stream of research investigates what relationships of MC practices are and how different MC practices relate to each other. ‘Interdependence’ has been widely recognized as the core relationship of MC practices (Grabner and Moers 2013; Bedford, 2020; Merchant and Otley, 2020). A variety of studies have explored and explained what MC interdependence is and how MC practices are interdependent. As the investigation of interdependence deepened, a ‘system vs package’ debate about MC combination emerged, which focuses on the interdependence and independence of MC practices. However, this debate has been criticized as a form of ‘dualism’ that limits the comprehensive understanding of MC

combination (Demartini and Otley, 2020; Merchant and Otley, 2020). In this instance, ‘tension’, as the other perspective of MC combination, is explored.

Aiming to synthesize the existing studies on this topic, we critically review the findings in terms of interdependence, system vs package debate and tension. Moreover, findings on antecedents and outcomes will be highlighted to discuss their effect on MC combination. In the paper, 74 articles are reviewed as interrelationship literature, including 57 empirical articles and 17 conceptual articles. These findings are summarized on **Table 2-4**.

**Table 2-4: Interrelationship Research**

Research Themes	Key findings derived from reviewed articles	Selected References
<p><b>Interdependence</b> Complementary and substituted relationships between pairs of MC</p>	<p>The force dynamic framework of Choi (2020) Casual mechanisms of Bedford (2020)</p>	<p>Gong and Ferreira (2014); Gerdin et al. (2019); Gomez-Conde, et al. (2019); Lill (2020); Malmi et al. (2020); Braumann et al. (2020); Speckbacher and Wabnegg (2020); Henri and Wouters (2020); Simons and Dávila (2021); Yatsenko (2022); Jiao et al. (2022); Deore et al. (2023)</p>
<p><b>A System view:</b> Employed MC framework LOC: 5 articles Object of control: 1 article Formal and informal controls: 3 articles</p>	<p><b>Showed interdependence and/or independence:</b>  1. Complement and Substitute, no independence.  2. Complement, No substitute, no independence</p>	<p>1. Collier (2005); Heinicken et al. (2016); Bürkland et al (2019); Speklé et al. (2022)  2. Dechow and Mouritsen (2005); Quattrone and Hopper (2005); Widener (2007); Hyvönen et al. (2008); O’Grady et al. (2016); Johansson (2018); Gerdin (2020); Passetti et al. (2021); Barros and Ferreira (2022); Dodd et al (2023)</p>
<p><b>A Package view:</b> Employed MC framework: LOC: 1 article Object of control: 4 articles Formal and informal controls: 6 articles Malmi and Brown's MC framework: 5 articles</p>	<p><b>Showed interdependence and/or independence:</b>  Complement and/or substitute and Independence</p>	<p>Macintosh and Daft (1987); Sandelin (2008); Langfield-Smith (2008); Chenhall et al (2011); Fullerton et al. (2013); Schäffer et al. (2015); Evans and Tucker (2015); Bouten and Hoozée (2016); O’Grady et al. (2016); Nuhu et al. (2016); Kapiyangoda and Gooneratne (2018); Akroyd et al. (2019); Cooper et al. (2019); Berg and Madsen (2020); Bedford and Ditillo (2022); Barretta and Noto (2022); Mouritsen et al. (2022); Told and Van de Kolk (2022); Akinyele et al. (2022); Bedford et al. (2016); Carss and Jooss (2023); Tucker et al. (2023);</p>
<p><b>A different dimension: Tension</b></p>	<p>For the MC combination research, tension focusing on the relative and absolute strength as well as the dynamic combination of MC practices for balancing the contrasting objectives. It advocates continuously balancing the use of MC practices to produce the performance that managers expect</p>	<p>Cruz et al. (2009); Mundy (2010); Eldridge et al. (2014); Bedford (2015); Löfstål and Jontoft (2017); Curtis and Sweeney (2017); Barros and Ferreira (2019); Bedford et al. (2019); van der Kolk et al. (2020); Demartini and Otley (2020); Damayanthi et al. (2021)</p>



### 2.5.1 Insights on Interdependence

Interdependence has been discussed to identify the internal working of MC combination practices (Grabner and Moers, 2013; Bedford et al., 2016; Bedford, 2020; Choi, 2020). It emphasizes the relationships between a pair or more of MC practices. Grabner and Moers (2013) identified the concept of interdependence as two types: substitutes and complements. While substitute refers to the benefit of using one MC practice decreasing with the use of another MC practice, complement refers to the benefit of one MC practice increasing with the use of another MC practice (Grabner and Moers, 2013; Bedford et al., 2016; Van der Kolk et al., 2020). Surrounding the two types, many studies are devoted to exploring the interrelationship of MC practices. However, substitutes and complements among MC practices are both complex and multidirectional (Bedford et al., 2016). To provide a more nuanced understanding of the interdependence among MC practices, some studies have scrutinized the detailed internal causality of substitutes and complements among MC practices. In the reviewed literature, there are two papers (Choi, 2020; Bedford, 2020) summarising the possible causal mechanisms of MC interdependence and highlighting the different dimensions of ‘complements’ and ‘substitutes’ and providing comprehensive understanding on the use of complements and substitutes for future research.

Choi (2020) utilized a force dynamic framework to depict the causal mechanisms of complements and substitutes. *Strengthen* and *enable* as two dimensions of complements highlight the enhancement of ‘a force’ of one MC practice by ‘a force’ of another MC practice. *Strengthen* refers to how MC practices increase the strength of the force (magnitude) exerted by other MC practices, such as Malmi et al. (2020) studying the strength of delegation on common organizational values. *Enable* describes how one MC practice can exert a force based on another MC practice. In other words, the other MC practice provides the condition to enable the force exerted by an MC practice, such as Speckbacher and Wabnegg’s (2020) study of knowledge exchange providing opportunities to share ideas and enable distal search behaviour. By contrast, *weaken* and *offset* as two dimensions of substitutes highlight the decrease of ‘a force’ of one MC practice by ‘the force’ of other MC practices. *Weaken* is opposite to *strengthen* in complements and implies that one MC practice decreases the magnitude of the force exerted by another MC practice, such as Henri and Wouters’s (2020) incommensurability of cost information and non-financial performance measurement. *Offset* implies that a force exerted by one MC practice counteracts the force exerted by the other MC practice, as in Lill’s (2020) offset effect of compensation interdependence on monitoring distance. In general, the force

dynamic framework of Choi (2020) clarifies the detailed *causal mechanisms* about complements and substitutes, and thus enhances the comprehension of interdependence among MC practices. However, their study only focuses on the interdependence, neglecting the possible independence in MC combination.

Aiming for a more comprehensive understanding, Bedford (2020) extends the *causal mechanisms* of interdependence and additively illustrates the *causal mechanisms* of independence, identifying three dimensions: *reinforcing*, *enabling* and *compensating* to highlight the complementary effects of MC practices. The former two are analogous to the *strengthen* and *enable* of Choi (2020), respectively, but the third, *compensating*, reflects that one MC practice counteracts or balances the weakness produced by the other MC practice, such as Gerdin et al. (2019) studying value-based controls mitigating the limitations of result controls. Moreover, Bedford (2020) also suggests three dimensions of substitutes: *inhibiting*, *instigating* and *exacerbating*. The former two are same as the *weaken* and *offset* of Choi (2020), but the third, *exacerbating*, emphasizes that the use of one MC practice accentuates the negative impact exerted by the other MC practice. This is found in the research of Bormann (2020) on the accentuation of high incentive pay and the disadvantage of subjective performance measurements. In addition to substitute and complement, Bedford (2020) further discusses four causal mechanisms of independence: *supplementary*, *conflicting*, *redundant* and *interchangeable* to reflect that MC practices can produce benefits and contributions in addressing particular control problems relative-independently or interchangeably, but they may be unnecessary in redundancies.

The significance of Choi (2020) and Bedford's (2020) frameworks lies in providing more comprehensive understanding of the causal mechanisms of MC combination. The two articles provide a generalization and summary of the possible forms of interdependence and independence among MC practices. However, no MC combination empirical literature uses the causal mechanisms provided by Choi and Bedford. This may be due to their being a relatively new proposal (only two years). In future research, the multiple-dimension causal mechanisms of interrelationships of MC practices are advocated for exploration in real organizations, thus scrutinizing the real situation of causal mechanisms in the real world.

In general, the stream of literature studies MC combination by investigating the interdependence and independence of MC practices. In the reviewed 57 empirical articles, 12 studied the interdependence between a pair of MC practices.

### ***2.5.2 System vs Package Debate***

Following the diffusion of concepts of interdependence (complements and substitutes) and independence among MC practices, a system vs package debate has emerged. Grabner and Moers (2013) formally stated that MC practices can be viewed as a system if these practices are interdependent and the design choice takes interdependence into account, whereas viewing these practices as a package reflects the complete set of MC practices in place which can be interdependent and/or independent. Their definition also raised the system vs package debate. However, due to the difference in recognition of the interrelationships of MC practices, different scholars have expressed different opinions about the definition of the debate.

In the opinion of Grabner and Moers (2013), the MC system and MC package can be viewed as two distinctive research directions and concepts. MC system involves the interdependence of MC practices, and whether they are co-ordinately operated. MC package does not concern interdependence. Rather, it focuses on whether, what and how a set of MC practices can be placed in an organization to solve control problems.

The opinion of Grabner and Moers (2013) is supported and further extended by some scholars (e.g., Bedford et al., 2016; Bedford, 2020). They consider MC system and package as two unseparated concepts. MC system emphasizes the interdependence of MC practices. Thus, interdependent MC practices form a system or multiple systems which are included in a package. For example, the research of Bedford et al. (2016) highlights the coexistence of systems and packages. The system(s) and package are reconcilable.

By contrast, some scholars (e.g., Demartini and Otley, 2020; Gerdin, 2020) consider MC system and MC package as an irreconcilable dualism. An MC system suggests that all MC practices can be operated in coordination. The MC practices in a system are interdependent, forming an integrated and coordinated collection (Merchant and Otley, 2020). An MC package suggests that some MC practices are coordinated and interdependent, while some are independently operated. This perspective is also recognized as the core view that scholars bring to the debate. Based on this perspective, scholars have conducted different research to provide evidence for interrelationships and thus highlight MC combination as a system or a package. The paper collected 36 empirical articles that study the interdependence of more than two MC practices and reflect on MC combination as a system or a package. These includes 14 system articles and 22 package articles.

### ***2.5.2.1 Employment of MC Frameworks in the Debate***

One of the challenges when studying MC combination is what practices should be considered (Malmi and Brown, 2008). Similar to MC configuration research that specifies and summarizes an MC framework prior to highlighting MC configurations, some studies on the ‘system vs package’ debate have adopted some widely recognized MC conceptual frameworks to discuss whether the MC practices included in these frameworks are combined into a system or a package. In the 35 empirical articles reviewed, 26 articles adopt existing MC frameworks. The paper summarized the main four frameworks being adopted or developed to present the debate, including levers of control (LOC) framework (Simon, 1995), formal and informal controls (Chenhall, 2013), object-of-control framework (Merchant and Van der Stede, 2007), and Malmi and Brown’s framework (Malmi and Brown, 2008). These MC frameworks and relative findings about the debate are presented in **Table 2-4**

The LOC framework was coined by Simon (1995) as a tool for implementing and controlling organizational strategies. This framework categorizes four levers as belief controls, boundary controls, diagnostic controls and interactive controls. The four levers represent four ‘uses’ of MC practices to manage strategies. For example, while diagnostic controls are mainly emphasized if organizations focus on monitoring and tracking performance, interactive controls are mainly emphasized if organizations focus on positively searching for new opportunities and strategies (Widener, 2007; Ferreira and Otley, 2009; Heinicke et al., 2016). However, it is possible that one MC practice may be included in more than one lever (Ferreira and Otley, 2009). For instance, performance measurements and budget may be diagnostically and interactively used (Widener, 2007; Johansson, 2018). This seems to provide an opportunity to explore the complex relationships among these practices. In the system vs package debate articles, six of the articles used LOC, five presented a system view, and one was a package article.

Formal and informal controls are also used as a framework to explore the MC combination. Formal controls are viewed as a series of formal, standardized and information-based rules, procedures and routines, which widely rely on accounting information (Chenhall, 2003; Evans and Tucker, 2015). Informal controls are viewed as a series of non-formalised social norms, and organizational values and culture (Evans and Tucker, 2015; Akinyele et al., 2022). Of the nine articles reviewed and presenting the framework, three were system articles and six package articles. However, only four articles focused on formal controls, ignoring the informal controls. This may make it difficult for researchers to comprehensively understand the

influence of MC combination because formal and informal controls are usually symbiotic and entwined (Evans and Tucker, 2015).

Malmi and Brown (2008) developed a widely recognized MC framework to discuss the MC combination. It encompasses planning control, cybernetic control, reward and compensation control, culture control and administrative control. The framework covers the broad scope of MC practices and emphasizes that MCs can be organically interrelated. Among the debate articles, seven adopted the framework with the package view.

The object-of-control framework of Merchant and Van der Stede (2007) has also been used to present coverage of the various MC practices and investigate the interrelationships among MC practices (Sandelin, 2008; Van der Kolk et al., 2020). The framework includes four controls: results, action, personnel, and culture controls. It is suitable for studying MC combination *'because it focuses on the spectrum of control practices, but still provides sufficient rigidity with the specific control objects of culture, personnel, action, and results'* (Sandelin, 2008 p. 325). There are four articles using the framework to discuss the debate, including two package articles and two system articles.

#### **2.5.2.2 A System View**

14 empirical articles with a systems view considered that MC practices used in organizations can be combined by complementary and/or substitute relationships. LOC (5) is the most used framework for presenting the relationships of MC practices under a system view, as shown in **Table 2-4**. In the system view, the paper found that the combination of MC practices can be divided into two ways: (a) only complement and (b) co-existence of complement and substitutes. For example, Widener (2007) surveyed 1000 US firms to analyse how MC practices are combined as a system. The results suggested that belief controls (organizational mission statements about core value), boundary controls (a code of business conduct), diagnostic controls (performance measures practice) and interactive controls (performance measures practice) are **complementary but not substitutes**. The argument of Widener (2007) is supported by the research of Johansson (2018). Johansson similarly tested the relationships among the MC practices of 120 strategic business units (SBUs) in Sweden using the LOC framework. The results indicated that diagnostic, interactive and boundary controls are interdependent in a **complementary manner**. Belief control is also related to the three levers. Therefore, the four levers are viewed as a system. Moreover, Gerdin (2020) also highlights that a system of MC practices is formed due to the complementary relationships of these practices.

However, Heinicke et al. (2016) suggested that MC practices **exist as substitution rather than only being complementary**: they are co-existent. They surveyed 276 firms and emphasized that boundary control practices and diagnostic use of PMS exist as substitution in larger firms. This finding to some extent supplements the finding of Widener (2007). Nevertheless, the results of these studies still hint at the construct of combining MC practices as a system because the interdependence exists among various MC practices.

Paradoxically, the finding of Bedford (2015) disagrees with a system view, because the research emphasized that the interrelationships of control levers may be supplementary rather than complementary. Bedford (2015) examines the use of MC practices of 400 firms by drawing on the LOC framework. It is suggested that diagnostic practices represent the deliberate planning activities of top management, while boundary practices structure the emergent activity at lower organizational levels. This suggests that although they may be interrelated, the impact of the use of one practice on firm performance is not necessarily restricted to that of the other. Thus, supplementary seems to be more appropriate to highlight the relationship than complementary. This finding to some extent puts a system view into question and provides potential evidence for the discussion of a package view.

### ***2.5.2.3 A Package View***

22 articles presented a package view. Scholars supporting a package view assert that multiple MC practices can be viewed as a package because of the co-existence of interdependence and independence in MC (Merchant and Otley, 2020; Toldbod and van der Kolk, 2022). Malmi and Brown's (2008) MC framework (7) is mostly used to explore a package view, as shown in **Table 2-4**. It may be that Malmi and Brown suggested that MC practices within the framework can be referred to as a package because of interdependence among MC practices, but not all of those are coordinated. For example, O'Grady and Akroyd (2016) explored the MC package of an organization using the framework. Their article suggests that although planning control, cybernetic and reward systems can be operated for their own purposes, these controls are supported and complemented by culture and administrative controls. Based on the co-existence of independence and interdependence, the five MCs are packaged to achieve organizational goals. In similar vein, more recent case studies of Berg and Madsen (2020) and Barretta and Noto (2022) also suggested that MC practices can be viewed as a package using Malmi and Brown's (2008) framework. For example, in the case company of Berg and Madsen (2020), it was found that financial measurements were directly complementary with long range planning but separate from non-financial measurements. Nevertheless, these measurements were

affected by firm budgets. Likewise, the budget was complementary with culture control. Thus, the coexistence of interdependence and independence hints at the MC package.

Whether MC practices are combined as a system or a package, the core of the debate emerging is the different understandings on the interrelationships (interdependence and independence) of MC practices. These different understandings may result from the exploration of only sub-parts of MC practices (lack of comprehensive study of MC practices) and the gap between research and practice (Merchant and Otley, 2020). Thus, researchers should comprehensively consider what the MC combinations really look like. It is still worth further exploring what MC combinations are, and further discussing why there are heterogenous perspectives about combinations and how MC practices are actually combined in the real world.

However, it is possible that these heterogenous perspectives cause the findings to be potentially misleading, if only considering and adopting one perspective. Building on this, some scholars (e.g., Cooper et al., 2019; Merchant and Otley, 2020) suggest that MC combination not only involves system vs package, but also more combinational aspects, such as loose coupling (Demartini and Otley, 2020), system of systems (Bourne et al., 2017), bricolage (Cooper et al., 2019) etc. These perspectives highlight the complexity of MC combination (Merchant and Otley, 2020). Furthermore, coupling theoretical approach is viewed a relatively new and fine-grained perspective to explore the interrelationship of MC practices (Demartini and Otley, 2020; Bedford, 2020). The theoretical approach considers the complexity of MC combination by different coupling types: tight, loose, decoupling and non-coupling. However, it is still unclear about how MC practices are combined based on coupling theory, what is the mechanisms of MC couplings, and what the difference between couplings and interdependence of MC practices is (Bedford, 2020). Thus, future research is expected to explore MC combination based on conceptualization of the coupling and considers whether there is new reorganization on the characteristic of MC combination from the coupling perspective.

### ***2.5.3 Tension***

Some studies investigate the inter-relationship among MC practices from the perspective of tension. 11 such articles, including two conceptual articles were collected in this review (Cruz et al., 2009; Mundy, 2010; Eldridge et al., 2014; Bedford, 2015; Löfstål and Jontoft, 2017; Curtis and Sweeney, 2017; Barros and Ferreira, 2019; Bedford et al., 2019; Van der Kolk et al., 2020; Demartini and Otley, 2020; Damayanthi et al., 2021). This stream of research studies the differing degree of MC practices integration (Demartini and Otley, 2020) and focuses on

balancing the dynamic tensions of MC practices which embed contradictory yet simultaneously reconcilable objectives, such as leaning and control, and motivation and coercion (Van der Kolk et al., 2020; Bedford, 2019; Kruis et al., 2016).

Tension refers to '*contradictory yet interrelated elements that exist simultaneously and persist over time*' (Smith and Lewis, 2011, p. 382). In other words, tension concerns the '*constant motion among opposing and complementary forces*' existing in organizations (Van der Kolk et al., 2020, p. 3). Löfstål and Jontoft (2017) stated that management control tension can emerge due to a combination of various MC practices. Appropriately balancing opposing MC practices can effectively hinder the ability to simultaneously meet the demands of conflicting objectives and prevent them from being disrupted by the preference of one MC practice over the other MC practice (Van der Kolk et al., 2020). Balance is commonly described as different emphasis on different MC practices at different moments to manage the tensions between them (Mundy, 2010; Bedford et al., 2019). Thus, tension is usually related to 'balance'.

One stream of research on balancing the tension among MC practices has studied how enabling and controlling the use of MC practices in organizations contributes to organizational outcomes like effectiveness and innovation (Löfstål and Jontoft, 2017). For example, Mundy (2010) conducted a case study in a financial services company, exploring how managers adjust the tension of MC practices by balancing control and enabling to promote effectiveness and innovation of the company. Criticising Mundy's (2010) underdeveloped notion of tensions among MC practices, Van der Kolk et al. (2020) further clarified the definition and characteristic of tension in MC practices, emphasizing the 'complementarity' and 'competition' effects of MC combination for an organization's inherent contradictory poles. Thus, the tension of MC combination concerns the continuous reconciling of contradictory poles. While Van der Kolk et al. (2020) advanced MC combination study, their research only examined two MC practices. In future research, study of the tension between more than two MC practices may be fruitful.

Overall, the studies on tension focus on the relative and absolute strength, as well as the dynamic combination of MC practices in balancing contrasting objectives. Continuously balancing the use of MC practices is advocated to achieve the performance that managers expect (Bedford et al., 2019). As such, tension can be achieved through a different emphasis of MC combinations. However, the understanding of dynamic tensions among MC practices is still at an early stage. The concept of tension and the dynamic tensions relationship among MC practices needs to be further explored (Van der Kolk, 2020). For example, different tensions



could be constructed by different practices, constructed as ‘networks of dynamic tensions’ (*ibid.*, 2020). In this situation, longitudinal research might help researchers to understand how relationships among MC practices evolve over time (Martin, 2020). Thus, there have been calls for more longitudinal research including more MC practices to test the complex and dynamic tensions (Mundy, 2010; Van der Kolk et al., 2020).

#### **2.5.4 Antecedents and Outcomes**

We reviewed studies on the antecedents affecting the interrelationship of MC practices and the control problems that MC practices need to address to achieve expected organizational outcomes. The SLR identified four main antecedents: environmental uncertainty, strategy, culture, and technology; two main outcomes of MC interrelationship, as effectiveness and innovation; and the main categories of control problems. These are summarised in **Table 2-5**.

Environmental uncertainty has been identified as a main factor impacting the interrelationship of MC practices (Henri and Wouters, 2020). Auzair (2015) pointed out that environmental uncertainty can be divided into three aspects: unpredictability, complexity and unstable change. To conform to the uncertain environment and thus enhance organizational outcomes like profitability and innovation, the interrelationship of MC practices can be adaptable in managing activities (Otley, 2016). For example, the case study of Evans and Tucker (2015) shows how the case company formed a package of MC practices when facing a series of changes in carbon tax law to adapt to the environment and maintain the stability of profitability.

Moreover, Henri and Wouters (2020) explored the effect of interdependence on innovation, suggesting that, to promote production innovation, both MC practices can be complementary (substitute) when organizations are experiencing a high (low) level of environmental unpredictability. However, their research was limited to two MC practices of costing and non-financial performance measures. More practices concerning budgets, internal controls and procedures need to be considered in measuring the effect of environmental uncertainty. In similar vein, the study of Johansson (2018) stated that environmental dynamism, predictability, complexity and hostility can impact the interdependence of LOC. However, Johansson (2018) did not explore the organizational outcomes which can be shaped by the combination.

**Table 2-5: Antecedent and Outcome**

Variables	Content	Characteristic	Selected References
<b>Antecedents</b>	Environmental uncertainty	It includes environmental unpredictability, complexity and unstable change	Chenhall (2003); Collier (2005); Sandelin (2008); Langfield-Smith (2008); Hyvönen et al. (2008); Cruz et al. (2009); Eldridge et al. (2014); Gong and Ferreira (2014); Schäffer et al. (2015); Evans and Tucker (2015); Otley (2016); O’Grady et al. (2016); O’Grady et al. (2016); Nuhu et al. (2016); Johansson (2018); Akroyd et al. (2019); Cooper et al. (2019); Gerdin et al. (2019); Berg and Madsen (2020); van der Kolk et al. (2020); Braumann et al. (2020); Henri and Wouters (2020); Passetti et al. (2021); Damayanthi et al. (2021); Mouritsen et al. (2022); Told and Van de Kolk (2022); Carss and Jooss (2023)
	Strategy	Uncertain and changeable strategy due to the change of organizational context	Chenhall (2003); Collier (2005); Dechow and Mouritsen (2005); Widener (2007); Sandelin (2008); Cruz et al. (2009); Mundy

		(2010); Chenhall et al (2011); Fullerton et al. (2013); Gong and Ferreira (2014); Otley (2016); O’Grady et al. (2016); Nuhu et al. (2016); Bedford et al. (2016); Johansson (2018); Akroyd et al. (2019); Gerdin (2020); Simons and Dávila (2021); Damayanthi et al. (2021); Bedford and Ditillo (2022);
Culture	National or regional culture	Chenhall (2003); Otley (2016); Heinicken et al. (2016); Kapiyangoda and Gooneratne (2018); Malmi et al. (2020); Deore et al. (2023)
Technology	Aims to enhance the functionality of single MC practice and integration among MC practices	Chenhall (2003); Dechow and Mouritsen (2005); Quattrone and Hopper (2005); Hyvönen et al. (2008); Kapiyangoda and Gooneratne (2018); Mouritsen et al. (2022);
Managers perception	Focuses on sense of professional identity and management style and cognition of managers.	Sandelin (2008); Langfield-Smith (2008); Hyvönen et al. (2008); Mundy (2010); O’Grady et al. (2016); Cooper et al. (2019); Berg and Madsen (2020); van der Kolk et al. (2020); Bedford and Ditillo (2022);

			Mouritsen et al. (2022); Told and Van de Kolk (2022);
	Size, age, structure	Insignificant factors. Need to consider the synergistic influence with other factors	Machintosh and Daft (1987); Chenhall (2003); Gong and Ferreira (2014); Heinicken et al. (2016); Johansson (2018); Akroyd et al. (2019); Speklé et al. (2022); Deore et al. (2023)
<b>Outcomes</b>	Effectiveness	Usually refers to profitability, which has limitations	Chenhall (2003); Collier (2005); Widener (2007); Sandelin (2008); Mundy (2010); Eldridge et al. (2014); Otley (2016); Bouten and Hoozée (2016); O’Grady et al. (2016); O’Grady et al. (2016); Nuhu et al. (2016); Bedford et al. (2016); Gerdin et al. (2019); Demartini and Otley (2020); Hofmann and Indjejikian (2021); Barretta and Noto (2022); Akinyele et al. (2022); Speklé et al. (2022); Yatsenko (2022); Jiao et al. (2022); Dodd et al (2023); Tucker et al. (2023);

	Innovation	Being contradictory yet reconcilable with effectiveness	Chenhall (2003); Widener (2007); Mundy (2010); Chenhall et al. (2011); Robert et al. (2015); Bedford (2015); Gomez-Conde, et al. (2019); Bedford et al. (2019); Speckbacher and Wabnegg (2020); Henri and Wouters (2020); Demartini and Otley (2020); Barros and Ferreira (2022);
--	------------	---	---

Strategy has been characterized as a significant motivator affecting the interrelationship of MC practices. Strategy might display an uncertain and changeable status due to change of organizational context (Widener, 2007; Auzair, 2015; Akroyd and Kober, 2019). Different strategies implemented in different companies can affect the interdependence of MC practices and further shape favourable organizational outcomes. Widener (2007) explored the effect of strategic uncertainty and risk on the combination of MC practices and the resultant firm profitability and market share. Widener (2007) indicated that firms could modify the appropriate boundaries and visions (boundary practices) based on information from interactive practices, conforming to emergent strategies and thus improving profitability. Moreover, the research of Bedford et al. (2016) also studied the effect of strategy on the inter-relationship among different MC practices, ensuring the company's effectiveness (improving profit). For example, while the diagnostic control use of accounting can be complementary with mechanistic structural controls (less organic structure controls) to obtain effective performance in the defender organization, the interactive control use of accounting can be complementary with organic structure controls for the effectiveness of prospector firms. Bedford et al. (2016) acknowledged that their study was limited to two strategies (defender and prospector) and excluded the analysers' and reactors' strategies.

Culture has become a significant factor affecting the design and operation of MC practices (Otley, 2016). It needs to be acknowledged, however, that culture usually refers to national or regional culture, which is different from culture control. While national culture is a factor which can affect the operation of MC practices (Malmi et al., 2020), culture control is an MC practice which is used to direct the behaviour of organizational members (Sandelin, 2008). Although some research (e.g., Williams and Seaman, 2001; Van der Stede, 2003; Efferin and Hopper, 2007) has explored the effect of national culture on the design and use of individual MC practices, few articles focus on its effect on the interrelationship of MC practices (Malmi et al., 2020). Malmi et al. (2020) was the first study to explore the effect of regional culture on the interrelationship of MC practices. Based on the data of 584 companies in three western culture regions, namely Anglo, Germanic and Nordic, the results suggested that interdependence between delegation and incentive contracting exists in Anglo firms, while action planning participation can be complementary with delegation in Nordic and Germanic regions. While the research of Malmi et al. (2020) provides evidence on the significant influence of cultural values on the interrelationship of MC practices, the research failed to specify the control problems and outcomes of MC practice combinations in different cultures.

Technology cannot be neglected as a factor affecting the combination of MC practices. IT technology not only enhances the functionality of single practice (Abdel-Kader and Luther, 2008; Taipaleenmäki, 2014), but it also promotes the coordination and integration among MC practices (Kapiyangoda and Gooneratne, 2018). Barros and Ferreira (2019) unanimously stated that new technologies and tools allowed different MC practices to be integrated. In other words, the ERP technology seems to provide a possibility for the shape of an effective overall MC system. However, over-propensity and over-reliance on off-the-shelf and new products and technologies could cause a “messy” range of controls and thus prohibit the effective combination of MC practices (Barros and Ferreira, 2019). Thus, how the different techniques are effectively embedded in an overall MC system and package which helps different elements to operate harmoniously still needs to be fully explored (ibid, 2019).

Managers’ perception is also viewed as an antecedent that focuses on the effect of managers’ preference on MC combination (Cooper et al, 2019). The managers’ preference could be constructed by their sense of professional identity (Cooper et al, 2019) and management style and cognition (Collier, 2005). For example, Collier (2005) presented a company’s CEO who reinforced the formal practices (spreadsheet control) and preferred informal practices (social control) to link together and organize an organic whole. Collier (2005) stated that these MAC practices were reinforced and combined by the dominating, authoritarian management style of CEO and his undisputed technical prowess and risk-taking stance. However, the way has a potential threat which is over-dependence on an individual. The combination would collapse when the CEO removes from the company. Similarly, Cooper et al. (2019) highlights the effect of managers’ perception on the combination of PMSs. These results also resonate with Hall (2016) who stated that the operation of MC could be influenced by the emotions of employee like the sense of profession identity and safety because few people make decisions without any emotions. However, these studies are still lacking due to the subjectivity of sense (Hall, 2016).

In the reviewed articles, antecedents were explored according to five main factors, external environment, strategy, technology, culture and managers’ perception. While environmental uncertainty and strategy have been largely explored, studies on the effect of the other antecedents are still limited. While a few studies (e.g., Heinicke et al., 2016; Johansson, 2018; Speklé et al., 2022) have mentioned the effect of company size, age and structure, they are not considered to a crucial factors because other factors need to be combined considering the influence of both factors (Bedford and Malmi, 2015). Thus, in future research, the antecedents need to be comprehensively considered rather than only focusing on the effect of one

antecedent.

In terms of outcomes, in the collected articles, the outcome can be generally divided into two aspects: effectiveness and innovation. Effectiveness is usually considered as profitability. However, it has been suggested that profitability is inappropriate as the only criterion of effectiveness from two reasons (Otley, 2016). First, profitability may be affected by wider factors than only the use of MC. Second, the nature of profitability decides on the large use of financial performance practice, which is a contingent variable rather than a criterion variable (Otley, 2016). Demartini and Otley (2020) illustrated effectiveness from more three aspects: achievement of goals (O'Grady et al., 2016); support of operational decisions (Nuhu, et al., 2016) and enabling of flexibility (Quattrone and Hopper, 2005), which endows more measurements for effectiveness. Comprehensively characterizing the content of effectiveness is still viewed as an important task for MC research. However, the literature for the assessment of comprehensive effectiveness is still limited, which calls for further research. Moreover, innovation is also a crucial outcome for MC combination research (Chenhall, 2003; Mundy, 2010; Henri and Wouters; 2020). In the early MC literature, product innovation is a dominant position (Otley, 2016). However, innovation has been developed into a diversity content, which also includes services, market and business models (Chenhall and Moers, 2015). Bürkland, et al (2019) suggests that evolution of innovation does not depend on an isolate practice, tool or a few technologies but rather an assemblage of MC practices. However, effectiveness and innovation are usually viewed as two contradictory yet reconcilable outcomes (Demartini and Otley, 2020). In the situation, the relationship of both requires researchers to consider how MC combinations are operated to balance both outcomes, which is also a further research focus.

## **2.6 Control problems**

The address of control problem has been viewed as the main path of theorizing MC combination (Bedford, 2020), whether is on MC configuration research or on MC interrelationship research. In the MC area, control problems usually refer to management control problems (Merchant and Van der Stede, 2017). Bedford (2020, p. 4) emphasized that the study of MC must clarify the control problems, because clarification '*informs the choice of empirical setting to observe variations in the magnitude of the problem and, if required, the appropriate outcome variable*'. In other words, control problems highlight the '*behaviour process that MC practices affect*' rather than only capturing organizational outcomes. However, concern about control problems is lacking in the MC literature. Gerdin (2020, p. 4) describes control problems as '*one important, yet largely unexplored universal/superordinate goal*'. The



paper identified two main reasons why control problems are largely unexplored.

First, concepts and categories of control problems are still the inexplicit and inconsistent. Control problems usually refer to issues that MC practices need to address, which produce a synergistic effect on organizational outcomes (Gerdin et al., 2019). However, what specific control problems should be included and categorized is still divergent. Otley and Berry (1980) and Merchant and Van de Stede (2017) name two distinguished taxonomies of control problems. Otley and Berry (1980) highlight three control problems: goal alignment, adaptability and integration. In their description (Otley and Berry, 1980, p. 232),

*‘(MC practices) act to maintain viability through goal achievement, those concerned with the coordination and integration of differentiated parts, and those which promote adaptation to both internal and external change.’*

Merchant and Van der Stede (2017) consider control problems as the deviation between employee behaviour and organizational deserved outcomes. Thus, the categories of control problems of Merchant and Van der Stede focus on deficiencies in employee behaviour, including lack of direction, motivational problems and personal limitations. The two different taxologies and categories of control problems may result in confusion among researchers about the concept of control problem, resulting in under-exploration.

Second, there may be difficulty in relating specific control problems to MC and outcomes. An overall MC is used to simultaneously serve several objectives and outcomes (Merchant and Otley, 2020). It is difficult to find out how MC practices are designed to address several control problems and thus deal with several objectives. Thus, most scholars choose to directly measure organizational outcomes such as profitability, and thus *‘leave untested the behaviour process that MC practices affect’* (Bedford, 2020, p. 4). However, understanding the employee behaviour process that MC practices feature is the foundation of understanding the characteristics of MC practices, which benefits the theoretical and practical constructs of MC combination. In the reviewed articles, few articles (e.g. Speklé et al., 2022; Dodd et al., 2023; Tucker et al., 2023) highlight control problems, which seem to be largely ignored.

In general, control problems are viewed as an inevitable but under-studied research issue in MC combination literature. Two possible reasons about the lack of exploration also highlight the gaps in control problems. Hence clarifying the concepts and specific content of control problems and exploring the interrelations among MC control problems and outcomes are viewed as significant future research paths. Theoretically, the antecedents, control problems

and outcomes are not separated but are interwoven. MC combination research should explore the effect of MC combination on organizational outcomes by addressing control problems related to organizational context (Bedford et al., 2016).

## **2.7 Conclusion**

This systematic literature review has been conducted to provide a comprehensive and critical overview of existing knowledge on MC combinations, and to highlight the future research direction. The SLR reviewed 97 articles, not only describing the bibliographical information and research design characteristics of these articles, but also identifying two main research streams, MC configuration and MC interrelationship, through which MC combination was discussed.

Firstly, MC configuration research provides a holistic view of MC combinations, antecedents and outcomes. Building on these, MC configuration research aims to highlight possible optimal configurations by specifying MC frameworks, antecedent and outcome categories. However, the configuration approach of MC combination research is limited by the possibility of ignoring the additional variables, dynamics and interrelationships of MC practices. Moreover, four main research methods in the configuration literature were also reviewed: cluster analysis, regression analysis, QCA and case study. The strengths and weaknesses of these research methods were discussed. Secondly, in terms of the interrelationship stream, the paper highlights the conceptualization of interdependence. Building on interdependence, a system vs package debate is reviewed. We reviewed different articles to highlight the current works about the debate and suggested future research directions. Furthermore, tension can be viewed as another interrelationship dimension to consider the MC interrelationship. However, the concept of tension is still disparate and non-uniform. The paper also reviewed the different antecedents and outcomes in the research stream. Some research gaps and future research are suggested. Third, the paper discusses the control problem that is viewed as the main aim of functionalist MC research but is under-explored.

The SLR paper has a potential limitation. In the process of filtering the literature, the SLR only collected articles from 2\* and above AJG journal rankings to ensure the quality of articles. The inclusion criteria may have resulted in the omission of a few high-quality articles. However, the SLR succeeded in filtering 97 articles, which was enough to present an overview of MC combination knowledge.

Overall, this paper has contributed to the understanding of MC combinations, providing useful insights for possible future research. The three main contributions of the paper can be summarized thus: firstly, according to descriptive analysis, the paper potentially contributes to the theoretical use of MC combination research by describing the theory distribution of the reviewed articles. Secondly, it contributes to the overview of MC combinations knowledge. The paper categorizes two identifiable research streams: MC configuration research and MC interrelationship research. These two streams provide clear characteristics of MC combination, enabling researchers to understand the MC combination research further comprehensively. Moreover, the two streams also provide other directions, that not only include MC combination but also its antecedents, control problems and outcomes for future MC combination research. Thirdly, the overview of MC combination knowledge not only contributes to researchers, but also to practitioners. Organizational managers can intentionally design and coordinate their MC practices by using the knowledge from the paper, benefiting the implementation and achievement of their organizational goals.

### **Chapter 3: The Combination of MC Practices: A Case Study**

#### **3.1 Introduction**

Management control (MC) is clearly recognized as a series of organizational practices to direct employee behaviours towards achieving organizational objectives (Malmi and Brown, 2008). MC researchers have increasingly realized that the importance of achieving organizational objectives derives not only from the use of individual MC, but also from an understanding of the relationships among MC practices (Grabner and Moers, 2013; Otley, 2016; Bedford *et al.*, 2016). The effective combination and internal consistency of MC practices can, to some extent, benefit strategic renewal in minimizing organizational environmental uncertainty (Bénet *et al.*, 2019; Passetti *et al.*, 2021; Toldbod and van der Kolk, 2022) and thus effectively achieves organizational objectives (Gerdin, 2020). Thus, MC combination research has attracted widespread attention (Bedford, 2020; Merchant and Otley, 2020). The core of the current research is to investigate the relationships within MC practices. In other words, MC combination research attempts to understand how MC practices relate to each other, and further explores how these relationships effectively adapt organizational context and achieve organizational objectives.

As Chapter 2 mentioned, in MC interrelationship stream, current MC combination research focuses on exploring the links of MC practices through justifying whether MC combination is

operated as a system or a package (Bedford et al., 2016; Grdin, 2020; Berg and Madsen, 2020). However, MC combination is complex and multidirectional (Demartini and Otley, 2020; Merchant and Otley, 2020). Limiting combination to two forms; system and package may result in misunderstanding of inner workings of MC combination. The form of MC combination should be various, like loose coupling, overlap and bricolage, etc (Cooper, et al., 2019; Merchant and Otley, 2020). However, we little know about why MC combination is various and how MC practices could be multiply combined in organizations. Merchant and Otley (2020) suggested that complex combination of MC practices usually makes researchers report some inconsistent and misleading results from different studies. Thus, to extend the understanding of inner workings of MC combination, the paper focuses on exploring ‘complexity’ of MC combination. In other words, the paper aims to address the gap about why and how MC combination is complex, various and multiple.

Moreover, the study of MC combination is usually related with organizational context because MC practices need to be operated to fit certain organization context (Otley, 2016). While most of literature focus on the effect of external context, like environment uncertainty (Eldridge et al., 2014; Evans and Tucker, 2015; Johansson, 2018; Henri and Wouters, 2020), limited literature mainly concerns about the effect of operational context. Sandelin (2008) emphasized that the appropriateness of MC practices depends on whether they fit to operational context. Organizations exist various and complex natural and emergent processes that may derive from geographical dispersion of operations and product portfolio expansion (Sandelin, 2008 and Merchant and Otley, 2020). These various and complex processes consist of operation context that induces functional demands and thus drive MC practices to be combined for adapting and fitting the context (Sandelin, 2008). Merchant and Otley (2020) pointed out that the complex context make MC to be coordinated and diverge, which reflects a complexity of MC combination. The opinion of Merchant and Otley seems to be inconsistent with the argument of Sandelin (2020) that suggests that organizations need to keep MC combination relatively simple to adapt the operation context. The two relatively contradictory opinions suggest that we still lack explicit understandings on the effect of operational context on MC combination. Thus, the paper will explore how operational context affects and shapes complex combinations of MC practices.

In general, the paper aims to explore the complexity of MC combination by investigating the shape and effect of organizational operational context on the combination. To achieve this aim, we conducted a case study and employed a coupling theory of Beekun and Glick (2001). This

theoretical framework concerns the relational patterns of organizational elements, which is appropriate for the paper, as (a) it provides an opportunity to explore the complexity of MC combination by identifying coupling status in terms of combined degree, dimensions and ways (Demartini and Otley, 2020); (b) it allows us to explore the effects of operational context on MC combination by introducing a ‘coupled domain’ concept. Building on the purpose and theoretical construct, the following research questions can be posted:

- 1: How are MC practices complexly combined?
- 2: How does organizational operation context shape and affect the complexity of MC combination?

The contributions to MC combination research can be identified in three aspects. First, we extend the MC combination literature (Bedford, 2020; Merchant and Otley, 2020). The paper highlights the complexity of MC combination by employing a MC coupling theoretical framework. The degree, dimensions and ways of MC coupling are scrutinized, highlighting how MC practices are combined from different perspectives. Second, we highlight and contribute to the effect of operational contexts on MC combination instead of widely discussed environmentally uncertain factors (Evans and Toker, 2015; Henri and Wouters, 2020; Rikhardsson *et al.*, 2021). Third, the paper shows how different MC combinations are operated to response organizational operational processes, encouraging practitioners to consider the functionalities of MC combination in their design and operation.

In the next section, the MC combination and coupling theory literature is reviewed, and some research gaps are highlighted, providing an extended coupling theoretical framework for case study. The research methodology follows in Section 3.3, and findings on the case company are analyzed in Section 3.4. Section 3.5 discusses these findings. Finally, a conclusion is drawn in Section 3.6.

## **3.2. Literature Review and Theory**

In this section, we will briefly describe how MC practices are combined in the MC literature. In addition, the concept and characteristics of coupling theory are reviewed to discuss its appropriateness for study of the complexity of MC combination.

### **3.2.1. MC Combination and Complexity**

MC combination research focuses on the discussion of the match, coexistence and coordination of multiple MC practices (Berg and Madsen, 2020; Bedford, 2020). In further research, the

concept of interdependence was introduced to elaborate the relationship of MC practices (Grabner and Moers, 2013). Building on this, a ‘system vs package’ debate arose. Some scholars (Grabner and Moers, 2013; Gerdin, 2020) argue that MC practices can be combined as a system because they are complementary and/or can be substituted for each other, while others argue that MC practices can be combined as a package where some practices (Merchant and Otley, 2020) are interdependent, but other practices are independent from each other. For example, the recent research of Gerdin (2020) highlights a system from an MC practices perspective. The MC practices in a university were categorized into two forms: social control and technical control. The research found that these MC practices were complementary and interrelated, and thus formed a system. By contrast, a recent case study by Berg and Madsen (2020) argued that MC practices can be combined as a package, as these practices are both interdependent and independent. For instance, financial measurement can be complementary to long-range planning, while separate from non-financial measurements.

Although most studies made efforts to evidence the reasonability of a system view or package view, a few scholars (Cooper *et al.*, 2009; Demartini and Otley, 2020; Merchant and Otley, 2020) argue that the relationship between MC practices is complex and diverse. The MC combination cannot be simplistically and generally viewed as dualism: a system or package which may limit the comprehensive understanding of MC combination. Merchant and Otley (2020, p. 3) suggested that MC combination needs to keep a complexity opinion that MC combination ‘*is generally loose coupled*’. However, we little know how MC practices are coupled to reflect the complexity. Although Denmartini and Otley (2020) analyzed the effect of MC couplings on organizational outcome, the article, as a quantitative research, cannot investigate the actual process of MC coupling of organizations in depth. Thus, a further quantitative study may be needed to explore how MC practices are combined/coupled in a real organization. To explore the complexity, we analyzed different degrees and dimensions of MC combination by employed coupling theory by employing coupling theory.

### **3.2.2. Concept and Extension of Coupling Theory**

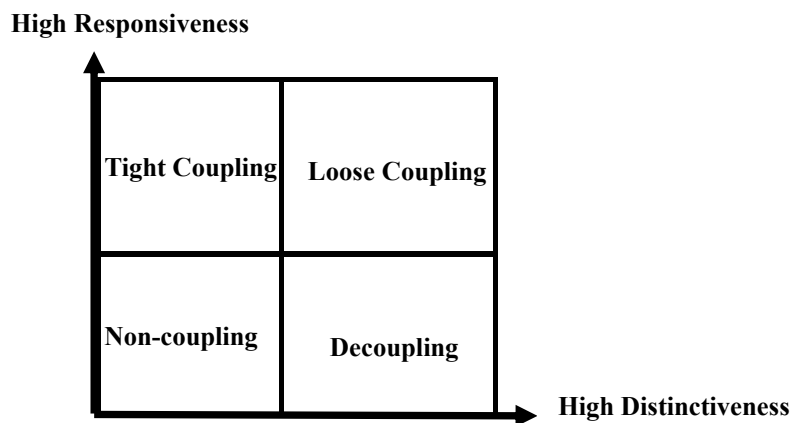
Coupling theory concerns the relationships between different organizational elements (Beekun and Glick, 2001). It aims to highlight the degree and strength of relationships rather than describing whether variables are coupled or linked. Weick (1976, p.3) defined coupling theory thus:

*Coupling... intends to convey the image that coupled events are responsive, but that each*

*event also preserves its own identity and some evidence of its physical or logical separateness.*

Thus, coupling theory appears to embed a contrasted and incompatible concept (Thompson, 1967), since it allows “*the simultaneous existence of rationality and indeterminacy*” (Orton and Weick, 1990, p.204). Coupling theory emphasizes that coupling among elements is not fixed but can be moved by strength and degree along a continuum (Beekun and Glick, 2001). To identify movement in the degree of coupling, Orton and Weick (1990) clarified two characteristics of coupling: ‘responsiveness’ and ‘distinctiveness’. While responsiveness captures to what extent elements are coupled or linked, distinctiveness preserves the degree of spontaneous changes and autonomous behaviour of elements that are distinct from each other (Demartini and Otley, 2020). As the **Figure 3-1** shows, based on the magnitude of degree of responsiveness and distinctiveness, four coupling types can be presented: tight coupling, loose coupling, decoupling and non-coupling.

**Figure 3-1: Different Couplings, based on Van der Kolk and Schokker (2016, p. 133)**



Based on this concept, coupling theory is appropriate to elaborate MC combination. The complexity of MC combination suggests that MC combination is not only limited into two fixed terms: system and package but also exist multiple forms. Coupling theory provides researchers an opportunity to investigate various combined degrees and thus highlight multiple combinations (coupling types). Merchant and Otley (2020) emphasized that complex MC combination could be viewed as an assembly of coupled MC practices. Bedford (2020) stated that loose coupling can be viewed as a fine-grained perspective to explore the interrelationships among MC practices. Thus, coupling theory can be viewed as an appropriate theoretical approach to contribute to theorize the complexity of MC combination.

Thus, to comprehensively explore the complexity of MC combination and the effect of operational context, this paper introduces ‘dimension’ and ‘domain’ concept of coupling theory proposed by Beekun and Glick (2001). While ‘dimension’ highlights different degrees of MC combination and thus illustrate the complexity, ‘domain’ help us to explore how operational context affect MC combination.

### ***Dimensions***

Orton and Weick (1990) argued that unidimensional coupling weakens the interpretation value of the theory. **Dimensions** provide indicators that examine the magnitude of degree of MC couplings. Based on the MC literature review, four dimensions of responsiveness and four dimensions of distinctiveness are categorized and used in the paper.

In terms of four dimensions of MC responsiveness, three dimensions of responsiveness are captured by MC studies of Moilanen (2012) and van der Kolk and Schokker (2016), which are *dependence*, *strength* and *directness*. Demartini and Otley (2020) highlighted one more dimension, *consistency*. **Table 3-1** underlines the concept and assessing method of these dimensions.

*Dependence* captures the necessity and proportion of exchange of inputs and outputs among MC practices. It presents the relative magnitude and degree of un-substitutability of exchange among MC practice (Beekun and Glick, 2001). In other words, the information of one MC can be viewed as one source of information of the other MC practice. Input information is necessary for MC practices (van der Kolk and Schokker, 2016). *Strength* refers to the frequency and intensity of communication among MC practices, and the probability that change in one MC practice affects the changes in other MC practices (Moilanen, 2012). Frequency highlights whether the use of one MC practice needs the simultaneous use of the other MC practice. Intensity highlights whether simultaneous use is important. *Directness* reflects the direct combination between MC practices (Demartini and Otley, 2020) without the impediment of ‘noise’. *Consistency* discloses the extent to which there are similar reactions of coupling elements when facing the same external stimulus (Beekun and Glick, 2001). It reflects whether the combination between MC practices is sensitive to change in the external environment, and if the interaction among MC practices is easier to change and more sensitive, this means that the consistency is lower. By contrast, the consistency is higher if the interaction is stable and can adapt to external change.

In terms of the four dimensions of MC distinctiveness, the paper introduces three dimensions,



*focus, use, components*, captured by the MC studies of Moilanen (2012) and van der Kolk and Schokker (2016). Demartini and Otley (2020) proposed one more dimension: discretion, where PMS allows managers to incorporate subjective and objective information. To apply the dimension to all MC practices, the paper provides an alternative dimension: *autonomy*. **Table 3-1** underlines the concept and assessing method of these dimensions.

*Focus* considers the control problems, missions and goals addressed by MC practices (van der Kolk and Schokker, 2016). It emphasizes the aims and purposes of MC practices, and whether these practices present similar or overlapping goals or address different objects and problems (van der Kolk and Schokker, 2016). *Use* captures the timing of MC practice use, and while ‘ex ante’ focuses on the preliminary actions for expected outcomes, ‘ex-post’ behaviour focuses on evaluation, discussion and assessment after events (Moilanen, 2012). ‘Interim’ captures the influence of MC practices during the process of events. *Components* emphasize the information included in MC practices. It captures whether the source of information being input into MC practices is the same or different (van der Kolk and Schokker, 2016). It focuses on whether the information of one MC practice can be viewed as the only source or just one component of the other MC practice. *Autonomy* highlights the degree to which MC practice can be allowed by managers to autonomously change. It captures whether an MC practice is distinctively changed based on managers’ judgement. Higher autonomy means that the MC practice can be more flexible to respond to local or managers’ needs.

**Table 3-1: The Coupling Dimensions**

<b>Coupling</b>	<b>Dimensions</b>	<b>Concept</b>	<b>Assessing method</b>
<b>Responsiveness</b>	<b>Dependent</b>	<i>Proportion</i> and <i>Necessity</i> of feeding information among MC practices and the degree of <i>un-substitutability</i> of the inputs and outputs.	necessity and un-substitutability present high dependence. Non-exchange or unnecessary input presents low dependence
	<b>Strength</b>	<i>Frequency</i> : each use of one MC practice needs the	Higher frequency, higher intense and

		<p>simultaneous use of the other MC practice.</p> <p><i>Intense</i>: whether the simultaneous use is important.</p> <p><i>Possibility</i>: the likelihood that the change of one MC practice affect the changes of the other MC practices</p>	<p>higher possibility presents higher strength</p>
	<b>Directiveness</b>	MC practices can be <i>directly</i> connected each other without impediment of 'noise'.	Directiveness or in-directiveness
	<b>Consistency</b>	<i>Similar reflection</i> of combination of MC practices when facing same external stimulus	More stable combination and similar reflection presents higher consistency
<b>Distinctiveness</b>	<b>Focus</b>	The <i>control problems, missions and goals</i> addressed by MC practices	Different focus presents higher distinctiveness
	<b>Use</b>	<i>Ex-ante, in-process, ex-post</i> use of MC practices	Different use presents higher distinctiveness
	<b>Component</b>	the <i>information constitution</i> included in MC practices	different source of information input into MC practices presents higher distinctiveness
	<b>Autonomy</b>	the degree that MC practices can be <i>autonomously changed</i>	Higher degree of autonomy higher distinctiveness

### **Domains**

Most MC coupling research puts coupling dimensions in first place (van der Kolk and Schokker, 2016), but ignores the explication of the context and content area of MC coupling occurrence, which may limit the understanding of elements coupling (Beekun and Glick, 2001). Beekun and Glick (2001) stated that coupling research not only considers the ‘relational focus of loose coupling’ but it also tries to explicate the context and content area of the occurrence of coupling. Thus, the paper introduces the ‘*coupling domain*’ concept of Beekun and Glick (2001). It refers to the content areas and context in which coupling elements can be loose coupled, tight coupled, and decoupled (Beekun and Glick, 2001). For instance, the organizational study of Grabowski and Roberts (1999) suggested that the members of virtual organizations can be gathered and loosely work together only when there are tasks occurring in the VOs (task-related communication domain), while members can tightly work in non-task situations (non-task-related communication domain). Thus, through the domain concept, we could investigate how MC practices are complexly combined/coupled under different operational context.

### **3.2.3 Coupling in Management Control Literature**

Empirically, research in the organizational area uses coupling theory to analyse different units, including individual units (Covaleski and Dirsmith, 1983), subunits (Ibarra, 1993), organizations (Chen *et al.*, 2011; Rasche, 2012), hierarchical levels (Cruz *et al.*, 2009), organizations and environments (Grabowski and Roberts, 1999), activities (Danneels, 2003; Berente and Yoo, 2012), intention and actions (Misangyi, 2016).

In management control areas, a few articles have endeavoured to use coupling theory to elaborate the tensions and conflicts within organizations, such as contradictions between headquarters and subsidiaries, by analysing MC practice changes (Lukka, 2007; Nor-Aziah and Scapens, 2007; Cruz *et al.*, 2009; Marriott *et al.*, 2011; Moilanen, 2012). For example, Cruz *et al.* (2009) studied the MC practices used between parents and subsidiaries. The company developed loosely coupled MC practices, such as the different use of ‘action plans’ in different subsidiaries, conforming to global rules and procedures (responsiveness) and simultaneously satisfying the local requirements (distinctiveness). Thus, for these studies, the loose coupling of MC practices can play a ‘buffering’ role (Orton and Weick, 1990), balancing the tensions between global and local rather than scrutinizing the relationships between MC practices. On the other hand, a few previous articles used coupling theory to explore the relationships among MC practices (Moilanen, 2012; van der Kolk and Schokker, 2016; Demartini and Otley, 2020). For example, van der Kolk and Schokker (2016) explored how three pairs of MC practices were tightly, loosely and decoupled in a company. However, the research did not utilize a

complete set of MCs framework which may have limited understanding of the MC combination. In addition, MC coupling studies should be more concerned with the operational context where coupling emerges (Beekun and Glick, 2001). Moreover, Moilanen (2012) illustrated how these MCs can be combined responsively and distinctively to steer a subsidiary's work on providing reports on parent company needs. However, the dimensions of MC coupling were not explicitly analysed. Furthermore, Demartini and Otley (2020) used quantitative method to analyse the loose coupling of PMSs. Their research measured the different dimensions of loose coupling to illustrate the PMS combinations. However, the research over-focuses on the definition and quantization of different dimensions of loose coupling, and thus ignores exploration of the process of PMS combination (Bedford, 2020).

In general, some literature discusses the relationship of MC practices based on coupling theory, but the combination of a complete set of MC practices is still unclear. The nature, processes and changes of the coupled combinations among MC practices is not explicitly investigated. Thus, this paper employs a coupling theoretical framework to explore how a complete set of MC practices can be responsively and distinctively coupled and combined, and thus highlights the process and nature of coupling among MC practices via a case study.

### **3.3. Methodology**

#### **3.3.1. Case study**

The paper conducted a case study on a Chinese state-owned company (SOE). As MC combination is complicated, case study design can provide more robust empirical evidence to comprehensively probe and investigate the multiple relationships of MC practices and was thus regarded as the most promising study mode in the area (Sandelin, 2008; Sridharan, 2021).

The selected company (pseudonym, NE) is a vital subsidiary of a large-scale and Fortune 500 Chinese SOE (pseudonym, China Electricity Co). NE takes charge of generating and selling electricity, making profit by constructing new energy programmes, such as solar energy, wind energy and photoelectricity. NE was established in 2014 and has almost 150 employees with a 'high quality' strategy. It has achieved many large power generation projects and is viewed as an important proponent of energy structure transformation. NE has six departments - administrative office, planning department, human resource department, financial department, operation department, and construction department.

### **3.3.2. The Rationale of Case Selection**

NE was selected for four main reasons. Firstly, as a subsidiary of a large-scale SOE, it displays comprehensive and superior MC practices, is viewed as an ‘exemplar’, and thus benefits the study of MC practices (Merchant and Otley, 2020, p.5). Secondly, although NE is a subsidiary, it not only has a mature headquarters control structure, but it also engages in self-production and self-selling of new energy electricity. Thus, selecting NE helps us to comprehensively understand how MC can be coupled between headquarters and subsidiary in the actual business process. Thirdly, access to the research site is important to research (Unluer, 2012). For this paper, access to NE was secure due to personal contact, which was one reason for choosing the case.

### **3.3.3. Data Collection**

Semi-structured interview, observation and archive documents were used as three main methods of data collection (Van der Kolk et al., 2020). Firstly, 23 interviews were fully audio-recorded and transcribed. The average length of each interview was 45 mins. Interviewees included the CEO, departmental managers and employees from different hierarchical levels of the case company. The summary information is presented in **Appendix 1**. All the interviewees were asked similar questions for verification of information (Sandelin, 2008). The interview questions included three themes to focus on. The first one was the types and use of MC practices based on the ‘objective of control’ of Merchant and van der Stede (2007). Based on the first theme, the second theme was about the linking of MC practices. Although the first theme captured the relationship among MC practices, more questions about the role of employees in the linking of MC practices were asked to enhance the understanding of MC practices combinations. Thirdly was the use of ISs. The specific questions are presented in **Appendix 2**.

Secondly, the paper collected 40 pages of archive documents on MC practices (Gerdin, 2020). These documents covered the stipulated responsibility and function of different departments, industry background information, company rules, culture and regulations, and some templates for budget forms and PM marking forms. These documents provided more explicit insights about the research topic and facilitated discussion during the interviews. Furthermore, they also provided a means of checking the validity and reliability of data (Riege, 2003)

Finally, we conducted observation on the use of ISs. To understand the effect of ISs, we spent some time observing how employees demonstrated the function and operation of ISs during

their work routine. Observation in each department lasted 30 minutes.

### 3.3.4 Data Analysis

The paper selected thematic analysis which benefits the exploration of relationships among data (Braun and Clarke, 2006). The researcher analysed and coded these collected data via ‘Nvivo’ software. Building on the coupling theoretical framework, four components were identified, and two main coding steps were conducted. Firstly, we identified MC practices in the case company by analysing conversations with employees and collected documents (cf. Van der Kolk et al., 2020). Five MC practices - planning, budgeting, PM, administrative control and culture control were identified. Although the analyzed data originated from the objective-of-control-based questions (Merchant and Van der Stede, 2007), the identified five MC practices overlapped with the components of the MC framework of Malmi and Brown (2008). Nevertheless, not all controls in the framework could be found in NE.

Subsequently, we investigated coupling domains where MC practices are operated. In the process, two coupling domains - hierarchy domain and workflow domain - were identified. Finally, we studied couplings of MC practices in NE by analysing the dimensions between identified MC practices and thus exploring the complexity of MC combination. In the next section, we provide empirical evidence to illustrate the different MC couplings under the two domains. **Table 3-2** presents the process of the identified dimensions and domains.

### 3.3.5 Validity and Reliability

Yin (1994) elaborated four design tests to highlight the validity and reliability of data. These are construct validity, internal validity, external validity and reliability. **Table 3-3** displays how the paper protects its validity and reliability.

**Table 3-3: Validity and Reliability**

	<b>Methods In The Paper</b>
<b>Construct validity</b>	Multiple sources: 1. Semi-structured interview, documents and observation. 2. Interviewees from multiple hierarchical levels (Director, departmental head, employee), all of whom are separately interviewed. Cross-check: verbatim interview transcripts and notes of observations.
<b>Internal</b>	Presentation of illustrations and diagrams to assist explanations in the data

<b>validity</b>	analysis phase, e.g. Table 1, 2, 3.
<b>External validity</b>	Comparing data analysis results with extant literature to highlight contributions, generalize those results and enhance replicability, e.g. Malmi and Brown's MC practices framework.
<b>Reliability</b>	Multiple check: Asking similar questions to multiple interviewees. Data record: fully audio-recorded interview and full transcription.

**Table 3-2: Constructs and Coding**

Constructs	Codes	Quotation examples
<b>Responsiveness</b>	<b>Dependence</b>	<p><i>“We must conduct the annual budget for getting the four tasks...the four tasks can be assigned with approved budget...If we <b>don’t report</b> the annual budget for approval, the budget is <b>invalid</b>, and any activities based on the budget are unreasonable. It is our company’s rule, regulation...” – CEO (Administrative, culture, budgeting)</i></p> <p><i>“the stipulated transfer of four tasks also reflects that China Electricity Co wants to ensure the effective and profitable operation of every subsidiary, and enhance the party construction in each subsidiary, because we are ‘red’ company” – CEO (Culture control and administrative control)</i></p>
	<b>Directness</b>	<p><i>“Our planned programmes in this year can <b>directly</b> reflect into the annual budget, these can be reflected by money in the annual budget.” - Deputy head of Financial Dep (Planning and budgeting)</i></p> <p><i>“After the assessment result of headquarters are issued, it is <b>not directly</b> viewed as final result of department and employee of our company, it also needs to be combined with our PM results.” - Head of Human Resources Department (Headquarters PM and NE PM)</i></p>
	<b>Strength</b>	<p><i>“We need to do a performance measurement <b>in each quarter</b>. In the performance measurement, we need to assess whether departments and employees can achieve planned tasks and carry out programmes within budget.” - Head of Human Resource Department (PM, planning and budgeting; frequency)</i></p>



		<p><i>“We need to do monthly budget. The inclusive costs of monthly budget have been stipulated by our rules. Each monthly budget <b>must comply</b> to these rules.” - Deputy head of Financial Dep (Budgeting and administrative control; intense)</i></p> <p><i>“When a programme is cancelled or changed, the previous budget for the old programme can be offset by the new programme, because, in our company, the scale of the programmes we can accept do not have a big difference. It is scarcely possible that we change a programme that has a big difference with the prior one. Of course, we <b>need to change budget</b>, but it is not a big change” - Deputy head of Financial Dep (Planning and budgeting; intense)</i></p>
	<p><b>Consistency</b></p>	<p><i>“In October of each year, our colleague who takes charge of budget can download these forms and send them out based on the forms content...we must do it each year. Although it is possible that assigned four tasks from headquarters are different, the process of conducting budget, cost and so on <b>cannot be changed</b>. It is the precondition of other business” - Deputy head of Financial Dep (Administrative and budgeting)</i></p> <p><i>“After the development task is assigned in January, we start to consider how to achieve the task. For example, headquarters give us 70 million electricity tasks, but we just planned, saved and reported 50 million-electricity programmes. So, we need to try to bid with the programmes of local government in</i></p>

		<i>July or August for achieve extra 20 million...However, it is possible that all local governments in Shanxi provinces do not give any programmes. In this situation, we cannot achieve the tasks, but it is an <b>objective situation</b>. We won't be punished..." - Head of Planning Dep (PM and planning)</i>
<b>Distinctiveness</b>	<b>Components</b>	<p><i>"The first one is assessment of <b>some indicators</b> like profit, added value, electricity power production volume etc...The second one is to <b>score</b> for individuals including managers, senior managers, employees etc" - Head of Human Resource Department</i></p> <p><i>"The final <b>annual budget</b> is mainly presented based on monetary numerical forms, although it also notes some non-monetary figures and data like <b>planned electricity programme</b> scales, planned equipment maintenance rate, employee accident rate, etc...because whatever activities or business you plan, you will end up with money... these can be mainly transferred into monetary forms." – Deputy of Financial Dep</i></p>
	<b>Focus</b>	<p><i>"<b>For reducing labour costing</b>, we have some rules. For an example, travelling expenditure, managers' travelling expenditure has been stipulated by regulations of the company. We can require managers to take economy class instead of business or first class." – Deputy of Financial Dep</i></p> <p><i>"In my company, the performance assessment can be divided in two ways...These methods <b>help</b> the employee to understand what their performance is..." - Head of Human Resource Department</i></p>
	<b>Use</b>	<i>"In our company, annual budget of this year can be set at <b>the end of last year</b>. Meanwhile, we also do</i>

		<p><i>monthly budget for monitoring and ensure the work of annual budget” - Deputy of Financial Dep</i></p> <p><i>“We can assess employees’ quarterly performance at the <b>end of each quarter</b>” - Head of Human Resource Department</i></p>
	<b>Autonomy</b>	<p><i>“There are many things we <b>can’t directly decide</b>, like annual budget, assessment results of four tasks...it is not up to us. We need to comply with headquarters’ rules and regulations” – Head of Financial Dep</i></p> <p><i>“In general, the reported annual budget, plan, costing <b>is not usually changed</b> by headquarters. Headquarters usually can directly approve and pass our annual budget, plan and other cost... for these planned programmes and costing, we have autonomous right” - Deputy head of Financial Dep</i></p> <p><i>“Our company’s PM is <b>designed by ourselves</b> based on our company situation; it is decided by ourselves...” - Head of Human Resource Department</i></p>
<b>Hierarchy domain</b>	<b>Accepting task stage</b>	<p><i>“One important working part is to achieve the task indicators assigned by headquarters. These indicators also can affect our planning, arrangement and working process etc...” – CEO</i></p> <p><i>“We must conduct the annual budget for getting the four tasks...the four tasks can be assigned with approved budget...If we don’t report the annual budget for approval, the budget is invalid, and any</i></p>

		<i>activities based on the budget are unreasonable. It is our company's rule, regulation..." - Deputy head of Financial Dep</i>
	<b>Assessing task stage</b>	<i>"At the end of each year, headquarters assesses if we have achieved the tasks assigned in the last year" - Deputy head of Financial Dep</i>
<b>Workflow domain</b>	<b>Bidding programme stage</b>	<i>"For programme construction, all of departments' work are connected with each other now. In the past, the NE's pattern is that, once we get an electricity programme, then we just need to record it, we can start to construct. We don't need to keep taking care of it. But now, all departments form a loop. We need to be fully involved in the process." – Head of Planning Dep</i>
	<b>Pre-constructing stage</b>	<i>"Before the formal construction, pre-construction procedure is necessary, including applications of some certifications, preparing construction drawings, etc." – Head of Construction Dep</i>
	<b>Constructing programme and generating electricity stage</b>	<i>"After the planning dep bids for a programme, the programme will be transferred to the construction dep who start to construct. After construction, the constructing dep also needs to engage in completion acceptance. After that, the programme will be transferred to the operational dep for generating electricity, maintenance and selling. Of course, the office and financial dep can support the construction." – Head of Operations Dep</i>

### **3.4. Empirical Findings**

This section presents our findings on how MC practices can be coupled in the hierarchy and workflow domain and investigates the combination role of ICT in each domain. Section 4.1 shows the characteristics of NE's MC practices, while Section 4.2 and 4.3 show how MC practices can be responsively and distinctively combined in both domains, respectively. Section 4.4 finally makes comparisons between MC couplings of both domains.

#### ***3.4.1. MC Practices in Case Company***

Five main MC practices has been identified in NE via data analysis, which are, planning control, budgeting control, performance measurement (PM), administrative control and culture control.

##### ***3.4.1.1. Planning Control***

Malmi and Brown (2008) separate planning control from budgeting control as “planning can be done with little reference to finance”. NE's planning control is identified as a program planning for a 12-month period. In the fourth quarter of each year, NE needs to plan what and how new electricity programmes can be constructed for the coming year. The programme planning guides what employees should work towards. In general, planned electricity programmes are the beginning of company business.

##### ***3.4.1.2. Budgeting Control***

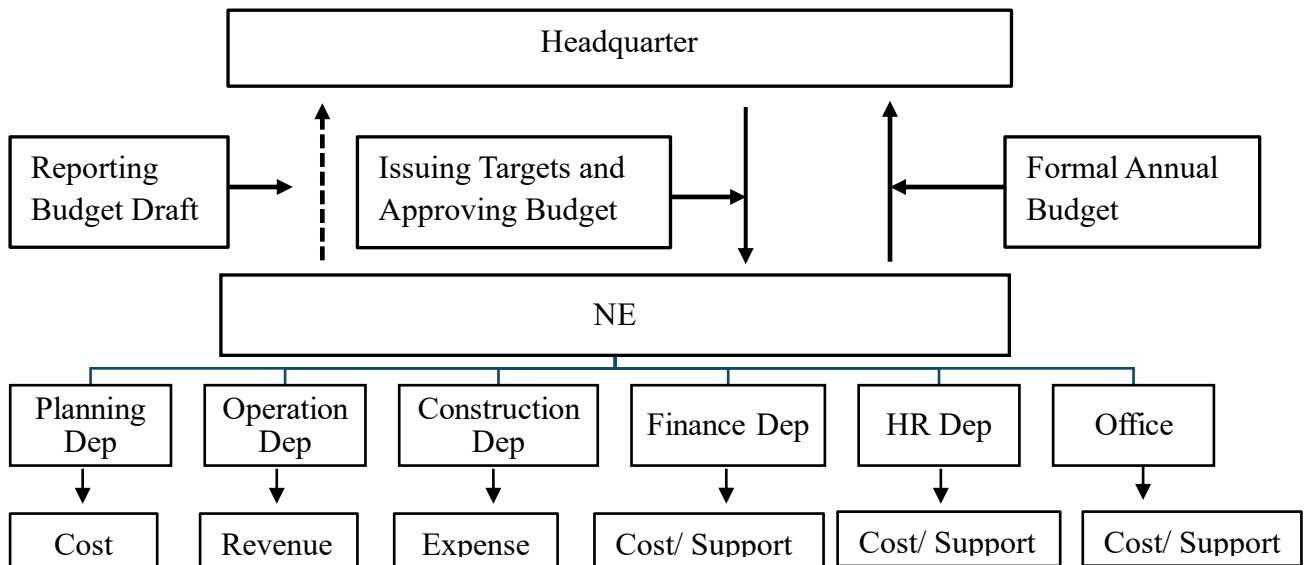
In NE, budgeting is viewed as a fundamental part of business activities, and is mainly prepared, organized and managed by the financial department. The deputy head of the financial department said that the

*“Budget is like a ‘valve’. The valve can control the occurrence and stop of all of expenditure and cost”.*

NE's budgeting includes the annual budget and the monthly budget. Annual budgeting is prepared via a bottom-up process. In the second half of each year, NE has to bid for programmes for the coming year. After a successful bid, the company starts to prepare an annual budget draft for the existing programmes. All programmes-related expenditures and costs need to be filed and summarized by the different departments into a formatted annual budget draft. The draft budget is reported to headquarters for approval at the end of the year through a budgeting system. Headquarters will then issue targets to NE and formally approve the annual budget draft in January of the following year. **Figure 3-2** shows the process of budgeting in NE. In addition, a monthly budget is used for adjustment, control and monitoring

of business expenditure and costs. On the 20<sup>th</sup> day of each month, the budget for the next month is reported and imported into the budgeting system.

**Figure 3-2: Process of Annual Budget**



### 3.4.1.3. PM Control

PM, led by the human resources department, consists of objective and subjective measurements. Objective PM is composed of a series of objective financial and non-financial indicators based on headquarters requirements and is applied to assess whether the departments achieve the annual tasks assigned by headquarters. The head of the HR department said:

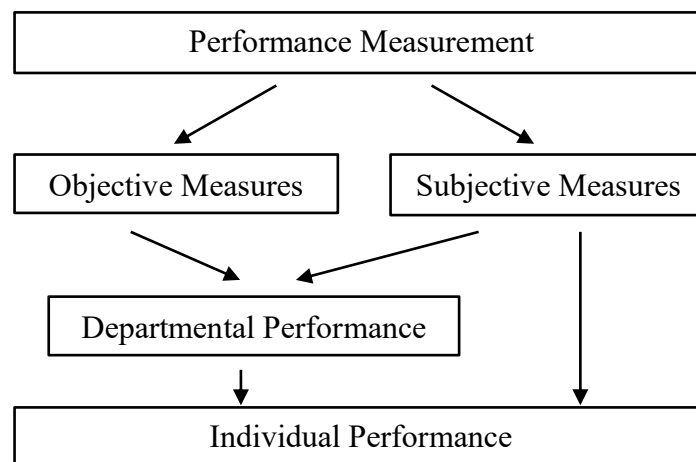
*“The objective PM in our company is fixed and related indicators issued by headquarters”.*

NE does not have the right to directly self-assess if it has matched these indicators. The indicators need to be assessed by headquarters based on the overall achievement of tasks. The final assessment results are sent to NE at the end of the year. NE disaggregates the results to different departments based on the weight of their respective responsibilities. For example, the planning department is mainly in charge of bidding programmes and has responsibility for the number of programmes. Thus, the weight of results on quantity indicators is mainly allocated to the planning department. However, the work of the operations department also relates to tasks because it focuses on the construction of planned programmes. Hence the weight of responsibility is also allocated to the operations department but is less than that of the planning department.

Subjective PM is used to assess departments and individual performance by scoring systems to improve working capacity, creativity and positivity. For departments, four aspects are scored: performing work routine, achieving focused tasks, internal construction of the department (e.g. business innovation and building work environment) and inter-departmental coordination. Two scoring methods are used to mark these aspects by a top managers' panel at the end of each quarter. The first method is *benchmark*. The top managers rank the departments based on their performance and award a certain mark to each department accordingly. The second method is *direct scoring*. Top managers score departments' performance directly based on a given range of scores for the above four aspects. The scores obtained by the two methods are weighted and added together, forming the final departmental score.

For individuals, NE adopts a *360-degree feedback*. Employees receive performance feedback from their supervisors, managers and peers. These different groups mark each employee based on different marking standards. For example, if the employee being assessed is a senior manager, the marker groups are higher-level managers and same-level colleagues. The marking standard is about the level of managing and making business, executive force, routine performance and group coordination. If the marker group is subordinates, the marking standard is the senior manager's ability to play the role of subordinate, improve the quality of subordinates, managerial innovation and creating a favourable working atmosphere. Subsequently, these marks are totalled to give the final individual mark. It should be acknowledged that the final purpose of departmental PM services is the individual PM. **Figure 3-3** presents the components of NE's PM.

**Figure 3-3: PM in NE**



#### ***3.4.1.4. Administrative Control***

Administrative control in NE is mainly presented as rules and procedures, which are embedded into reporting procedures, financial policies, working process and timeline, employees' skill trainings. These rules and procedures are in place to indicate the flow of the primary business and set the boundaries in terms of employees' behaviour. For instance, NE has specific procedure and timeline for preparing budgets; there are financial policies on travelling arrangement for business trips, etc.

#### ***3.4.1.5. Culture Control***

NE's company culture is depicted as 'three colours' of red, green and blue as shown on the official website. Firstly, red represents the stated-owned feature of the company. NE shall respect the Chinese Communist Party's leading position and employees shall respect supervisors' and managers' requirements. NE periodically holds thought-sharing meetings, to promote the red culture. Secondly, green represents the company's focus on enhancing the safety and quality of employees by engaging in employee training and including employee safety in PM. Thirdly, blue refers to the effort that NE makes to pursue and expand company values and scale and return and respect for investors. The blue culture emphasizes that employees comply with company regulations for ensuring the high quality of programmes. In general, the 'three-colours' culture affects employee behaviour in different aspects.

### ***3.4.2. MC Couplings in Hierarchy Domain***

In this section, the paper presents the findings on how five MC practices are responsively and distinctively combined in hierarchy domain, and how ISs is used to function couplings.

#### ***3.4.2.1. Hierarchy Domain***

NE, as a subsidiary, must accept and achieve four tasks, namely *operation task*, *development task*, *safety task* and *party construction task*, assigned by its headquarters in each year. The four task indicators are viewed as a way of headquarters to monitor and ensure the smooth operation of NE. This hierarchy domain emphasizes a communication between NE and headquarters.

*Operation task* requires that NE shall achieve certain profit targets supplemented by some profit-related ratios, like value-added rate and asset return rate. *Development task* stipulates the quantity of electricity programmes NE constructs. *Safety task* sets the targets on employee safety and accidents. *Party construction task* focuses on party-construction activities which stimulate employees' enthusiasm for work, improve the acceptance of strategies and tasks, and



enhance the sense of belonging to a corporate culture.

MC practices are used to ringfence communication between NE and headquarters in two stages: accepting tasks and assessing tasks. In this area, NE's MC couplings aim to achieve the two stages and thus maintain communication with headquarters.

First, accepting tasks refers to the process by which NE accepts the four tasks assigned by headquarters. The tasks cannot be blindly assigned. Headquarters only assigns tasks based on NE's submitted annual draft budget. Administrative control is in place to highlight a series of procedures to guide the engagement of employees in the activity. The specific procedure is that in October of each year, NE provides an annual draft budget to headquarters based on the planned programmes. Headquarters assesses the annual budget and assigns four tasks for the forthcoming year, following approval of the budget. Having received the four tasks, NE usually holds a meeting with managers from different departments to collectively discuss and contribute ideas about how these tasks are to be achieved. As a result, different departments' responsibilities are divided and become the basis of objective PM.

Second, at the end of each year, as the PM section shows, the performance and achievement of tasks is assessed by headquarters, based on NE's submitted reports and objective indicators, such as the financial report and programmes construction report. NE disaggregates the headquarters' assessment to different departments based on divided responsibilities at the tasks acceptance stage. In the process of accepting and assessing tasks between NE and headquarters, different MC practices are used to enable the communication.

#### ***3.4.2.2. MC Responsiveness and Distinctiveness in Hierarchy Domain***

Based on coupling dimensions, the section presents how these MC practices are coupled responsively and distinctively through hierarchy domain. The couplings are summarized in **Table 3-4**.

First, the coupling of annual budgeting and programme planning. NE's annual budget is drafted to accept headquarters' tasks based on the planned programmes. Information on the planned programmes is *directly* fed into the budget as an *important, necessary* and *un-substitutable* component. In addition, preparing annual budgets is always accomplished by the simultaneous use of programme planning, which means that both practices are *dependent*, and the link is *high frequent* and *high intense*. It is *highly possible* that a change of programmes would cause change in the content of the annual budget. The link is *high strength*. Furthermore, *consistency* is high among the two MC practices. The deputy head of the Financial department described

the work as follows:

*“The planned programmes with related costs and expenditure must be organized into annual budget. Whatever situations happen, the process still is conducted. It is the beginning of our company’s all of activities. No process, no business”.*

This quote suggests that the link is stable. Thus, highly dependent, strong, consistent and direct equals highly responsive. However, the distinctiveness of budgeting and planning is low. Both occur at the stage of accepting tasks, which is *ex-ante used* control. In this domain, the planning focuses on preparation of NE’s programmes, while the annual budgets broadly cover all the planned activities and related revenue and costs. Planned programmes are a *dominated component* and account for *a large proportion* of the budget. Moreover, annual budgets cannot be autonomously changed once they are approved by headquarters. The deputy head of the Finance department added:

*“There are some things we can’t directly decide, like annual budget... it is not up to us. We need to comply with headquarters rules and regulations about budget”.*

By contrast, NE can autonomously operate the planned programmes and bid for new programmes. Although these programmes need to be reported to headquarters, the purpose of reporting is for filing, rather than for approval. The head of the Planning department describes how

*“Headquarters doesn’t care about when, what and how these planned programmes are got. They only care about if you can get programmes that makes your tasks be achieved. So, we can autonomously decide the process of bidding programmes”.*

In summary, although the level of autonomy in budgeting and planning is different, overlapping focus and components, and similar use present a low level of distinctiveness.

Second, the coupling of administrative control and budgeting control. In this domain, NE’s administrative control sets the rules about when and how the annual budget should to be conducted. The rules and procedures for preparation and approval of the annual budget as a part of administrative control is *directly embedded* in the hierarchy domain. It means that the *simultaneous use* of administrative control is *imperative* in the use of budget for guidance, implying high *strength* and *consistency*. The deputy head of the Finance department described the work:

*“In October of each year, our colleague who takes charge of budget downloads fixed-format*

*budget forms from budgeting system... We must conduct the annual budget based on these pre-set procedures...If we don't do it, the budget is invalid, and any activities based on the budget are unreasonable....”*

However, these rules are not the components and content of budgeting, which means they are *low dependent*. Overall, annual budgeting is highly responsive to administrative control, being high strength, consistent and direct. These rules are *pre-set* to guide employees and cannot be easily changed. Therefore, the focus, components and autonomy are different with the budget, which reflects a high level of distinctiveness.

Third, coupling of culture control and administrative control. Culture control in NE further strengthens the power of administrative control. NE's Red culture suggests that subsidiaries and employees shall follow headquarters' and managers' orders. This makes administrative control become a *necessary* and *directly dependent* carrier of culture control. As this dependence is important and cannot be easily changed, the link for both is *high* strength. The CEO of NE described this work:

*“These pre-set procedures about transferring tasks from headquarters actually suggest that headquarters wants us to follow its leadership, because we are ‘red’ company...”*

Culture control is *similarly ex-ante* used to focus on guiding employees' behaviour to adapt and conform to the 'three colours' culture in the domain, which is consistent with the focus of administrative control. NE does not have right to change the meaning of culture. Therefore, a low distinctiveness is presented by MC.

Fourth, the coupling administrative and PM. PM, as *post-ante* control, focuses on objective indicators to assess achievement in the four tasks by each department in the domain. In the process of assessment, the pre-set responsibilities taken on by different departments can be viewed as administrative control. The head of the HR department described the work:

*“We hold a meeting, after getting the four tasks, to discuss how departments can coordinate to achieve them. During the meeting, we clarify the working content and responsibility of different programmes, which provides basis for the disaggregation of PM at the end of year. This is our regular procedure...”*

The disaggregation process reflects that the use of PM needs the *simultaneous use* of administrative control, which *directly* and *significantly* guides how PM can be executed at this stage. Although administrative control is not viewed as the input content of PM, high responsiveness is still reflected due to high strength, directness and consistency. For

distinctiveness, although the autonomy of both practices is similarly low because objective indicators of PM based on headquarters cannot be changed, the focus, use and components are different. A high distinctiveness is suggested. The head of the HR department said:

*“The objective PM in our company is fixed. They are completely about the four tasks and are related with indicators issued by headquarters. It is almost not changed”.*

Fifth, the coupling of PM and culture control. Objective PM including the assessment of party construction tasks *directly* reflects the *feeding* of red culture as one part of PM. A high responsiveness is highlighted. Although autonomy is similarly low, the focus and use of objective PM is different from culture control. In addition, assessment of party construction tasks is just one of four tasks which may overlap. Thus, a high distinctiveness is shown.

Sixth, the coupling of PM and planning. Both are highly responsive. NE’s PM *must* assess whether the planned programme can generate expected electricity capacity, which reflects that the information on programme planning is *directly* and *necessarily* related to objective PM. High consistency is also shown between both. The head of the Planning department said:

*“After tasks are assigned in January, we start to consider how to achieve the task. For example, headquarters give us 70 million electricity tasks, but we just planned 50 million-electricity programmes. So, we need to try to bid with the programmes of local government in July or August for achieve extra 20 million...However, it is possible that all local governments do not give any programme. In the situation, we cannot achieve the tasks, but it is an objective situation. We won’t be punished...”*

The above quote suggests that when the external environment affects the process of planning, PM is changed accordingly to cope with the new environment. For distinctiveness, a high level of distinctiveness is shown. PM is different from planning control in terms of focus, use and autonomy, although there are partly overlapping components.

Seventh, PM is also highly responsive and highly distinctive from budgeting. Whether the annual budget can be executed appropriately is one of the assessment measurements, which reflects that annual budget is *necessary*, *directly dependent* and *stable* as an input of PM. However, the strength of the link is relatively low. The head of the Finance department from headquarters said:

*“The achieved situation of budgeting is one of assessment measures, but it is not crucial. For example, if (NE) get a loss in one year, even though budget is 100% perfectly executed, we cannot give you a high mark due to the 100% budget, because loss means bad work”.*

Moreover, a high distinctiveness is presented. The focus and use of both exist differently, although there are few overlapping components, in that PM needs a few data from budgeting to assess performance.

Overall, in hierarchy domains, different degrees of responsiveness and distinctiveness exist among different MC practices by analysing their dimensions. Different MC couplings are illustrated and showed in **Table 3-4**.

**Table 3-4: Couplings in Hierarchy Domain**

<b>MC Practices</b>	Planning vs Budgeting	Budgeting vs Administrative Control	Administrative Control vs Culture	PM vs Administrative Control	PM vs Culture	PM vs Planning	PM vs Budgeting
<b>Responsiveness</b> - Dependence - Directiveness - Strength - Consistency	<b>High</b> Necessity Direct High High	<b>High</b> Non-exchange Direct High High	<b>High</b> Necessity Direct High High	<b>High</b> Non-necessity Direct High High	<b>High</b> Necessity Direct High High	<b>High</b> Necessity Direct High High	<b>High</b> Necessity Direct Low High
<b>Distinctiveness</b> - Focus - Use - Components - Autonomy	<b>Low</b> Mostly overlapped Same Mostly overlapped Different	<b>High</b> Different Same Different Different	<b>Low</b> Partly overlapped Same Partly overlapped Same	<b>High</b> Different Different Different Same	<b>High</b> Different Different Few overlapped Same	<b>High</b> Different Different Partly overlapped Different	<b>High</b> Different Different Few overlapped Same
<b>Combinations</b>	<b>Tight Coupling</b>	<b>Loose Coupling</b>	<b>Tight Coupling</b>	<b>Loose Coupling</b>	<b>Loose Coupling</b>	<b>Loose coupling</b>	<b>Loose coupling</b>

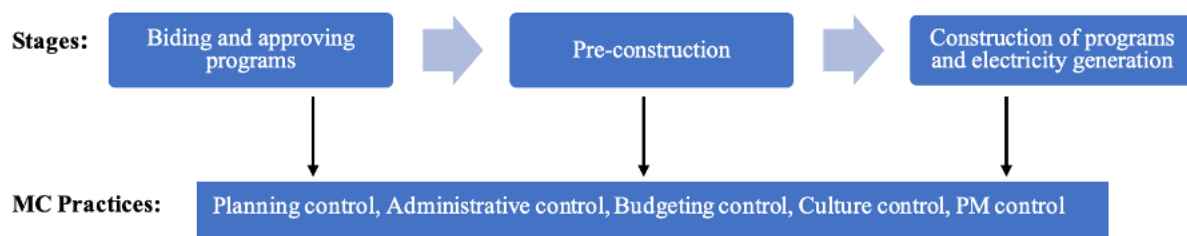
### 3.4.3 MC Couplings in Workflow Domain

This section presents findings on how MC practices can be responsively and distinctively combined in work domain and how ISs are used to contribute the couplings.

#### 3.4.3.1 Workflow Domain

In NE, the workflow domain emphasizes a production line or an assembly line. NE mainly engages in the production and sale of new-energy electricity business. Its workflow can be described as having three stages in which MC practices are coordinated to ensure smooth business operation. In the domain, NE's MC couplings aim to ensure the smooth progress of construction and achievement of programmes. **Figure 3-4** exhibits these stages.

**Figure 3-4: Workflow Domain**



Following successful bidding by the planning department, these programmes shall be reported to headquarters for recording and filing based on pre-stipulated procedures and rules. After that, the construction department engages in the second stage, pre-construction procedures, such as obtaining construction certifications and designing construction policies. When the pre-construction procedures are completed, NE moves to the third stage to construct the programmes to generate and sell electricity. In the construction process, quality management and safety management are conducted by the operations department. Once these programmes are built, the operations department is required to take over the programmes for generating electricity, maintenance management, and selling electricity to the power supply bureau.

Planning control is used in the domain for setting the standard process of constructing programmes and clarifying the tasks and expected behaviours of departments and employees. Administrative control highlights the specific procedures and rules. Budgeting control and PM control in the domain are presented at all three stages. Budgeting focuses on monthly budget and controlling annual budget that is used to estimate and report the expected cost and expenditure for next month's programmes. PM is used to do subjective assessments at the end of each quarter, ensuring programme quality and positivity in the workplace. Culture control is

used to ensure employees inwardly understand how to behave in the work routine by periodically holding culture forums, conferences, seminars and mobilization meetings.

#### ***3.4.3.2 MC Responsiveness and Distinctiveness in Workflow Domain***

Similar as hierarchy domain, coupling dimensions are used to illustrate MC couplings of working domain.

First, the coupling of planning control and administrative control. In NE's workflow domain, the combination of planning control and administrative control is important. From bidding programmes, pre-construction to formal construction, planning control highlights the standard process of programmes construction and expected behaviour of employees. Administrative control is coordinated to provide specific procedures, rules and codes for these constructions. Thus, during all planned and prepared construction activities it is *necessary* to follow stipulated procedures, such as the timeline and prescribed steps of construction. These procedures *directly* and *frequently* convey fixed standards for construction goals. Thus, a high responsiveness is showed. The head of the Construction department described this work:

*“Our company has our own a set of procedures for these planned programmes. These procedures clearly dictate what, when and how different departments should do. These procedures have been pre-set. We just need to do it based on these”.*

Moreover, both MCs present low distinctiveness. In the domain, both are used *ex-ante* to *similarly* focus on planning and guide constructions for ensuring smooth operation, which suggests overlapping components. In addition, it is possible that planned energy programmes can be changed, or new programmes added in the domain due to unpredicted accidents, which allow a change of plan, while the pre-set construction steps do not need to be changed. Different *autonomy* is reflected.

Second, the coupling of planning control and budgeting control. During these stages of NE, it is *necessary* to reflect each change of information to planned programmes in the monthly budget. Thus, the *dependence* is *frequency*, *high possibility* and *consistent*. Moreover, the dependence is *direct*. Although any such change needs to be reported to headquarters, the information is not modified by headquarters, as the purpose is simply for filing. While the *intensity* of the information change exists, it is not strong enough. The deputy head of the Finance department said:

*“When a programme is cancelled or changed, the previous budget for old programme can be offset by new programme, however, it is scarcely possible that we change a programme*



*that has a big difference with prior one”.*

Thus, a high degree of responsiveness is suggested. In addition, a high degree of distinctiveness between both is presented. Although the components are partly overlapping, the aims of the monthly budget, as an in-process control, is to monitor construction expenditure and control the annual budget, which is different from planning control. The monthly budget is only changed with the change of programmes. NE’s managers are not allowed to autonomously change the budget.

Third, budgeting and administrative control are highly responsive to each other. On the 20<sup>th</sup> of each month, different departments are required to conduct a monthly budget for estimating and reporting costs for the following month. A Financial department employee described the work:

*“For reducing labour costing, we have some rules. For an example, travel expenditure. We can require managers to take economy class instead of business and first class”.*

Some rules, like ‘limiting travelling expenditure’, are *directly* transferred as the *necessary* implemented standards of budget, which suggests high *dependence and strength*. In addition, both are highly distinctive. Although both MCs are similarly less autonomous, their purpose is different. Components of both are slightly overlapping but their uses are different.

Fourth, culture control is still highly responsive to administrative control. Some contents of culture control are *necessarily* embedded in pre-set rules in the process of construction, such as reports of changing programmes (red culture), employee safety management (blue culture), and construction safety management (green culture). The CEO of NE said:

*“Employees’ knowledge and sense of identity on our culture is quite important. We have emphasized our culture by some pre-set rules and procedures...”*

However, both are highly distinctive in affect NE’s workflow. Although culture control is still used ex-ante to compulsorily require managers and other employees to hold and attend culture forums and mobilization meetings before construction, reflecting a similar low degree of autonomy, culture control mainly and directly aims to cultivate employees’ work enthusiasm and business innovation in this domain, which is different from administrative control.

Fifth, the coupling of PM and planning control. PM is mainly used at the end of each quarter to focus on subjective assessments for motivating employees’ creativity and positivity in the workflow domain. Benchmark, direct methods of marking and 360-degree feedback are used for departments and employees. The head of the HR department described the work thus:

*“Subjective PM is necessary for our company. We cannot use objective indicators to assess our employee. It is unfair and ineffective. We want to look into employee status, attitude, management etc during their routine”.*

In the process of NE's routine operation, the information on planning control is *directly embedded* in the marking standards of departments' PM, such as the standard of inter-departmental coordination to achieve planned high-quality programme construction. Even though the external environment affects cancellations and changes to programme planning, PM is still used for assessing how well departments deal with such change. Thus, a high responsiveness is shown.

For distinctiveness, in the domain, the aim of PM is to address two control problems within NE. Firstly, with the expansion of scale, employee capabilities cannot always be matched with their positions. In SOE, employees and managers are not normally dismissed or demoted unless they make substantial political mistakes. However, the scale of expansion requires more capacity and positivity from employees. Thus, in addition to objective PM, subjective PM needs to be conducted to clarify promoted and demoted mechanisms. Secondly, unclear allocation of rewards results in weak innovation and enthusiasm. Previously, bonuses were firstly assigned according to departments' objective PM, and then averagely assigned to employees, due to the lack of assessment of individual PM. However, this resulted in decreased creativity and enthusiasm among employees, which did not encourage the development of NE. Thus, subjective PM was applied to enable individual rewards. The aims of PM are different from those of planning control. Moreover, NE's departmental managers are not allowed to autonomously modify subjective PM to adjust rewards. Thus, PM, as an ex-post control, includes partly overlapping components where the planning control, use, aims and autonomy are different, manifesting a distinctiveness.

Sixth, PM is *directly dependent* on administrative control and culture control. The marking standards of PM reflect the rules and culture of NE. For example, absence and early departure of employees as indicators of subjective PM are also ruled by NE. Business innovation and compliance with superiors' requirements as indicators are also reflected in the culture. However, these indicators reflecting rules and culture only account for 15%. The aims and use of PM are different from both. Moreover, the indicators of PM cannot be autonomously amended by NE's managers, highlighting a similar degree of autonomy.

Seventh, the link of PM and budgeting is decoupling in this domain due to low responsiveness

and high distinctiveness. Budget is not included in the marking standards of PM. Although subjective PM suggests that employees should achieve their work duties and tasks, so financial employees should properly implement budgets, the assessment standard for the budget is *implicit* and *unnecessary* for subjective PM in NE.

Overall, in workflow domain, MC practices have presented different levels of responsiveness and distinctiveness, which highlights different couplings that are presented in **Table 3-5**.

**Table 3-5: Combinations in Workflow Domain**

<b>MC Practices</b>	Planning vs Administration	Planning vs Budgeting	Budgeting vs Administrative control	Administrative control vs Culture	PM vs Planning	PM vs Administrative control and Culture	PM vs Budgeting
<b>Responsiveness</b>	<b>High</b>	<b>High</b>	<b>High</b>	<b>High</b>	<b>High</b>	<b>High</b>	<b>Low</b>
- Dependence	Necessity	Necessity	Necessity	Necessity	Necessity	Necessity	Unnecessity
- Directiveness	Direct	Indirect	Direct	Direct	Direct	Direct	Direct
- Strength	High	High	High	High	High	High	Low
- Consistency	low	High	low	High	High	High	Low
<b>Distinctiveness</b>	<b>Low</b>	<b>High</b>	<b>High</b>	<b>High</b>	<b>High</b>	<b>High</b>	<b>High</b>
- Focus	Mostly Overlapped	Different	Different	Few Overlapped	Different	Different	Different
- Use	Same	Different	Different	Same	Different	Different	Different
- Components	Mostly Overlapped	Partly Overlapped	Few Overlapped	Few Overlapped	Partly Overlapped	Few Overlapped	Different
- Autonomy	Different	Different	Similar	Different	Different	Similar /Different	similar
<b>Combinations</b>	<b>Tight Coupling</b>	<b>Loose Coupling</b>	<b>Loose Coupling</b>	<b>Loose Coupling</b>	<b>Loose Coupling</b>	<b>Loose Coupling</b>	<b>Decoupling</b>

### 3.4.4 The Comparison Between Hierarchy Domain and Workflow Domain

Section 4.2 and 4.3 have elaborated MC couplings in two domains by analyzing coupled dimensions. However, it has been suggested that there are various difference among use of MC practices and MC couplings. These difference reflect on the complexity of MC combination. The complexity is reflected from two aspects which are the different use of individual MC practices and the different couplings of MC practices. First, we compared the use and functionality of MC practices in two different operational context (domains) by **Table 3-6**. We found that same MC practices have different uses, content and functionality under two domains.

**Table 3-6: The Use of MC Practices and ISs**

<b>Domain</b>	<b>Hierarchy Domain</b>	<b>Workflow Domain</b>
<b>Planning Control</b>	Planning what programmes need to be constructed and achieve planned electricity capacity.	1.Planning what the standard process of constructing planned programmes is. 2.Planning what planned programmes will be changed or added. 3.Planning what behaviours of departments and employees are expected in working process.
<b>Budget Control</b>	Annual budget	Monthly budget
<b>Administrative Control</b>	Stipulating and ruling the procedures of reporting annual budget and accepting tasks of headquarter.	Stipulating the specific procedures of constructing programmes and relative financial policies and work routing norms.
<b>PM Control</b>	Objective PM, originated from headquarter's PM.	Subjective PM
<b>Culture Control</b>	Focusing on complying headquarters' requirements	Focusing on employees' compliance, innovation and enthusiasm.

Moreover, these different functions of MC practices further enable the different links between

MC practices. These links are presented from three aspects. First, we found that under one same, MC combination is not consistent, which includes different couplings. It is presented by **Table 3-4** and **3-5**. Second, it was reflected that under two domain, same pairs of MC practices could be differently coupled. It is highlighted by **Table 3-7**. Thirdly, **Table 3-8** suggested that under two domain, same pairs of MC practices could be different dimensionally coupled, although the pairs of MC practices are same coupled. These diverse and multiple links reflect the complexity of MC combination. In next discussion section, these complex couplings are further analyzed and discussed in terms of their causality.

**Table 3-7: Different MC Couplings in Two Domains**

<b>Couplings</b>	<b>Planning vs Budgeting</b>	<b>Planning vs Administrative</b>	<b>Administrative vs Culture</b>	<b>PM vs Budgeting</b>
<b>Hierarchy Domain</b>	Tight	Loose	Tight	Loose
<b>Workflow Domain</b>	Loose	Tight	Loose	Decoupling

**Table 3-8: The Different Coupling Dimensions of Same Couplings in Two Domains**

<b>Dimensions</b>	<b>Budgeting vs Administrative: Loose coupling</b>	<b>PM vs Culture: Loose Coupling</b>	<b>PM vs Administrative: Loose Coupling</b>
<b>Hierarchy Domain</b>	<i>Dependence:</i> Non-exchange <i>Consistency:</i> High <i>Use:</i> Same Ex-ante <i>Components:</i> Different	<i>Component:</i> Partly overlapped <i>Autonomy:</i> Same	<i>Component:</i> Different

<b>Workflow</b> <b>Domain</b>	<i>Dependence:</i> Necessity	<i>Component:</i> Few overlapped <i>Autonomy:</i> Different	<i>Component:</i> Few overlapped
	<i>Consistency:</i> Low <i>Use:</i> Different <i>Component:</i> Few overlapped		

### 3.5. Discussion

This paper has explored MC combination by analyzing MC couplings and highlighting the MC combination complexity perspective. Employing coupling theory, the paper enriches the dimensions and domains concepts of coupling theory, elaborating on the complexity of MC combination in different organizational operation contexts. In the section, the paper discusses how our findings contribute to the complexity.

#### 3.5.1. *The Complex Use of MC Practices in Operational Context*

The paper identified the use and functionality of five MC practices. It is found that the design and operation of MC practices exist difference under both domains by **Table 3-6**. For example, planning control is operated to plan what programs are achieved and how much electricity needs to be generated when NE must have communication with the headquarters. Differently, when NE focuses on business operation (workflow), planning control is used to plan what standard procedures are appropriate for construction and what behaviours of departments and employees are expected in working process. Moreover, budgeting control is differently used that annual budget is operated in the process of communication with headquarters while monthly budget is in workflow. Thus, it is suggested that different operation context enable the different use of MC practices. This finding is consistent with the argument of Merchant and Otley (2020) who suggested that the design and operation of MC practices is possibly different in a same organization. However, Merchant and Otley (2020) did not provide more explanation for the different operations. Building on this, the paper highlights the actual and complex use of MC practices under operational context.

Moreover, the paper highlighted the operation of a framework of MC practices in case study. It to some extent fills a gap that current MC research only considers a limited scope of MC practices that may hinder the comprehensive understandings of MC operation (Bedford, et al.,

2016; Bedford, 2020; Merchant and Otley, 2020). Thus, the paper presented a relatively complete MC practices based on Malmi and Brown (2008)'s framework, which also provides an opportunity to more fruitful comprehension for the examination of combinations of these MC practices.

### ***3.5.2 The Complex combinations of MC practices in Operational Context***

In addition to discussion of complex and multiple use of individual MC practices, the paper mainly explored the complexity of MC practices. In the research, we argued that the complexity of MC combination refers that MC practices may be differently and multiply combined even in a same organization. The argument is to some extent consistent with Merchant and Otley (2020) who emphasized that complex MC combination could be viewed as an assembly of MC practices that may be loose coupled. We further concerned about the effect of operational context that enables complex combinations of MC practices. The concern of operation context also to some extent fills the gap mentioned by Merchant and Otley (2020) who suggested that it is often unreported about how an overall MC combination is placed into an organizational context. Thus, to highlight the complexity under organizational context, in this sub-section, we discuss our findings about MC couplings from three aspects mentioned in section 3.4.4.

#### ***3.5.2.1. Different MC Couplings in Same One Domain***

As Tables 3-4 and 3-5 show, from a horizontal view, our findings suggest that MC combination is no single in a same organization. While two couplings, tight and loose, are presented in the hierarchy domain, the workflow domain presents three couplings: tight, loose and decoupling. These couplings enrich the 'system vs package' concept (Grabner and Moers, 2013; Bedford *et al.*, 2016; Bedford, 2020). For example, in the hierarchy domain, planning control and budget control form a tight coupling to jointly plan and organize NE one-year activities, which resonates with a 'system' concept (Grabner and Moers, 2013). However, planning is loosely coupled with other MC practices, which suggests the existence of independence in planning control. A 'package' concept is suggested (Bedford *et al.*, 2016; Demartini and Otley, 2020) Thus, the finding seems to provide empirical evidence for the co-existence of system and package, and thus supports the argument of Bedford (2020) about the non-separateness of MC systems and packages. According to the analysis, the co-existence seems to be resulted from the effect of operational context. No matter what is under hierarchy domain or workflow domain, the use and functionality of MC practices is explicit. The explicit operation enables NE to understand how different MC practices should be multiply linked to adapt the operational



context rather than only fully linking or fully unlinking.

Moreover, for the ‘system and package’ concept, the relationship of pairs of MC is either interdependence or independence (Bedford, 2020). However, coupling theory shows the simultaneous existence of interdependence and independence within one pair of MC practices by introducing concepts of responsiveness and distinctiveness. In addition, different coupled dimensions further highlight that interdependence of MC is multi-dimensional rather than being only presented by ‘complement’ and ‘substitute’ (Grabner and Moers, 2013).

Thus, being different from the opinions of Demartini and Otley (2020) emphasizing that coupling goes beyond the system vs package debate, this paper argues that MC coupling concretizes and extends the ‘system and package’ concept from a different ‘coupling’ perspective, unlike the traditional ‘substitute and complement’ view (Grabner and Moers, 2013).

#### ***3.5.2.2. Different Couplings of Same Pairs of MC in Different Domains***

As **Table 3-7** shows, same pairs of MC practices may present different combinations in both different operational context. The variation of MC couplings seems to reflect the MC ‘multifinality’ (Merchant and Otley, 2020) which suggests that MC needs to serve and adapt different context. Operational context also reflect NE’s different functional demands that drive the multifinality of MC combination. For example, the combination of planning control and budgeting control is transformed from tight coupling of the hierarchy domain to loose coupling of the workflow domain. In the hierarchy domain, annual budget needs to tightly link with planning to jointly categorize programme activities each year for keeping the communication between NE and headquarters and thus achieving NE’s goals and headquarter’s expectations. However, in the workflow domain, NE aims to favorably operate the construction business. Thus, both are loosely coupled, as budget needs to independently monitor expenditure, while planning also needs to independently standardize non-financial construction processes and employee behaviour. Thus, the complexity of MC combination is actually driven by the demands embedding in organizational operational context.

Under the different operational contexts, the transformation of couplings further suggests that multiple demands and control problems are addressed by balancing a ‘tension’ between pair the of MCs. Tension between two elements can create positive outcomes by combination, but this combination may simultaneously produce negative effects on other outcomes (Lewis, 2000; English, 2001). In this situation, our findings suggest that enabling different MC couplings

based on different operational contexts can moderate and balance the negative effect. For example, tight coupling between planning and budgeting may benefit the planning of NE's financial activities for the year in the hierarchy domain. However, if planning is only used to provide information for the budget, the operational side of programmes may be adversely affected. Based on this, a loose coupling of both MCs can, to some extent, balance the tension and enhance the effectiveness of construction in the workflow domain. Therefore, the paper investigates MC combinations by considering the effect of operational contexts instead of widely discussed environmental uncertainty (Otley, 2016; Henri and Wouters, 2020).

### ***3.5.2.3. Same Couplings with Different Dimensions in Different Domains***

As **Table 3-8** shows, coupling dimensions show differences, even though the same MC couplings are presented in both domains. This mainly results from the different use of MC practices in the two domains. For example, budget control and administrative control present the same tight coupling in both domains. However, the dependence, use and components show different degrees, as while there is no information being directly input from administrative control to budgets in the hierarchy domain, some rules from administrative control directly feed into budgeting in the workflow domain. This finding introduces the concept of 'equifinality' in MC combination (Sandelin, 2008, Bedford *et al.*, 2016), suggesting the same effectiveness in achieving NE's business by different links of both practices under the same organizational environment.

Overall, our empirical findings explore the complexity of MC combination by analysing multi-dimensional and complex MC couplings under different operational context. The complexity enriches the current debate about MC combination and disagrees traditional a system or a package opinion, which contributes to a more in-depth understanding of the combination (Bedford, 2020).

## **3.6. Conclusion**

This paper extends the literature on MC combination by applying a case study. It highlights how MC combinations are complex and multidimensional. The dimensions and domains concept of coupling theory (Orton and Weick, 1990; Beekun and Glick, 2001; Denmartini and Otley, 2020) is introduced and extended to enhance our understanding of the complexity of MC combinations (Merchant and Otley, 2020), which further enriches the 'system and package' debate (Bedford, 2020). Specially, the introduction of the domain concept enables us to explore the effect of MC operational contexts, rather than the wide-explored environmental uncertainty

factor (Chenhall, 2003; Evans and Tucker, 2015; Henri and Wouters; 2020; Mouritsen et al., 2022). It enriches our understanding of MC combination by viewing it from different angles. Moreover, through the employment of coupling theory, the paper contributes to the further development of coupling theory on MC combination research. Furthermore, from practical application, practitioners, such as organizational managers, can benefit from the study by designing their MC practices and considering couplings to adapt their context and fulfill their demands.

However, there are two limitations in the paper, which can be viewed as future research directions. First, it focused on the couplings of pairs of MC, which to some extent limits the understanding of couplings of triple or more MCs. Triple or more MCs may produce more comprehensive findings for MC combination. Second, the paper is a single case study, which limits comparison of MC couplings with other companies. Comparative case study may produce more in-depth understanding.

## **Chapter 4: The Dynamic of MC combination: A Case Study**

### **4.1. Introduction**

Management control (MC) is increasingly recognised as an important organisational practice, designed and used to guide and direct employees' behaviour to serve the organisational objectives (Malmi and Brown, 2008). Given that multiple MC practices can exist in one organisation, MC combination research has attracted increased attention from scholars in recent years (Bedford et al., 2016; Bedford, 2020; Gerdin, 2020; Speklé et al., 2022). Such studies show how multiple MC practices coexist in dealing with control problems (Caglio and Ditillo, 2021), collectively contributing to the fulfilment of organisational objectives (Akinyele et al., 2022).

However, continuing change in the complex internal and external institutional environment forces organisations to adapt by changing organisational strategies and objectives (Tsamenyi et al., 2008; Tolbold and Van der Kolk, 2022), which may entail changes to MC practices (Otley, 2016; Van der Kolk et al., 2020). Prior studies have revolved around changes in individual MC practices, such as budgeting (Becker et al., 2016) and performance measurements (Jansen, 2011). The benefits brought by internal consistency in MC practices are under-studied (Grabner and Moers, 2013). Although recent research, like that of Tolbold and Van der Kolk (2022) discussed the change in coherence and incoherence among MC practices, highlighting change

in the relationship of MC practices, we know little about why, and how changes in individual MC practices trigger change in the MC combination. It has been suggested that MC practices may present different combinational ways in different periods (Mouritsen et al., 2022), as “*a coordinated change of all interdependent practices simultaneously*” (Bedford, 2020, p. 101187) may be the most effective way of adapting to the change of organisational context. Thus, advancing the understanding of MC may derive from exploring the change of “*higher-level variables (e.g., the coupling between major sub-systems) rather than the details of specific controls*” (Merchant and Otley, 2020, p.3). To enhance our understanding of MC combination and address the gaps, this paper aims to explore the dynamic, elaborating the change of MC combinations over time by asking:

*(1) How are individual MC practices changed in terms of their design and operation?*

*(2) How are the combinations of MC practices changed over time?*

Our two general research questions concern about (a) the change of organisational contexts (b); the change of control problems (c); how the change of organisational context triggers the change of individual MC practices and MC combination; (d) how the change of individual MC practices relates to the change of MC combinations.

To answer both questions, our paper empirically conducts an in-depth single case study on a Chinese state-owned enterprise (SOE) to investigate its MC combination evolution, drawing upon coupling theory (Orton and Weick, 1990) to highlight the characteristics of MC combinations. Institutional logic approach (Thornton et al., 2012) is employed to investigate the effect of organisational context change on the change of MC combination. Through both theories, the paper shows that the change of MC couplings is shown to result from the evolution of individual MC by the force of change of organisational characteristics and environment.

Our study contributes to an understanding of the dynamic of MC combination. It considers the change of control problems leading to the evolution of individual MC practice and MC couplings. The findings provide a holistic understanding of MC combination, going beyond previous studies seeing MC combination as a system (Gerdin, 2020) or a package (Mouritsen et al. 2022). In addition, we provide insights into control problems previously under-explored by MC literature which may cause the model misspecification (Chenhall, 2003; Gerdin, 2020; Speklé et al., 2022).

The findings have both policy and practice implications. SOEs’ MC can be significantly affected by national politics, economics and culture (Xu and Uddin, 2008; Yang and Modell,

2015). Our findings could be of value to SOE reforms, both in China and beyond. In addition, our study may inspire managers to optimise their MC use by associating with their surroundings.

In the next section, the literature on the dynamic of MC combination, both theories are reviewed, and some gaps are highlighted. The research methodology is explained in Section 4.3. The case selection rationale, data collection and analysis are also presented. The empirical findings are elaborated in Section 4.4, followed by a discussion of these findings in Section 4.5. Finally, a conclusion is drawn in Section 4.6.

## **4.2. Literature Review and Theoretical Constructs**

To theoretically elaborate and underline the dynamic of MC combination, this section will review how MC literature has conceptualized and highlighted MC combination, control problem and the dynamic of MC combination. It will also review coupling theory and institutional logics literature highlighting the theoretical insights, after which the paper will further develop how both theoretical approaches conceptualise the dynamic of MC combination, as illustrated by **Figure 4-1**.

### **4.2.1 MC Combination and Control Problem**

MC is viewed as a series of organizational practices that can drive managers to use information involved in MC practices to monitor and direct the behaviour of organizational members (Malmi and Brown, 2008; Otley, 2016; Toldbod and van der Kolk, 2022). In initial MC research, researchers focus on studying the use of individual MC practices. However, the focus on individual MC may lead to bias of research results. For example, early MC research was keen to explore the effect of accounting MC on organizational performance, such as budgeting control (Bruns and Waterhouse, 1975; Covalleski and Dirsmith, 1983; Preston et al., 1992). This may lead to the ignorance of functions of non-accounting MC on organization performance, such as culture control (Malmi and Brown, 2008; Malmi, et al., 2020). Chenhall (2003, p.131) suggests that studying individual MC practices in isolation from other MC practices may cause ‘*serious model under-specification*’ and reported ‘*spurious findings*’. Based on this, MC researchers started to concern about the MC combination and increasingly recognized that the combination of MC practices may yield larger benefit than only focusing on individual MC practices (Malmi and Brown, 2008; Grabner and Mores, 2013; Bedford, 2020), no matter what concerning on the effect of combination on organizational performance (e.g. Demartini and Otley, 2020) or the adaptation of combination on organizational context (e.g. Evans and Tucker,

2015). For example, Sendelin (2008) studied the combination of four MCs that are action control, result control, personal control and culture control in a case company. He highlighted that while the organization only focus on the use of individual MC, emphasizing on the combination of the four is more ‘fit’ in the organization context. Thus, MC researchers are paying more attention to the combination of MC practices (Bedford, et al., 2016; Bedford, 2020; Merchant and Otley, 2020). To further explore how MC practices are combined, a ‘system vs package’ debate emerged. The debate discusses whether a set of MC practices can be combined as a system or a package based on the interdependence and independence among MC practices (Grabner and Mores, 2013; Bedford, 2020; Gerdin, 2020; Berg and Madsen, 2020). However, recent MC combination research appears to try to shift the focus of MC combination away from the debate (Cooper et al., 2020; Demartini and Otley, 2020; Merchant and Otley, 2020). These studies emphasize that MC combination is complex and multiple (Merchant and Otley, 2020). MC research should explore more possibilities for MC combinations, such as loose coupling, rather than merely determining whether it is a system or a package (Cooper et al., 2020; Demartini and Otley, 2020), which could contribute to a comprehensive understanding of MC combination.

However, it is important to note that the exploration of MC combination needs to be closely related with control problem(s) (Bedford; 202; Gerdin, 2020). Bedford (2020) suggested that elaborating the address of control problem should be the main purpose of MC research and could theoretically contribute to MC combination. Thus, generalizing the functionality of MC combination on addressing control problems is viewed as the main path of theorizing MC research (Bedford, 2020), which is also called as the ‘domain theory<sup>5</sup>’ of MC field (Sridharan, 2021). However, the concern regarding the link between MC combination and control problem has only emerged in limited recent literature (Gerdin, 2020; Speklé, et al., 2022; Dodd et al., 2023; Tucker, et al., 2024). As argued by Gerdin (2020), control problem is a crucial but under-explored topic in MC combination research. Thus, to contribute to theorize MC combination, the paper explores the address of control problems.

However, to discuss the functionality of MC combination on control problem, it is important and to understand what control problem is. Although there is not an explicit and formal definition of control problem (Tucker et al., 2024), control problem could be generally summarized as two aspects based on current literature. First, control problem is usually viewed

---

<sup>5</sup> Domain theory refers to a set of knowledge and concepts in a particular field or domain (Lukka and Vinnari, 2014, p.1309).

as deficiencies in employee behaviour (Merchant and Van der Stede, 2017; Speklé et al., 2022; Tucker et al., 2024). In other words, control problem refers to a series of employee behaviour that do not effectively reach organization/managers expected performance. Merchant and Van der Stede (2017) highlights three control problems relating to employee behaviour which are lack of direction, motivational problems and personal limitations, while Tucker et al. (2024) suggested control problems as a broader set of dysfunctional behaviour, such as, bullying, theft, verbal abuse, etc. Based on these, it could be argued that the functionality of MC combination is to solve the ineffective behaviour. For example, Speklé et al. (2022) utilized the three control problems of Merchant and Van der Stede (2017) to study the link of MC combination and control problem. They found that the combination of three uses of performance measures benefits to address and mitigate the ineffectiveness of employee behaviour in conditions of low contractibility. Moreover, Dodd et al., (2023) similarly explored the address of the three control problems by MC combination, which suggests that MC combination can reduce modern slavery risks by effectively mitigating control problems. Second, control problem is also viewed as deficiencies and incapacity of organizations that do not make organizations achieve goal alignment, adaptability and integration (Otley and Berry, 1980; Otley, 2003; Bedford et al., 2016). While the former definition focuses on employee behaviour, the latter is broader to include any deficiencies within organizations that prevent the achievement of organization outcome. For example, Gerdin (2020) explored how MC combination could effectively address various control problems faced by a case university and thus response institutional logics. Gerdin did not only suggest optimization of employee behaviour, such as improving individual research freedom and innovative spirit, but also highlight the address of other non-behaviour problems, like coordinating disciplines efforts and optimizing resource allocation.

In general, the functionality of MC combination is to address control problems (Gerdin, 2020; Tucker, et al., 2024). Although several articles have explored the effectiveness of MC combination on addressing control problems, it needs to be noticeable that control problem is not immutable but rather changeable (Bedford et al., 2016; Gerdin, 2020). Nevertheless, few articles focus on the change. Thus, we little know why and how control problem is changeable, whether it is the emergence of 'new' control problem(s) or a shift of 'old' control problem(s), and thus how the change links the change of MC combination. These questions will be discussed in the paper.

#### ***4.2.2 The Dynamic of MC Combination***

Some scholars consider that the relationships of MC practices seem to be dynamic and

changing rather than inferring and asserting a fixed mode of MC combination. Mouritsen et al. (2022) suggest that the different insights on interrelationships seem to arise from the difference between interrelating MC practices, which hint at the dynamic of MC combination. However, some MC dynamic literature just focuses on the study of individual MC practices (e.g., Endenich, 2014; Becker et al., 2016), ignoring further explorations of the dynamic of MC combination. For example, Becker et al. (2016) highlighted the different uses of budgeting from performance measurement function to planning purpose before and after the 2008 economic crisis. However, it should be noted that change in individual practice may affect the consistency of MC practices, while simply considering change in individual practice can ignore the potential benefits from joint use of MC practices (Bedford, 2020). Thus, it is only rational to clarify the dynamic of MC combination.

Nevertheless, it should be noted that proceeding from the dynamic of individual MC practice is conducive to study of the dynamic of MC combination. Siggelkow (2002) suggests four evolutive modes of practice combination, including *thickening* (enhancement of an existing core practice by designing elaborating practices), *patching* (design and enhancement of a new core MC practice by new elaborating practices), *coasting* (no further elaboration of new or existing core practices), and *trimming* (cancellation of a core practice and its elaborating practices). The four modes reflect how the dynamic of MC combination is closely related to change in individual practice. Studying individual practice as a starting point seems to enhance the understanding of the dynamic of MC combination.

Furthermore, some MC research illustrates the difference in MC combinations by studying different types of organisations at a single point in time (Martin, 2020). For example, the implication of cluster analysis in MC combination literature (Bedford and Malmi, 2015; Kruis et al., 2016; Santini et al., 2022) shows different MC configurations. However, the static approach to some extent limits the further understanding of the interrelationships among MC practices (Hall, 2016), because the effect of variation of organisational context on the MC combination not only originates from the cross-sectional difference, but also from the change of organisational internal and external environment over time (Martin, 2020).

In general, the dynamic in the paper refers to the evolution of MC combination over time (Martin, 2020). We firstly explore the evolution of individual MC practices, which is relevant to the first research question. Then, we compare different MC combinations in different periods by studying the evolution of individual MC practices, which relates to the second research question.



### **4.2.3. Coupling Theory Approach**

Coupling theory is commonly used in organisational studies (Weick, 1976; Lutz, 1982; Covaleski and Dirsmith, 1983; Ibarra, 1993; Chen et al., 2011). As it allows “*the simultaneous existence of rationality and indeterminacy without specializing these two logics in distinct locations*”, and study “*any location in an organization (top, middle, or bottom) contains interdependent elements that vary in the number and strength of their interdependencies*” (Orton and Weick, 1990, p.204).

Concerning MC combination, coupling theory emphasises the extent of MC combination. Orton and Weick (1990) propose two characteristics of coupling: responsiveness and distinctiveness. Responsiveness captures the degree of coordination and extent to which the elements are linked to each other. When MC practices are connected and coordinated to play a role, it can be viewed as high responsiveness. By contrast, distinctiveness preserves a degree of independence and spontaneous changes of elements, underlining the autonomous behaviour of MC practices which are distinct from each other (Demartini and Otley, 2020). In other words, distinctiveness emphasises that MC practices can independently affect organisational development without the support of other MC practices. However, it is possible that a set of MC practices can be simultaneously responsively and distinctively linked. Orton and Weick (1990) distinguish four coupling types: loosely coupled if practices are responsive to each other but simultaneously distinctive; tightly coupled if practices act responsively but not distinctively; decoupled if practices are distinctive from each other without responsiveness; non-coupled if practices show neither responsiveness nor distinctiveness.

Thus, coupling views MC combination as a continuum from total integration to total incoordination, which may drift from one coupling to another coupling. This approach goes beyond dualism and highlights the different combinational modes, which is also supported by Cooper et al. (2019, p. 481) who argue that practices may be diversely connected and *connect intermittently (loose coupling)*.

Therefore, coupling theory is appropriate to explore the dynamic by providing different combinations of coupling (Merchant and Otley, 2020; Bedford, 2020; Martin, 2020). We use the concepts of ‘responsiveness’ and ‘distinctiveness’ of coupling to analyse how MC practices are related. Responsiveness in MC is confirmed when MC practices are used to support and affect the use of other MC. Distinctiveness of MC is confirmed when the functions of MC practices can be independently operated without the intervention of other MC practices. When

change of responsiveness and distinctiveness of MC practices occurs, the dynamic of MC couplings occurs.

#### ***4.2.4. Institutional Logic Theoretical Approach***

Institutional logic has been widely used in organisational studies (Reay and Jones, 2016). It offers a new explanation of institutional theory for institutional dynamics (Greenwood et al., 2011). Institutional logics are defined by Thornton and Ocasio (1999, p.804) as “*socially constructed, historical patterns of cultural symbols and material practices, assumptions, values and beliefs by which individuals produce and reproduce their material subsistence, organize time and space, and provide meaning to their daily activity*”. In other words, logics is viewed as a set of behavioural principles and meanings that act as legitimisation for the elaboration of organisational actions and individual behaviours (Friedland and Alford, 1991; Waldoff, 2013), and embody the goals and expectations (Gerdin, 2020). Thus, it focuses on the responses of organisations to externally imposed institutional logics (Hyvönen et al., 2009).

Institutional logics are multiple at the societal level. Thornton et al. (2012) identified seven types of institutional logics, including family, community, religion, state, market, professional and corporation. However, it is quite possible that these multiple logics can co-exist in an organisation, and thus present an inherent rivalry (Reay and Hinings, 2009; Dai et al., 2017). These logics may conflict to affect organisational actions, while the inherent rivalry is known as institutional complexity (Reay and Jones, 2016).

Many attempts have been conducted to explore the response of institutional complexity (Fiss and Zajac, 2004; Reay and Hinings, 2009; Smets et al., 2012). Two responses are identified. One type of response is ‘symbolic management perspective’ (Westphal and Zajac, 2001). When facing multiple competing institutional logics, organisations may strategically disguise the fact that they do not want to implement part of institutional logics by symbolically failing to conduct some ‘rational plans and procedures’ (Oliver, 1991; Misangyi, 2016). Through these ostensible procedures, such organisations not only obtain legitimacy from unwanted logics, but may also conduct a series of practices that they authentically intend to implement for responding to other logics. For example, Fiss and Zajac (2004) suggest that most firms espouse shareholder value for ‘placating influential external constituents’, but do not implement these governance practices commensurate with shareholder value for meeting the actual demands of organisations.

The other type of response is a buffering perspective. Organisations can build a connection and

*“adopt programs that conform to institutional rules but still attend to efficiency activities”* (Misangyi, 2016, p.410). Organisations may implement different practices to simultaneously meet the expected demands of different logics. For example, Reay and Hinings (2009) showed how four mechanisms were independently and connectedly used for managing and meeting competing and conflicting ‘medical professionalism logic’ and ‘business-like healthcare logic’. Most of the MC literature focuses on the ‘buffering perspective’ of MC practices when responding to institutional complexity (Cruz et al., 2009; Hyvönen et al., 2009; Amans et al., 2015; Misangyi, 2016; Dai et al., 2017; Gerdin, 2020). For example, Hyvönen et al. (2009) explored how a management accounting system presents different functions (planning, bookkeeping and reporting, etc.) for responding to different institutional logics. In similar vein, Dai et al. (2017) studied how different use of MC practices buffers the inherent conflict of three logics.

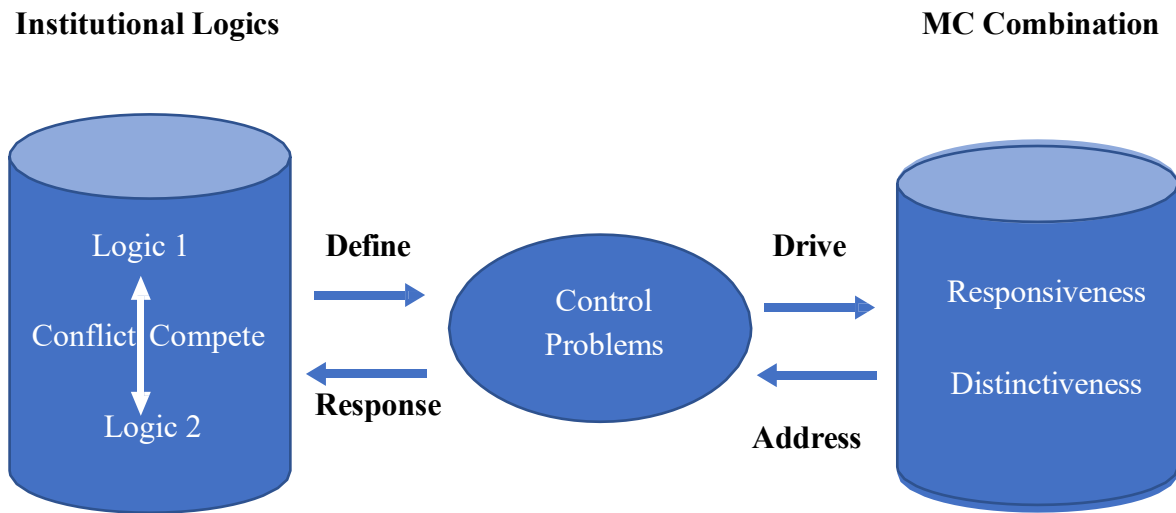
It should be noted, however, that most studies focus on the response of individual MC practices. Literature, such as Gerdin (2020), concerning the response of MC combination on institutional logics is limited. Although Gerdin (2020) explores MC combination, he focuses on a relatively static manner, and does not highlight how MC combinations correspondingly evolve as the logics evolve. Thus, we further explore a dynamic process in which institutional logics are introduced at different stages, while MC combinations are also changed at different stages, providing a buffering response to the logics.

Furthermore, it should be noted that the connection between institutional logic and MC practice is a control problem. Control problems can be defined by institutional logics (Chenhall et al., 2013; Gerdin, 2020). MC practices aim to address the control problems faced by organisations (Merchant and Van der Stede, 2017; Speklé et al., 2022). For example, Gerdin (2020) showed that an MC combination underpinned by a neoliberal logic and a programmatic logic addressed different control problems, such as improving work productivity. His research demonstrates how the functionalities of MC combination underpinned by institution logics can solve control problems. Nevertheless, Gerdin (2020) described the control problem as *“one important, yet largely unexplored universal/superordinate goal”* (p.4).

Building on the literature, this paper proposes an explicit model to conceptualise the connections between MC combination, control problems and institutional logic, and thus reflects the dynamic of MC combination, as illustrated in **Figure 4-1**. The introduction, competition and conflict of institutional logics defines the control problems. The emergence of control problems drives the dynamic of MC combination to address these problems and thus

respond to the institutional logics.

**Figure 4-1: The Model of MC Combination Dynamic Based on Institutional Logic and Coupling theory.**



### 4.3. Methodology

Case study, as a traditional qualitative strategy, allows researchers to interpret and understand the rich, in-depth data contained within the selected case(s) (Saunders et al., 2012). This paper aims to study MC combination dynamic by adopting an evolutionary lens (Cardinal et al., 2004; Martin, 2020). The case study approach selected in the paper is appropriate to meet the purpose (Gerdin, 2010; Van der Kolk et al., 2020; Barretta and Noto, 2023). It enables us to understand the actual operation of MC combination in a case over time, and in depth.

#### 4.3.1. Case Selection Rationale

The empirical material for the paper comes from a case company, ET (a pseudonym) that is a Chinese SOE. As a large Chinese SOE with 30,000 employees and fixed assets of 400 million pounds, ET engages two main businesses: construction businesses (such as railway construction) and rail transportation businesses (such as freight transport and railway maintenance). Its predecessor was the Chinese Railway Engineering Bureau. In the end of 2001, ET was corporatised as an SOE. Since the establishment of ET up until 2021, it has undertaken more than 40 national key projects, constructing more than 4,000 kilometres of railways. ET operates 21 departments and 11 railway engineering and transportation units.

There were three reasons for selecting this case. First was its ‘suitability’ for addressing the paper’s purpose and questions (Stake, 1995). The paper’s purpose required the case company

to provide multiple MC practices suffering the effect of a complex institutional environment. As a large sized SOE, ET was a useful candidate for research into MC practices. ET is also greatly influenced by multiple forces and the demands of government, market and self-development.

Second was its 'representativity' in exemplifying the paper's theoretical relationships. As Merchant and Otley (2020) suggest, "*researchers should therefore endeavour to find and study organizations with superior practices and performance, the so-called 'exemplars'*" (p.101185). ET has experienced a bunch of reforms from an enterprise and state perspective. From an enterprise perspective, it designed and has optimised its MC practices in recent years. From a state perspective, the railway industry is a great concern of Chinese government which has held a series of reforms in the industry. These reforms and changes highlight the representativity of ET.

The third reason for selecting ET was its 'accessibility' in terms of data access. Establishing close contact with the case company can ensure the richness and validity of research data.

#### **4.3.2 Data Collection**

The data of the paper were collected following two approaches: semi-structured interviews and archive documents (Mundy, 2010; Gerdin, 2020) to triangulate and verify our data. First, we conducted 39 recorded and fully transcribed interviews. The average length of each face-to-face interview (34) was about 50 mins, with an agreed follow-up telephone interview (5) if necessary. The interviews straddled different roles, including CEO, heads and deputy heads of departments and other employees (Van der Kolk et al., 2020). **Appendix 3** presents detailed information on interviewees, including interview data, department, position, gender, length of employment, interview type and interview duration (Mundy, 2010; Van der Kolk, 2020).

The interview questions were divided into two themes. One theme focused on identifying the use and type of MC practices. Questions here concerned work content and procedures, reflecting the use of MC practices and relationships. The other theme focused on the dynamic of MC practices. The researcher paid attention to the historical management reforms at both company-level and state-level which were related to MC practices. According to an exploration of these reforms, changes in MC practices can be identified at different stages. **Appendix 4** outlines the detailed questions within the two themes.

Second, archive documents were substantially used in the paper. Company documents are important for providing information and justifying the truth of interview data (Gerdin, 2020).

The researcher obtained a total of more than 354 pages of documents. These included governments documents, working procedures documents, enterprise policy and regulation documents, enterprise planning and strategy documents and some internal presentations. Also, the researcher obtained and read 10 ET-compiled Yearbooks (2009-2019) which summarized the developments and changes within the company every year (one book per year), and largely enhanced the richness of data. **Appendix 5** presents a brief description and summary of these documents.

### ***4.3.3 Data Analysis***

In the paper, the collected data was analysed by a combination of traditional thematic analysis and Langley's temporal bracketing data process strategy (Langley, 1999). Building on these, the data analysis was conducted in three steps. First, 'open coding' was used to extract the sentences and phrases of interviewees and collected documents and then grouping the open codes to form the first-order concepts. In the step, institutional logics based on institutional environment faced by ET, control problems and used MC practices were identified and categorized. For example, these open codes, like 'state policies', 'Five-year Plan', 'state assets' etc. are corresponded and categorized to 'state logic'. 'Working as a standard process', 'avoid being slack' etc. are corresponded and categorized to 'control problems'. 'Budgeting procedure', 'planning function in budget', 'monitoring function in budget' etc. are corresponded and categorized to 'budgeting control'.

Second, to highlight the dynamic, these identified institutional logics, control problems and MC practices were organized into different periods. In the second step, Langley's temporal bracketing data process strategy was applied. The strategy decomposes time scale into different periods, but these periods are not viewed as a predictable sequential process. Each period can be viewed as a structuring description of events. The strategy allows to explicitly examine how activities of periods are affected by contexts and compare the changes of these periods. In the paper, the introduction of institutional logics, the emergence of control problems and change of MC practices can be viewed as an unpredictable process. Dividing the time scale can enable us to identify how these MC practices are underpinned by different institutional logics to address different control problems. Along the mind, two stages are identified based on the changes of institutional logics, control problems and MC practices.

Third, after the two stages are organized, the third step was conducted to analyze the relationships within each stage. The logical relationship among institutional logics, control

problems and MC practices, and the coupled relationship among MC practices were analyzed. **Appendix 6** illustrates the analysis process and results of the data analysis method combining thematic analysis with Langley's temporal bracketing data process. The systematic coding analysis greatly confirmed the preliminary finding from literature suggesting that MC practices are related and underpinned by institutional logics emanating the control problems. These empirical findings were discussed with extant literature on MC combination and institution logics, and thus produce more empirical and theoretical insights on dynamic of MC combination.

#### ***4.3.4 Validity and Reliability***

In the paper, validity and reliability of the case study were reinforced from four perspectives (Yin, 1994; Riege, 2003), including construct validity, internal validity, external validity and reliability. The specific techniques for the four perspectives are shown in **Table 4-1**.

First, construct validity concerns about the accuracy of research measures (Yin, 1994). Through choosing appropriate measures (Riege, 2003), theoretical meanings of concepts and constructs could be appropriately reflected. However, in case study, it is generally viewed to include subjective judgements. Thus, the purpose of construct validity in case study is to moderate the risk from subjective judgements. To achieve the purpose, the research uses multiple sources of evidence from both interview data and archival documents. These data provided a richer and more comprehensive data set. Moreover, interviewing individuals across various roles—such as CEOs, departmental heads, deputy heads, and other employees—further diversifies the perspectives gathered, reducing the likelihood of bias from any single viewpoint.

Second, internal validity concerns about the establishment of casual relationships (Yin, 1994). In case study, internal validity emphasizes the phenomena, mechanism and pattern generated by the case study (Riege, 2003). It ensures that these causalities are credibly resulted from the investigation of the study. Thus, to ensure the internal validity, the paper uses a data analysis method by combing thematic analysis and Langley's temporal bracketing data process strategy. It can help us systematically identify these causalities. Moreover, the paper also designed diagrams to facilitate explanation-building, such as appendix 3.4.5.6. These enable the transparent logic of the study.

Third, external validity emphasizes the applicability of findings of research (Riege, 2003). In case study, external validity aims to make the research findings go beyond the specific context of the case and thus generalize these findings. Thus, to generalize these findings and make

theoretical and practical contributions, the paper put findings to a broader context by comparing the analysis results with extant literature and theoretical insights.

Fourth, reliability focuses on ensuring the dependability of data. It aims to ensure that these procedures of research are reliable and replicable (Riege, 2003). Thus, it is usually used in the phrase of data collection (Yin, 1994). In the paper, multiple check and data record were used. Through asking similar questions to different interviewee and recording these answers, the dependability of these data is maintained.

**Table 4-1: Validity and Reliability**

Perspective	Purposes in case study	Techniques
Construct validity	Moderating the risk from subjective judgements during data collection	Use multiple sources of evidence: 1. interview data and a variety of archive documents 2. Interviewing different roles: CEO, departmental heads, deputy heads, other employees
Internal validity	Establishing phenomena in a credible way	1. Using credible data analysis method: thematic analysis and Langley’s temporal bracketing data process strategy 2. Detailed presentation of diagrams and tables to do explanation-building, such as in Appendix 3, 4, 5, 6.
External validity	The generalization of research findings	Comparing the data analysis results with extant literature and theoretical insights, such as the institutional logics theoretical insight
Reliability	Ensuring the dependability of data	Multiple check: Asking similar questions to multiple interviewees Data record: fully audio-recorded interview and full transcription.



## 4.4. Findings

Two stages of MC practices use were identified through the data analysis, namely, a ‘government-orientation stage’ and a ‘hybrid business-like stage’. This section presents our findings on the MC combination and dynamic. The first and second subsections illustrate the features and combinations of MC practices at both different stages, respectively. The third subsection elaborates the comparisons of both stages to highlight the dynamic of MC combination.

### 4.4.1. Government-Orientation Stage (2001-2012)

#### 4.4.1.1. The dominance of state logic and control problem

In China, railways are a state asset. Before 2001, the railway business was completely under the control of the Chinese government’s Railway Construction Bureau. Following the development of the Chinese socialist market economy in the 1990s, ‘corporatisation’, or the ‘Modern Enterprise System (MES)’ reform, was initiated to separate government from enterprises, e.g., through a restructure of ownership (Yang and Modell, 2015; Ezzamel and Xiao, 2015). The Chinese government deemed that separation would reduce interruption in the administrative functions of government, improving the effectiveness of state asset operation and clarifying the responsibility between enterprise operation and government supervision. (Xu and Uddin, 2008; Du et al., 2012; Dai et al., 2017). In the end of 2001, ET, as a railway construction and transportation service bureau, was corporatised as a modern enterprise. After corporatisation, and as an SOE, it gained certain autonomy in bidding for and conducting projects. However, there still are two aspects that manifest actual control of the Chinese government on ET, and the influence of ‘state logic’. First, although ET has the right to bid for different projects, it is heavily regulated and constrained by policies issued by the Chinese Railway Ministry. The Railway Ministry was the highest authority to formulate development targets, strategies and guidelines for the state railway, such as growth rate and development, via a Chinese Five-Year Plan which set out a series of social and economic policies and initiatives for the forthcoming five years. As the CEO of ET described:

*“We mainly looked at the information and issued targets of the Railway Ministry. The Railway Ministry, for an example, required [us] to develop the south-western area within these three years. We will bid [for] railway projects of the south-western area.”*

Second, the distribution of ownership of ET still reflects control by the government. The state-owned Assets Supervision and Administration Commission of the state Council (SASAC), a

Chinese government bureau, was the only shareholder of ET when ET was corporatised. Moreover, although ET was listed in 2007, which reduced the share of SASAC to 73.25% in 2007, and 56.2% in 2013, respectively, the state is still an absolute controlling shareholder, the rest of shares being held by individual investors.

The actual control of government made meeting government targets and expectations a priority of ET, becoming their belief, value, cognition, and taken-for-granted and legitimised principle, and thus enabling the dominance of state logic over ET.

In addition, ET obtained much support from government, including capital and policy support. First, there was a plentiful supply of railway projects to take on. For example, in 2000, the government issued the ‘Large-scale Development of the Western Region’ policy, which provided many of the railway projects for rail SOEs in the subsequent 10 years. From 2001 to 2010, the mileage of rail increased by 2.8 times (NDRE, 2010)<sup>6</sup>. Second, while a railway construction project usually lasts for two-three years, the risk of cost increases might arise. However, the profitability of ET was secured, as the Chinese government allowed it to adjust the assigned contract price at the end of a programme if the previous contract price did not meet current cost levels. Thus, ET’s financial performance was not initially a control problem. State logic was promoted in ET by guiding and supervising employee work practices as a way of standardising the process. Employees were expected to concentrate on their work to achieve governmental targets. In other words, improving work efficiency was viewed as the main control problem at this stage. The CEO of ET described the control problem at this stage:

*“We only worried about the working efficiency of employees. It decided whether we can achieve our tasks on time. Thus, we need to figure out to improve it and let them to put their heart and spirits in one place.”*

Similarly, the 2009 Yearbook of ET describes the control problem:

*“as a state-owned enterprise, it is necessary to deepen the consciousness of employees, realizing the importance of completing enterprise tasks, and vigorously improving the work efficiency of employees become the main content of enterprise development.”*

---

<sup>6</sup> NDRE is the China National Development and Reform Commission. The statistics were extracted from NDRE official website at: [https://www.ndrc.gov.cn/fzggw/jgsj/kfs/sjdt/201007/t20100709\\_1085619.html](https://www.ndrc.gov.cn/fzggw/jgsj/kfs/sjdt/201007/t20100709_1085619.html)

#### ***4.4.1.2. The Use of MC Practices under State Logic***

To address the control problem and response to institutional logic, ET employed two main MC practices: cultural control and budgeting control. An investigation into their relationship identified that cultural control as a core practice was loosely coupled with budgeting control.

***Culture and cultural control.*** With the continuing dominance of state logic in ET, a sense of common purpose among the employees was shaped, the purpose being that ET needed to take responsibility on the achievement of national targets. This responsibility to the Chinese government constitutes the core of ET's 'sense of national mission' culture.

To promote the infiltration of this culture among employees and improve working efficiency, four mechanisms of cultural control are used in ET, which are culture slogan, preamble, regular meetings and CPC memberships.

First up is the use of *culture slogan*. In China, it is recognized that the government employs heavily used slogans to enhance employees' recognition of its policies and targets (Zhu et al., 2021). ET's slogan was 'Enhancing politic stance, serving as national and social development'. This culture slogan was repeatedly showed on a big electronic screen in the front door, lobby and website of ET. It not only emphasised the importance of the culture, but also potentially motivated the employees to work hard. The head of the culture department described the display:

*"Everyone entering in our company or logging onto our website can see our culture concept. We want to continuously remind our employees, who and what we work for."*

Second, *the use of preambles*. ET is used to expressing a kind of 'ideological support' before adopting any actions or decisions, through which it connects national directives with the enterprise's behaviour. The 'ideological support' is manifested by the design of preambles. For example, the preamble of a project plan document of 2010 was extracted:

*"Since the 17<sup>th</sup> CPC congress, ET has earnestly implemented and complied the 'Go Out' crucial strategical arrangement of our state. To deeply implement the congress spirits of 17<sup>th</sup> CPC congress and profoundly digest and convey the speech content of Hu Jintao General Secretary (Former President of China, 2003-2013). More importantly, to actively respond to the 'Eleventh Five-year Plan', ET arranges the operation target of this project..."*

In ET, most official documents, such as enterprise strategy and planning documents, begin with the similar preambles. The preamble offers an 'atmospheric guidance' through which ET

raises its actions and employees' work to a 'state level'. The 'state level' further reinforces the infiltration of culture and influences employees to control their work behaviour. According to one employee:

*"We are working for the state. It is a serious national task. Who dares to be slack? If there was a little of problems on railway projects due to slack and resulting in a safety accident, no one can afford the result."*

Third, *communication in regular meetings*. In ET, different departments held a regular meeting every Monday to discuss the working arrangements for the week. One important agenda item emphasised the need for achievement of governmental expectations in their jobs. Employees would not be dismissed providing they did not commit important 'political mistakes'. This 'tacit rule' was also mentioned by managers in meetings. The head of human resources described it thus:

*"I usually talked about it with my subordinate. Our salary was relatively high. Our job was stable... Only if we can securely and stably achieve government-expected tasks, I and all of you can keep your jobs and positions."*

Achievement and failure of governmental tasks deemed 'political task' and 'political mistake' in ET underpinned the 'sense of national mission' culture, and made employees understand how the mission was crucial to ET. These communications in regular meetings formed an intangible monitoring of employee behaviour. Employees could consciously and positively perform well without further specific, detailed monitoring. An employee said:

*"I did not want to lose my job. Only if the railway project can be done well and achieve state target, we can also get benefit from it. So, I need to earnestly achieve my working..."*

Fourth, *enrolment and management of CPC members*. In China, the CPC is the only authorised group and representative cadre to manage the state and reflect socialist values (Aufrecht and Bun, 1995; Ezzamel and Xiao, 2015). However, CPC membership is exclusive (Aufrecht and Bun, 1995). In 2021, the total number of CPC members was 95 million, only accounting for 6.7% of the total population (around 1.4 billion)<sup>7</sup>. The low number is a result of the strict enrolment criteria. CPC membership is only awarded to those who are high-performance, hard-working and loyal to the CPC, and is endowed with the meaning of 'honour'. Meanwhile, most people consider CPC membership as a path to obtaining promotions (Aufrecht and Bun, 1995).

---

<sup>7</sup> The statistic was extracted from a news website approved by CPC: [http://www.xinhuanet.com/politics/2021-06/30/c\\_1127611673.htm](http://www.xinhuanet.com/politics/2021-06/30/c_1127611673.htm)

These are also manifest at ET.

ET can only provide up to 15 CPC membership places to high-performance employees every year. The limited number endows membership with a feeling of ‘honour’. There are 7800 CPC members in ET, only accounting for 26% of the total 30,000 employees. One employee said:

*“Enrolling CPC is definitely a good thing. I guess no one can refuse a CPC member. It means we have a high performance, which may benefit our future promotion.”*

As to the effect of CPC on promotion, the head of the strategic department said:

*“For promotion, we mainly focus on employees’ working performance. CPC membership is not a rigid requirement.”*

Although the head denied the necessity of CPC membership for promotion, most managers and departmental heads at ET are CPC members. This implies that promotion is closely related to CPC membership, and that CPC membership is a potential benefit of promotion.

Moreover, ET maintains the loyalty of CPC members by periodically holding a series of themed speeches and sessions on learning and conveying the spirit and connotations of CPC congress (meeting pictures<sup>8</sup> in **Appendix 7**), through which CPC members of ET can reinforce their perception of a ‘sense of national mission’.

In general, the ‘sense of national mission’ culture was well established in ET to improve working efficiency. While cultural control is viewed as a core MC practice, ET also uses budgeting control to be responsive to cultural control and state logic.

**Budgeting control.** In 2004, with the establishment of ET as a corporation to effectively operate railway construction under the guidance of SASAC, it implemented a project budgeting system. The project budget is formulated and implemented within three months of bidding. It serves two purposes in ET, the smooth running of projects and transmission of expectations to employees.

First, the smooth running of projects. In ET, smooth running means achieving projects on time and in quantity, rather than cost saving. This is greatly influenced by the requirements of the projects. In China, railway construction projects are firstly proposed by local government, then

---

<sup>8</sup> These pictures from ET official website. Due to the privacy, the website address cannot be provided, and the company name in pictures has been obscured.

reported to the Railway Ministry for decision and approval., and invitations to bid. Railway SOEs join in the bidding for projects.

Assessment of the bidding is conducted according to three indicators, 'technical bid', 'business bid' and 'economic bid'. Technical bid accounts for 50% and is the most important aspect. It concerns whether an enterprise can ensure the timing and quality of construction. Enterprises need to clearly present their arrangement and management of construction (including arrangement of labour and materials). The business bid accounts for 30%, emphasising the reputation and achievements of enterprises. Economic bid accounts for 20%, concerning the quoted price of the project. A bid will not reach the stage of economic assessment unless it has passed the technical and business assessment. The bidding requirement enables ET to conduct a project budget by firstly planning when and how much labour and materials are needed to ensure timing and quality. A template of the project budget is showed in **Appendix 8**. The project budget forces managers to think ahead on the arrangement of labour and acceptable level of materials. The head of engineering finance described project budgeting thus:

*“Before, the main function of project budgeting was for understanding how many raw materials we need to use and labour we need to hire. This helps us achieve the project well.”*

Second, transmission of expectations to employees. Project budgeting was also viewed as a channel of transmission concerning ET's expectations. It enabled employees to understand ET's expectations what was important, so that they could coordinate their activities to fulfil them. As the deputy head of engineering finance said:

*“It (project budget) has been conducted since I work here. It shows the labour and material in detail. For example, it notes how much mineral powder, gravel and cement we need to use, and even notes the matching ratio of these material.”*

#### **4.4.1.3. ET's MC Combination under State Logic**

For the MC combination, cultural control and budgeting control showed a loose coupling at this stage, because both MC practices were responsive to each other and simultaneously distinctive to present their own functions.

In terms of responsiveness, cultural control was effectively used to make employees recognise the importance of fulfilling state expectations. It focused on using project budgeting in the construction process of projects rather than simply focusing on cost. In this situation, project budgeting clearly imparted to employees the important state expectations for ET, which were

related to cultural control. Likewise, project budgeting was a channel to convey a ‘sense of state mission’ culture among employees. Building on these, both MC practices show responsiveness.

In terms of distinctiveness, cultural control distinctively presented an intangible monitor of employees’ working via four mechanisms, without the support and dependence on budgeting control. Budgeting control distinctively forced managers to think ahead about projects, considering possible problems and changes in the future, and then work based on the plan to prevent hasty and expedient decisions. The function was used without the dependence on cultural control. Thus, the combination of cultural control and budgeting control was loosely coupled, due to the simultaneous presence of responsiveness and distinctiveness.

#### ***4.4.2. Hybrid Business-Like Stage (2013-2022)***

##### ***4.4.2.1. The Emerging Corporation Logic and Evolved Control Problem***

Since ET’s corporatisation reform in 2001, it has continually come under the influence of state logic. However, from 2013, three main changes of institutional environments occurred, introducing the influence of a ‘corporation logic’ into ET.

First, the *cancellation of a ‘difference adjustment’ policy*. The Chinese government increasingly realised that railways, as a state asset, needed a healthy, sustainable and flexible developmental environment with less governmental intervention. In 2013, the government formally declared that the Railway Ministry had been dissolved. At the same time, the government cancelled a previous policy on amending prices if construction costs incurred significant change. All changes of cost needed to be covered by the enterprises themselves. This means that railway SOEs could not ensure their profit by governmental policies. The cancellation brought a huge challenge to the profits of ET. The head of the financial department described the change:

*“The cancellation of police brought much of challenge and problems to us. Most of cost cannot be amended and adjusted. Most of projects was changed from profit to loss. The change forced us to put our energy and attention into our profit.”*

Second, *the issue of a ‘Belt and Road’ initiative*. In 2013, Chinese government issued a ‘Belt and Road’ initiative. Although this initiative provided more railway construction projects, it also proposed higher standards of railway construction. The government also refined construction quality standards, such as rates on towed tonnage (a technologic indicator of

constructing railway). The demand for higher quality resulted in increased construction costs for ET.

Third, *the increased cost of construction materials*. In China, the cost of raw materials is experiencing a sharp increase, together with land costs, described as ‘an inch of land, an inch of gold’. The rapid increase in land cost reduces profit margins.

Due to these changes, being accountable for profit and loss has become a core belief, value, cognition, and a taken-for-granted and legitimised principle for ET, manifesting the influence of ‘corporation logic’. Corporation logic thus forces ET to pay more attention to profitability.

It should be acknowledged, however, that the developmental direction of railway construction is controlled by the Chinese government, which is still the only customer for ET. Also, although ET began to permit new investors, and the shares of SASAC declined to 56.1% in 2013, the Chinese government is still, via SASAC, its major shareholder. The Five-Year Plan issued by the government still guides Chinese railway SOEs to achieve the government expected targets, and also maintains the influence of ‘state logic’ on ET. Accordingly, ET is subject to the co-existence of both state logic and corporation logic.

However, the co-existence of state logic and corporation logic, to some extent, produces conflict. In ET, railway construction became a less-profit, and even loss-making business, while the rail transportation service business is still profitable. However, the influence of state logic prevents ET from focusing more on the high-profit transportation service business and reducing the loss-making railway construction business, because it must achieve governmental targets. In this situation, the influence of state logic and the influence of corporation logic on ET produces a conflict. As the head of the transportation department described:

*“We can achieve our goal and even fulfil ahead of schedule. It [transportation business] is profitable! ...They [construction business] barely make a profit, and even, sometimes, they are making a lose! The money we earn are made up them! But, no way, we are SOE. We must do those projects (construction business).”*

To *reconcile* the conflict, controlling management and construction costs is the main concern, because cancellation of the ‘difference adjustment’ policy and the rising cost of materials cannot be changed. Therefore, under the influence of state logic and corporation logic, cost control is defined as the core control problem in ET. As the head of the engineering department said:



*“We have to continue to construct, but we also worry about our profit. We ever thought of and tried many ways to improve profit, like diversity operation. But the benefit is imperceptible... We cannot national decision. We can only put our eyes on our management...”*

#### **4.4.2.2. The Use of MC Practices under the Hybrid Both Logics**

To address the control problem and respond to the two logics, ET changed the functions of budgeting control and the means of cultural control to shape PM practice, combining the MC practices as a tight coupling status.

**Budgeting Control.** To accurately control cost, a ‘master budget’ was introduced into ET in 2013. While projects budget only focuses on specific projects, comprehensive budget pays attention to all costs in a single year, enabling ET to control costs in detail. The financial department described how:

*“The master budget allows us to know all facets of operation of our company and further control our cost. For example, we didn’t care about administrative fee, meeting fee before, but now, we have to care about them. We designed excel tables and listed various fees and made budget for these.”*

The introduction of a master budget enriched the functions of ET’s budgeting in four aspects. First, *planning function*. In ET, target setting is a core step for the preparation of a master budget. ET’s targets cover four areas: core target, benefit target, finance and debt target, and other targets. Those include various financial indicators, such as target revenue and profit. Target setting enables managers to comprehensively think ahead and plan what they need to do to achieve the targets. ET can determine these targets itself considering the Five-Year Plan targets that set growing rate indicators, because the finalization of the master budget must be approved by SASC.

Second, *communication* between managers and subordinates. These targets show ET’s expectations, and make employees understand what is important to ET. In addition, ET’s different departments get together in a meeting to communicate information on how to formulate the master budget. This benefits the understanding and achievement of ET’s expectations.

Third, *monitoring function*. ET designed a ‘Cost 2.0 system’ to monitor and control costs. ‘Cost 2.0’ has the function of ‘risk warning’. When the cost of a department exceeds the budget, the system will issue risk instructions. The deputy head of financial department said:

*“We recently pay more attention on information system. [Most of our] projects are operated in different provinces and regions to detect our cost.”*

Fourth, *evaluation* function to achieve a feedback loop at the end of each year. ET sets out a series of budget KPIs to assess whether employees have performed well. These KPIs were merged into a new PM in 2014.

***PM practice.*** To ensure effective implementation of the new master budget and the smooth running of the business, ET designed a PM in 2014. The PM includes financial indicators (80%) and non-financial indicators (20%). Seven budget-related KPIs were incorporated into PM practice as financial indicators. These seven indicators include operational revenue, profit, capital paid in, concentration of capital, net cash flow from operations, indirect expenditure and safety production expenditure. The head of the financial department described how

*“The financial part is to monitor whether different departments and units can achieve the budget well, and checking if they excess these budgeting targets.”*

Non-financial indicators include resources management, contract terms implemented by management, safety breaches and client trust appraisal. These indicators provide guidance and supervision for employees in their work, which reduces the risk of increased operational costs.

PM is conducted at the end of each year by adopting a marking mode. At the end of December, each project unit submits financial and non-financial statements of their projects to their corresponding departments. For example, financial statements are submitted to the finance department, while projects safety statements and projects contract statements are submitted to the safety departments and engineering departments, respectively. These statements are summarised and transferred to the human resources department to mark each indicator for each project. The final marking results directly affect the bonuses of departmental managers.

***Culture and cultural control.*** Under the influence of corporation logic, the previous ‘sense of national mission’ culture has been transformed and expanded to a ‘sense of national and enterprise missions’ culture. This culture is shaped as a sense of responsibility not only to the Chinese government but also towards the improvement of profitability in ET.

To highlight the new culture, ET advocates the effective implementation of the master budget and PM as a common purpose that employees need to cognise. The culture is promoted to employees via four mechanisms: culture slogan, special module on the website, regular meetings, and a ‘compliance’ ideology.

First, *the use of culture slogan*. ET redesigned the culture slogan in 2015. Building on the previous slogan, the new one is ‘Enhancing political stance; service as national and social development; being a highly effective, progressive enterprise’. The culture slogan is also shown on the E-screen of ET. As the deputy head of the culture department said:

*“As our enterprise’s development, we need more slogans and catchphrases to express our ideology. we also have to enable employees to realize what we need to do.”*

Second, *special module on the website*. In 2014, ET designed a special module on the official website known as ‘management improvement’. It clearly indicates that ET should improve the operation of its master budget and PM. The module is highlighted by blue font in a conspicuous position on the website.

There was an interesting finding on the layout of the module, which is divided into six sections. The module begins with the first section, entitled ‘directive ideology’. The rest of the sections focus on the presentation of work focus and activities. The ‘directive ideology’ is described as:

*Deeply implementing the directive advice of SASAC, closely embracing the overall development ideology of 12<sup>th</sup> Five-Year Plan...*

ET is still being influenced by the national ideology. Through the website, it appears to enhance the ‘sense of enterprise mission’, while simultaneously highlighting the ‘sense of national mission’.

Third, *communication in regular meetings*. Similar to the first stage, managers usually emphasise implementation of the budget and PM to their subordinates.

One employee described the process:

*“We are aware of the importance of profitability for our company. While, previously, our salary was overly higher than social average salary, our salary is very slowly increased now and even sometimes stops to increase in some finance-hardship years...”*

An employee from the finance department said:

*“Now, we nearly work around the budget every day. There is much works.”*

Fourth, *‘compliance’ ideology*. In 2018, SASAC proposed a ‘compliance’ ideology, (SASAC, 2018)<sup>9</sup> advising that all Chinese SOEs’ operational and managerial activities should comply

---

<sup>9</sup> The ‘compliance’ ideology can be found at the government website:  
[http://www.gov.cn/gongbao/content/2019/content\\_5366493.htm](http://www.gov.cn/gongbao/content/2019/content_5366493.htm)

with laws, industry standards and enterprise rules and regulations. ET introduced the ‘compliance’ concept in 2019 to respond to the will of the state. It defined the ‘compliance’ ideology that employee behaviour should be governed under enterprise rules and regulations complying with codes of conduct on use of the budget and PM. ET organized a panel where these codes were drawn, checked and discussed. The head of the law department said:

*“The new ‘compliance concept emphasizes a ‘monitor’ and ‘adjustment’ feature. We focus on the rationality in the process of formulation and summary of use...”*

Through the ‘compliance’ ideology, culture is promoted to employees to enhance the effective use of budgets and PM practices.

At this stage, cultural control does not appear to be a priority, but it is still important. While it is initially used to address work efficiency, at this stage it is mainly used to enable employees to recognise and understand the importance of implementing the master budget and PM. It only addresses control problems indirectly. However, this does not mean that cultural control is avoidable.

#### ***4.4.2.3. ET’s MC Combination under the Hybrid Both Logics***

For MC combination, PM presents a strong responsiveness with budgeting control. PM is mainly used in the master budget to assess the use of employees in cost control. Although 20% of the non-financial indicators of PM highlight particular elements in controlling ET’s business operations, the distinctiveness is weak because the core purpose of PM lies in securing budgeting control. Thus, MC presents a tight coupling with high responsiveness and low distinctiveness. Moreover, cultural control is tightly linked to budgeting control and PM through four mechanisms. Cultural control aims to make employees actively and effectively implement both MC practices, reflecting a strong responsiveness among the three MC practices and a lack of distinctiveness of cultural control. Building on the findings, the combination of MC practices presents a tight coupling status.

#### ***4.4.3. The Dynamic Between the Both Stages***

In the case study, ET presents the features and combinations of MC practices at the government-orientation stage and hybrid business-like stage. Through investigating and comparing the design and operation of MC practices in both stages, the paper highlighted the dynamic of MC. In the paper, dynamic generally refers to the change of MC. The paper analysed how MC practices are changed over time. While dynamic of individual MC practices

refers to the change in terms functionality and operation over time, dynamic of MC combination refers to the change in terms of the links and interconnections among MC practices. Thus, the following section illustrates and summarises the dynamic of individual MC practices and MC combination in both stages of ET.

**4.4.3.1. The Dynamic of Individual MC Practices**

In the paper, dynamic of individual MC practices is indicated as the changes of these practices over time. It concerns about how the functionalities and content of these MC practices are changed under the change of embedded institutional logics. In the case company, it is found that the design and operation of cultural control and budgeting control have been changed, and a new PM has been designed due to the change of external and internal organizational context. The change of case company’s context caused the change of control problem (from employee inefficiency to cost problem) that drove these MC practices to be functionally changed for moderating the control problem. For example, in the first stage, culture control was used to direct employee to understand why and how they should work based on company stipulated procedure for keeping employee efficiency. However, as the change of organization context making the emergence of cost problem, case company intentionally started to change the content of culture control. In the second stage, managers used culture control to guide employee to understand why and how employee should decrease the cost in the process of working. Thus, it is suggested that the dynamic of individual MC practices is drove by the change of control problems that is defined by organizational context. **Table 4-2** highlights the dynamic of individual practices at both stages.

**Table 4-2: Dynamic of Individual MC practices**

	Government-orientation stage	Business-like stage
Logics	State logic	State logic and Corporation logic
Control problem	Working efficiency	Cost control
Cultural control	A core practice: A direct power	A peripheral practice: A indirect power

	Company culture: ‘Sense of national mission’; a sense of responsibility and mission on <u>targets of Chinese government</u> .	Company culture: ‘Sense of national and enterprise mission’; a sense of responsibility and mission on <u>targets of Chinese government</u> and the <u>improvement of profitability of ET itself</u> .
	Purpose: Directly addressing ‘working efficiency’ the control problem	Purpose: Making employee recognize the importance of implementing budgeting and PM and thus indirectly addressing ‘cost control’ problem
	Mean: Culture slogan.  Preambles.  Communication.  CPC memberships	Mean: culture slogan.  Communication.  A management improvement module  A ‘Compliance’ ideology
Budgeting control	Budget: project budget	Budget: master budget and project budget
	Function: planning and communication	Function: planning, communication, monitoring and performance assessment
PM	-	Form: financial and non-financial Indicators  Function: mainly focusing on assessing and supervising the use of budgeting of employees

#### 4.4.3.2. The Dynamic of MC Combination

In the paper, the dynamic of MC combination refers to the change of links of MC practices over time. It emphasizes how MC practices are differently linked in different stages. In the case study, through employing coupling theory, it is found that the couplings of MC practices have

been changed due to the change of context. It has been suggested that the change of context made the emergence of new control problem that drove case company to change the use of MC practices. In the process of changing the use of individual MC practices, the paper found that couplings of these MC practices were also changed for addressing these control problems and thus responding the change of context. For example, in the first stage of case company, although culture control is responsive with budgeting control by affecting the operational focus of budgets, culture control is also relatively distinctive with budgeting as while culture control distinctively monitors the employee working procedure, budgeting control distinctively plans the arrangements of resource of projects. Thus, MC combination is a loose coupling in the first stage. However, due to the change of context, culture control must be closely responsive with budgeting control, as managers need to use culture control to make employee realize the importance of budgets and PM implementation for reducing cost. Thus, MC combination is a tight coupling in the second stage. The change of loose coupling to tight coupling is viewed as a dynamic of MC combination. The dynamic is resulted from the change of context and control problem. The change is reflected to **Table 4-3**.

**Table 4-3: The Dynamic of MC Combination**

	Government-orientation stage	Business-like stage
Responsiveness	<p>Cultural control affected the focus of using budgeting on the constructing progress of projects rather than on cost. Budgeting clearly elaborated to employee about what the important state expectation is for ET</p> <p>Budgeting is a channel to convey the ‘sense of state mission’ culture into employee</p>	<p>Budgeting control is used to control cost and relocation of resources.</p> <p>80% of PM is used to enhance the implement of budget control.</p> <p>Cultural control guides employees to implement of budget and PM well.</p>
Distinctiveness	<p>Cultural control: distinctively monitoring and thus improving working efficiency</p>	<p>20% PM distinctively focuses on the quality and safety of projects</p>

	Budgeting control: distinctively planning the arrangements of resource of projects construction	
MC combination	Loose coupling	Tight coupling

## 4.5. Discussion

The paper has explored the dynamic of MC combinations at both stages in a Chinese SOE. Employing coupling theory and institutional logics, we demonstrated how the change of organisational contexts affects the evolution of functions of individual practice by defining control problems, illustrated by the evolution of MC couplings. In this section, the paper discusses the theoretical and empirical implication of our case findings.

### 4.5.1 *Dynamic of MC combination*

Employing coupling theory, the paper scrutinised how MC practices are distinctively operated and are simultaneously responsive to each other in achieving organisational objectives at both stages in the enterprise. The implication of coupling theory addresses the recent calls for research to explore the MC combination from different theoretical perspectives, rather than just focusing on the system vs package debate (Merchant and Otley, 2020; Martin, 2020). Building on our findings, the paper compared the coupling of MC combinations at both stages and contribute to the comprehension of dynamics. Our case findings suggest that the dynamic of individual MC practices benefits from studying the dynamic of MC combination.

First, in terms of the dynamic of individual MC. In our case, individual MC practices include -two types: core MC and peripheral MC. Our findings highlight that core practice presents the strongest link and core effect on organisational objectives, while peripheral practice exhibits a relatively weak effect on objectives and/or is more used for enhancing the effect of the core practice, which is consistent with the arguments of Sandelin (2008) and Bedford et al. (2016). For example, ET's cultural control of the first stage is the core MC to achieve the organisational objective (governmental expectations). ET used culture control to guide the employees' to realize what they should do, which is consistent with the findings of Lopez-Valeiras et al. (2022) that the design of MC should concern employees' conception and cognition. Budgeting control is a peripheral practice at this stage because budgeting requires the full attention of employees to produce projects on time and in quantity rather than focusing on cost and expenditure.



Moreover, our findings suggest that the dynamic of individual MC practices arises from two pathways. One is the interchange of core position and peripheral position (Sandelin, 2008); for instance, in the second stage, budgeting control is the core power to achieve the organisational objective (improving profitability), interchanged with cultural control as a peripheral practice. The other pathway is the change in function of existing MC practices and the increase of new MC practices, such as the multiple functions of budgeting control with the addition of PM in the second stage.

Second, in terms of the dynamic of MC combination, it is suggested that MC combination is dynamic rather than immutable, which is consistent with the opinions of Martin (2020) and Merchant and Otley (2020) that emphasized that the links of MC practices may vary over time. The case study has highlighted that MC combination is changed from loose coupling to tight coupling. Moreover, it needs to be noticeable that understanding the practical use of MC practices requires to understand how organizational context affect the uses and links of MC practices (Martin, 2020; Merchant and Otley, 2020; Carr and Jooss, 2023). The paper provided explicit evidence to support the effect of organization context on dynamic of MC combination. It is indicated that the change of external and internal organizational context over time forced case company to consider the re-links of MC practices for addressing control problems. Thus, our case study also responds the criticism of Martin (2020, p.1) that emphasized that prior research usually studied the vary of MC by '*investigating the use of MC in different types of companies at a single point time*' but ignoring the variation of MC combination over time. The paper highlights the dynamic of MC combination in a long term, which contributes to the understandings of effect of evolution of organization context on MC combination. Additionally, the dynamic of MC combination in the paper also reflects that MC combination is not always effective. The combination is deeply affected by organization context. The finding resonates to Merchant and Otley (2020) suggesting that MC combination is unlikely optimal and have predictable outcomes. Furthermore, we suggest that MC combination is a combination of a core practice and other peripheral practices (Sandelin, 2008; Bedford et al., 2016). As per the change of individual MC from two pathways, the couplings of MC emerged as loose to tight in our case, and thus drove the dynamic. The findings resonate with Demartini and Otley (2020), suggesting that loose coupling is relatively easy to allow the coordinated adjustment of MC practices, while tight coupling is difficult to change.

#### ***4.5.2 Complexity of MC Combination***

The case findings also enhance understanding of the complexity of MC combination. Merchant and Otley (2020) keeps a complexity perspective for MC combination. They argued that MC combination is complex, which refers to an assembly of MC practices that are loose coupled. However, they emphasized that more studies need to be conducted to understand how MC combination is complex. Our case study provides empirical evidence about how MC practices are differently coupled under different context for addressing different control problems. Moreover, we also provide an empirical answer to the ‘system vs package’ debate on whether MC practices are interdependent and/or independent. Our findings suggest that MC combination cannot be defined by a fixed mode. In our case, the dynamic of MC combination from loose coupling to tight coupling hints at the change from a package to a system. MC combination is composed of loosely linked elements (loose coupling/package) to fully coordinated elements (tight coupling/system). However, Bedford (2020) questions “*whether coupling represents an elaboration of interdependence or an entirely different way of conceptualizing how MC practices are related*” (p.4). Our findings suggest that there is a difference between the concepts of ‘coupling’ and ‘interdependence/ independence’. Most literature discusses combination by analysing whether MC practices are either interdependent or independent. However, MC coupling suggests that the relationship between MC practices can be simultaneously responsive (interdependent) and distinctive (independent). Thus, coupling and interdependence cannot be viewed as two parallel concepts. In addition, although our case presented two instances of coupling, it is far from certain that there are only two modes of MC combination. Extent literature has pointed out that MC combinations are multiple, such as more decoupling ways (Demartini and Otley, 2020), and gradual accumulation (Cooper et al., 2019).

#### ***4.5.3 Institutional Complexity in MC Combination***

This paper provides further evidence that MC combination is a way to buffer the conflict of two logics, because logics need to continue to co-exist (Lounsbury, 2008; Reay and Hinings, 2009) and be equally important (Kitchener, 2002). In our case, ET is a national politico-economic complex which decides that it must authentically respond to state logic rather than symbolically implementing it. It is necessary for ET to find a way to buffer the two logics. The dynamic MC combination reflects the process of buffering. Thus, our finding suggests that the dynamic of MC combination is influenced by embedding institutional logics, which supports the finding of Carr and Jooss (2023) suggests that the change of MC practices may be made

for responding the institutional logic. However, while Carr and Jooss (2023) over-emphasized the establishment of change model of MC and ignored the process of effect of logic on MC combination, our paper sheds lights on the process of cohabitation of logics and its influence on the dynamic of MC combination. Thus, our paper further theoretically contributes to the application of institutional logic theory on MC combination area.

Moreover, our finding resonates with the finding of Tsamenyi et al. (2008) that MC combination is significantly affected by the political, cultural and economic contexts in developing countries. Moreover, although ET is a representative of Eastern case organisations, China being the second largest economic entity, the effect of national politics and economics on SOEs can, to some extent, contribute to the Western world in consideration of how MC of organisations is affected by national politics, culture and economics. These factors also enrich the study direction about exploring the influence of organizational context on MC. While extant literature studying MC combination focuses on strategy (like, Bedford et al., 2016) and organizational emergency (Carr and Jooss, 2023), the study of national politics and economic could further contribute to the understanding of MC combination.

#### **4.5.4. Control Problem**

The paper explores the control problems which are viewed as a less explored area (Gerdin, 2020; Bedford, 2020; Speklé et al., 2022). The case suggest that the influence of institutional logics does not directly act on the dynamic of MC combination, but rather by defining control problems. Thus, the dynamic of MC combination is presented to address the defined control problems (Chenhall et al., 2013; Merchant and Van der Stede, 2017; Speklé et al., 2022). As illustrated in **Figure 4-1**, we respond to the arguments of Bedford (2020, p.4) that control problems must be explicitly clarified because most current research ignores the test of “*behavioural processes that MC practices effect*”.

In the case study, the paper identified two control problems in different stages. First, a control problem; employee inefficiency was suggested in the first stage. ET as a Chinese SOE has a tactic rule that employee would not be dismissed in the normal situation. The tactic rule to some extent causes a lack of employee motivation. Employees do not need to worry about their career no matter whether they effectively achieve their works or not. Thus, an employee inefficiency problem emerged. However, ET, as a SOE, is required to achieve governmental tasks in time and in quantities, which thus requires ET’s employees to achieve their work efficiently. To control the problem, ET firstly utilized culture control by four culture

mechanisms. For instance, in the process of culture control, employee was informed that they would not be dismissed providing they do not commit 'political mistakes'. However, these inefficiently achieving works and tasks could be viewed as 'political mistakes'. The information enabled employee to intentionally avoid inefficient behaviour. Moreover, budgeting control is coupled with culture control to make the focus of using budgeting on the constructing progress of projects rather than on cost. Budgeting also clearly elaborated to employee about the importance of efficient working. Additionally, budgeting control is also distinctively used to plan the arrangements of resources, which guides employee to understand how they could efficiently utilize these resources. Through the use and link of these MC practices, the problem could be controlled. Second, as the change of organizational context, like the change of policies, marketing and economics, ET cannot only achieve governmental tasks but also concerns about its profit. Thus, ET decided to reduce cost for improving profit. ET put its eyes on the control of construction and operation cost. Cost problem is viewed as a control problem. To control cost, a new PM is designed and closely linked with budgeting control. Culture control is also changed to focus on guiding employee to focus on effectively use budgets and PM for making cost control in the process of their routine. These MC practices are tight coupled to address these control problems.

Work inefficiency as a control problem highlights the dysfunctionality of employee behaviour processes (Tucker, et al., 2024). The case reflects that employee may make inefficient performance for their self-interest, like be lazy, when their jobs are not threatened. As the change of context, cost control problem, as one control problems, arose. The problem not only highlights the deficiencies of employee behaviour (Merchant and Van der Stede, 2017) but also reflects the incapacities of construction and operation process in case company. One the one hand, although the cost control problem is ostensibly about cost, cost cannot control itself but rather people control cost (Merchant and Van der Stede, 2017), which reflects the necessity of addressing behaviour deficiencies. On the other hand, in the case, the design of a new PM and a new master budget suggests that ET realized the weakness of operation process. Some cost that is caused by incapacities of operation and construction process need to be avoided. Thus, both control problems are also consistent with the definition of control problem in Otley and Berry (1980), Otley, (2003) and Bedford et al. (2016). Moreover, our findings agree with the opinions of Bedford (2020) and Sridharan (2021) suggesting that contributing to understand how MC addressing control problems is the main path of developing MC theory. The paper highlighted how control problems arise and change because of organizational context and how

these problems are addressed by MC and MC combinations. These findings contribute to the development of MC theory.

#### **4.6. Conclusion**

This paper discusses the dynamic of MC combinations by analysing two different stages in a Chinese SOE. Institutional logics and coupling theory are drawn to illustrate how MC practices are combined to meet organisational expectations and objectives. Building on this, the paper contributes to our understanding of the complexity and dynamic of MC combination. Moreover, the paper introduces the implications of control problems. The introduction contributes to a clear comprehension of the dynamic process of MC combination. A conceptual model (**Figure 4-1**) was developed to highlight the dynamic by combining institutional logics and coupling theory. A single case study was adopted, which is one limitation of the paper. Comparative cases study may enable the discovery of more dynamic characteristics and more MC combinational modes to answer the system vs package debate. Thus, future research might conduct a comparative cases study to enrich the understanding of the dynamic of MC combination. In general, however, by integrating both theoretical approaches, the paper offers a comprehensive insight on the dynamic of MC combination and will hopefully inspire new directions in research on the dynamics of MC combination.

### **Chapter 5: Conclusion**

This thesis consists of five chapters. The first was the introductory chapter, introducing the background, motivation, objectives methodologies and potential contributions of the thesis. Three papers were in Chapters 2 to 4. Chapter 2 was a systematic literature review (SLR) providing an overview of MC combination knowledge. Chapter 3 provided empirical evidence for the complexity of MC combination, while Chapter 4 explored the dynamic of MC combination. Chapter 5 is the concluding chapter and provides an overview and summary of the thesis.

In this chapter, the relativeness and comparativeness of the three papers are highlighted, followed by a recap of the research questions to be answered. The thesis contributions are then presented, and finally, the limitations are discussed, with suggestions for future research.

#### **5.1 Relativeness and Comparativeness of Three papers**

Although the three papers had their own research directions and perspectives, there is relativeness amongst them. Paper 1 organized and synthesized the knowledge of MC

combinations from extant works. It was found that MC combination is multiple and changeable. Paper 1 also indicated that extant works presented relationships among MC practices in different ways, as interdependence, independence, couplings, and accumulation. These different relationships highlight the complexity of MC combinations. To scrutinize this complexity, Paper 2 employed coupling theory to elaborate the multi-dimensional relationships of MC practices. However, it only explored the MC couplings at a single point in time, which may limit the comprehensive understanding of the combination. Thus, Paper 3 investigated the evolution of MC combination, illustrating the change of MC combinations over time. Taken together, all three papers contribute to understanding how MC combination is operated to address organizational objectives under organizational settings.

Papers 2 and 3 used the same methodology of a single case study. Although they investigated different companies, the two cases shared similar company characteristics. Both were large-scale Chinese SOE companies, and, although they engaged in different industries, similar state-owned organizational status enhanced the comparability of MC use.

Furthermore, there were similarities and differences in their MC combination. In terms of similarity, the MC combinations of both cases presented similar coupling status by employing coupling theory. There was a similarly loosely coupled MC in the hierarchy domain of Paper 2 and government-orientation stage of Paper 3. In terms of difference, PM and budgeting presented a loose coupling in Paper 2, while both MC practices presented a tight coupling in Paper 3. As a result, the case company of Paper 3 placed budgeting at the core of MC and made budget-related indicators a core assessment of objective PM. From a holistic view, the case company of Paper 2 generally presented a loose coupling status in MC combination, although there were tight couplings between a few pairs of MC practices. By contrast, the case company of Paper 3 presented a holistic tight coupling of MC practices in the second stage. The difference may be from the effect of organizational characteristics and environment. Paper 2's case company was a new-energy industry, extensively supported by government and with a favourable marketing and profit environment. However, Paper 3's case company, as a traditional railway industry, was less profit oriented. The different environment resulted in a difference of company goals and thus presented different MC combinations.

## **5.2 Main Findings**

The thesis aimed to explore the characteristics and actual operations of MC combination. Based on this objective, two research questions were proposed in the introductory chapter.

- 1- What are the key themes and emerging trends in the MC combination literature?
- 2- How can multiple MC practices be multiply combined in organizations?
- 3- How does institutional context contribute to shaping and reshaping MC combinations in organizations?

### ***5.2.1 Answering Question One***

To explore MC combination, a large amount of extant literature was reviewed on the subject. A SLR about MC combination was conducted. The SLR mainly consists of a descriptive analysis and a content analysis. First, descriptive analysis highlights the bibliographical information and research design characteristics of reviewed literature. The SLR summarized the publication years and journals of these articles. It is suggested that MC combination studies experienced a sharp upward in recent year. Additionally, although most of articles are published in accounting field journals, several publications on non-accounting field journals reflect the possibilities of contributing to cross-disciplines.

Second, content analysis as the main part of the SLR suggested current MC combination research stages and directions. It is found that MC combination could be studied from two streams. One the one hand, MC combination could be studied from a configuration perspective. MC configuration can be viewed as a configuration in which multiple MC practices are put into together for adapting to organizational contexts and addressing organizational outcomes. MC configuration focuses on which MC practices are more or less emphasized and used within a configuration but does not consider the interrelationships among MC practices. Thus, MC configuration stream concerns about the holistic study of MC combination, antecedents and outcomes. Moreover, the use of research methods in MC configuration research was also highlighted, as an appropriate research methods is crucial to understand the inner workings of configuration. On the other hand, MC combination can be viewed as identification of the interrelationships among MC practices. While MC configuration concerns about a holistic view of combination, antecedent and outcome, MC interrelationship focuses on the link and connection among MC practices. Thus, interdependence of MC practices was defined. A system vs package debate arose. A tension perspective was concerned. These research directions and angles drive MC researchers to continually explore how MC practices are combined. Thus, a complexity view of MC combination is highlighted (Merchant and Otley, 2020). A dynamic of MC combination is called for further research (Martin, 2020; Merchant and Otley, 2020).

Moreover, the thesis also analyzed the control problem in MC combination research. Although control problem has not been explicitly defined in current literature, it is viewed as an important content that contributing to theorize MC combination. Addressing how MC combination is operated to address control problems is regarded as the ‘domain theory’ of MC field (Sridharan, 2021). The thesis calls for more research on exploring how MC and MC combination address control problems.

### ***5.2.2 Answering Question Two***

To further explore MC combination, the thesis then conducted two case studies. The two case studies explored the complexity and dynamic of MC combination, respectively. In terms of complexity, employing coupling theory, paper 2 found that MC combination is complex. The relationships of MC practices are multiple-dimensional. Under the same one organizational context, different MC practices may be differently coupled with each other due to different operational context. First, under same operational context, MC combination is different rather than is consistent. It is suggested that different MC practices are tightly coupled and loosely coupled. Second, under different operational contexts, same pairs of MC practices presented different couplings as they need to adapt different operation context, such as the tight coupling of budgeting control and planning control in first domain while loose coupling in second domain in paper 2. Third, under different operation contexts, same pairs of MC practices presenting same coupling displayed different coupled dimensions, such as the same loose coupling of budgeting control and administrative control in both domains presented different dependence, consistency, use and component dimensions. The complexity of MC combination disagrees the dualism of system vs package. MC combination is multiple and various.

In terms of dynamic, paper 3 further highlighted the dynamic. Dynamic suggests that MC combination can be differently coupled in different stages. The evolution of MC combination results from the changed use of individual MC practices. The paper 3 of thesis introduced control problems and suggested that the change of MC combination is for addressing the change of control problems. The control problem has been viewed as an under-explored topic of MC research (Gerdin, 2020). It presents the behavioural process which MC practices affect (Bedford, 2020). Thus, it may be inappropriate to measure MC combination without clarification on how control problems are addressed. By employing institutional logic in Paper 3, our thesis highlighted that the introduction of institutional logic defines control problems and then drives the design of MC combination. The MC combination in turn addresses control problems in response to institutional logics and achieves organizational objectives. For



example, due to the change of organizational context, the control problem of case company of paper 3 was changed from employee inefficiency to cost problem. To address these control problems, the use and design of MC and MC combination was changed and evolved. The study explored the process of how MC practices are combined to address control problems, which contributes to the theorization of MC combination.

Furthermore, these findings in this thesis also to some extent extend the ‘system and package’ debate, suggesting that the study of MC combination is not only limited to discussion of complementary and substitute among MC practices, but also digs into the combination in different dimensions, degrees and ways, like the four dimensions of responsiveness among MC practices, and four dimensions of distinctiveness of MC practices. The thesis used a coupling theoretical approach (Demartini and Otley, 2020; Merchant and Otley, 2020) to illustrate the relationships of MC practices instead of the traditional complementary and substitutes concepts (Grabner and Moers, 2013). The coupling approach enabled us to understand the working mechanisms of MC combination from different dimensions. It does not limit MC combination as a way (a system or a package) but highlights it as a multidimensional continuum where MC combinations vary between tight coupling, loose coupling and decoupling.

### ***5.2.3 Answering Question Three***

Contingency theory has suggested that the design and use of MC combination needs to adapt to the organizational environment (Otley, 2016). To explore the effect of organizational context on MC combination, the thesis firstly used SLR to review the discussion in extant works. The SLR summarized four main antecedents affecting the MC combination, including environmental uncertainty, strategy, culture, and technology. Although some literature mentioned the effect of company size and age, this needs to be considered in combination with other factors (Bedford and Malmi, 2015).

To further explore the effect of organizational context, our case studies explored the effect of government, market, and organizational characteristics. From the perspective of a single case study, Paper 2 highlighted multiple MC combinations under different MC operational contexts. By extending an MC coupling framework, the paper further highlighted how different MC practices are multiply combined based on two coupled domains (operational contexts). While traditional MC combination research focuses on the effect of external environmental uncertainty (Evans and Tucker, 2015), Paper 2 considered the effect of MC operational context. Paper 3 suggested that MC combination may be changed by adapting to the change of

organizational context over time. Some literature has indicated that change of organizational context causes change of organizational strategies and thus drives the change of MC combination to adapt (Toldbod and Van der Kolk, 2022). Paper 3 further argued that change of institutional environment defines the production and change of control problems. Building on this, the content, functions, and positions (core and peripheral) of individual MC practices may be changed to address the control problems and thus respond to the change of institutional environment. In the process of change in MC practices, the relationships of MC are shaped and reshaped. From the perspective of comparative case study, Paper 2 and Paper 3 studied the MC combination in two Chinese SOEs. Although both enterprises had the same organizational ownership property, MC combination existed differently in both SOEs, for instance in the different couplings between budgeting and culture control, and between budgeting and PM. The difference resulted from the influence of different industry characteristics, policies, and market environment.

### **5.3 Contributions of the Thesis**

The thesis investigated the characteristics of MC combinations from different perspectives, theoretically and practically contributing to further the understanding and construction of MC combination. In this section, the general contributions are presented from a theoretical and practical perspective, respectively.

#### ***5.3.1 Theoretical Contributions***

In the subsections below, the thesis highlights the theoretical contributions from the understanding of MC combination and theoretical implementation of MC research.

##### ***5.3.1.1 Contributes to the Understanding of MC Combination***

First, the thesis provided a comprehensive understanding of the inner workings of MC combination via an SLR. The SLR synthesized a good deal of literature exploring how MC combinations are designed to solve organizational problems and objectives. The specification of working mechanisms of MC combination contributed to theorizing the effect of MC combination on organizational control problems (Bedford, 2020). Based on the SLR, some research gaps and future research directions were highlighted, not only providing solid ground for following two case studies, but also guiding researchers in the MC area to explore more.

Second, the case studies suggested that MC combination is multi-dimensional and multi-degree. Two terms, system and package (Grabner and Moers, 2013; Gerdin, 2020), do not seem to

summarize the whole combination status. MC combinations are used to address different organizational objectives, highlighting the understanding of the multifinality of MC (Merchant and Otley, 2020). Moreover, the thesis also suggested that MC combination is dynamic, and may be changed due to change in the institutional environment. Thus, the thesis theoretically provided a dynamic design path of MC combination. Institutional environment can define organizational control problems, while control problems drive the use and change of MC combination. The main purpose of MC combination is hence viewed as addressing the control problems and thus responding to the institutional environment. In general, the thesis enriches the theoretical understanding of MC combination from (a) the exploration of multi-dimensional and multi-degree combinations of MC practices (b) the exploration of the effect of organizational context on MC, and the functionality of MC in addressing control problems and organizational objectives.

Third, the thesis contributes to the development of MC theory. Contributing to understand how MC is operated to address control problem has been identified as the main path for theorizing MC research (Bedford, 2020; Sridharan, 2021). It has been suggested that there are several articles trying to explore control problems in recent year (Gerdin, 2020; Speklé, et al., 2022; Dodd et al., 2023; Tucker, et al., 2024). However, studies on the field is scare and limited. Although these articles studied how MC and/or MC combination is used to address control problems, no articles concern that control problem is changeable. In the situation, we little know and should explore how MC and MC combination are operated and/or changed to address the change of control problem. The paper 3 of our thesis provided the empirical evidence for the exploration of the process, and thus contribute to theorize how MC addresses control problems.

Fourth, the thesis contributes to the fruitfulness of MC combinations. The two case companies were Chinese state-owned enterprises. China is the second largest economic entity in the world, but compared with western countries, it has a different economic and social system and culture. This difference enabled us to observe the possibility of multiple methods of MC combination. The Chinese economic system enabled us to understand the dual effect of government and market on organizations. Under the dual effect, MC practices may present more diverse combinations, which could be of value both in China and beyond.

### ***5.3.1.2 Theoretical Implementation of MC Research***

The thesis further enriches the understanding of MC combination by identifying and employing

extant theories. First, it provided a comprehensive overview on the use of theories in MC combination research by conducting an SLR. The SLR summarized and analyzed the use of various theories, such as contingency theory and configuration theory, helping researchers to identify which theory may be useful for their research and providing an opportunity to further explore MC combination.

Second, the thesis employed coupling theory in both case studies, which enriches the in-depth development of the working mechanism of MC combination. The concept of coupling theory was extended by employing a coupling framework which includes coupling elements, dimensions, mechanisms and domains (Beekun and Glick, 2001). It is also one of the first studies to use the comprehensive coupling framework to explore MC combination. The coupling theory enables MC combination research to go beyond the ‘system vs package’ debate and uses a different way to examine MC combination rather than the traditional ‘complementary and substitute’ concepts. Thus, the theory provides the possibility to further explore the characteristics of MC combination.

Third, the thesis employed institutional logics to explore the effect of organizational context on MC combination. Institutional logics provides legitimacy and behavioural principles on why MC practices can be combined. Based on institutional logic, control problems are defined, providing theoretical evidence for the design of MC combination.

### ***5.3.2 Practical Implications***

In addition to the theoretical contributions to MC combination, the thesis contributes to both researchers and practitioners.

#### ***5.3.2.1 Contributes to Researchers***

First, the SLR is one of first to provide an overview of MC combination from different perspectives. It summarized much of the knowledge on MC combination, such as the concept of MC, working mechanisms and causal forms of MC combination, and current research perspectives and under-explored topics in the MC area. This knowledge could enable new researchers to understand what MC combination research completely and comprehensively is about and provides abundant research possibilities to motivate researchers towards further study.

Second, the MC coupling theory framework of Paper 2 provides a research direction for MC researchers. Different coupled dimensions are summarized, which provides more possibilities

for researchers studying the relationships of MC practices. Moreover, coupling domain is one of the first to be introduced into MC combination research. The concept enables MC researchers to further investigate MC combination from different perspectives, extending the research directions.

### ***5.3.2.2 Contributes to Practitioners***

First, learning from the use of MC combination. The thesis discussed the characteristics and operation of MC combination by SLR and case studies. Organizational managers could obtain a good deal of knowledge about how to shape MC and MC combinations in their own companies. Through the thesis, managers are made aware that the functionalities of MC are multiple. MC practices can function by relating to other MC practices. Thus, to maximize the benefit and achieve organizational goals, the relativeness of different functionalities needs to be considered in the process of designing individual MC practices. The thesis provides a comprehensive understanding about the relativeness.

Second, the thesis not only enables managers to understand the design of MC practices, but also makes them aware of the effect of organizational context, control problems and organizational goals. The SLR provided a series of antecedents, control problems and outcomes. Two case studies further highlighted the actual effect of these variables, enabling companies to consider the design of MC combination under intervention and the impact of different variables. Moreover, the case studies were conducted under the background of the Chinese economic system. The position of the SOEs showed how MCs are combined under the effect of government and market, contributing to the consideration of MC combinations in global companies that are placed under dual pressure.

## **5.4 Limitations**

Despite the contributions made by the thesis, it nevertheless has a few limitations.

Firstly, in the process of conducting the SLR, the thesis limited the selection of reviewed articles to ABS 2\* and above journals for ensuring articles' quality and quantity. Although the selected articles were sufficient in number to highlight MC combination research, it is possible that a few articles which may have been excluded from ABS 2\* and above journals might be useful and include some valuable points and research directions.

Secondly, although both case studies identified various MC practices to explore their combination, not all such practices could be seen in the case companies. While the thesis

identified influential MC practices for the case companies, it is possible that other unhighlighted MC practices may impact the combination characteristics even though their impact is weak. This means that, potentially, there may be insufficient results existing in MC combination research.

Thirdly, although the thesis conducted two case studies to enable the in-depth exploration of MC combination, the case number was limited. Single case study can enable us to understand deeply why and how MC practices are combined. However, it may impact on theorizing MC combination characteristics and effect.

Fourthly, both case studies involved Chinese state-owned enterprises. Although Chinese SOEs provided the possibility to understand the effect of government, nation, and market on MC combination and enhance the development of MC combination research, the differences between Chinese companies and western companies may impact on the generation of MC combination characteristics.

### **5.5 Future Research Direction**

Having identified and analyzed the various related papers, the thesis highlights a few research directions and pointers for future research.

First, more comprehensive MC practices should be considered in future research. Case studies can help us delve into the process of MC combination, while identifying as many MC practices as possible could enable us to discover more potential MC combination characteristics.

Second, the dynamic of MC combination is emphasized. This dynamic provides us with a new visualization to observe the inner mechanism of MC combination. Thus, dynamic research may require researchers to conduct more longitudinal research in the future. Although this type of research is time-consuming, it could provide more deep and explicit evidence on MC combination.

Third, future research needs to focus on the comparability of multiple case study, especially regarding different national companies, for instance Chinese companies vs western companies. Different national contexts would enable us to comprehensively understand MC combination and the effect of national characteristics, such as politics and national culture. Conducting a comparative case study between companies from different nations would help researchers explore the fundamental characteristics of MC combination.

Fourth, it is suggested that future research should go beyond the system vs package debate. The

interrelationship of MC practices research could use different research approaches and perspectives, such as coupling, rather than only highlighting the complementary and substitute elements. Different views may well bring more discoveries.

## Reference

- Anthony, R. 1965. *Planning and control systems: a framework for analysis*. Harvard University, Boston: Harvard University.
- Abdel-Kader, M. and Luther, R. 2008. The impact of firm characteristics on management accounting practices: A UK-based empirical analysis. *British Accounting Review*. 40(1), pp. 2–27.
- Akinyele, K. O., Arnold, V., and Sutton, S. G. 2022. Motivating unrewarded task performance: The dual effects of incentives and an organisational value statement in a discretionary task setting. *Accounting and Finance*, 62(2), pp. 2439-2466.
- Akroyd, C., Kober, R. and Li, D. 2019. The emergence of management controls in an entrepreneurial company. *Accounting and Finance*. 59(3), pp. 1811–1839.
- Albu, C. N. Albu, N. Faff, R. and Hodgson, A. 2011. Accounting competencies and the changing role of accountants in emerging economies: the case of Romania. *Accounting in Europe*. 8(2), pp. 155–184.
- Amans, P., Mazars-Chapelon, A., and Villesèque-Dubus, F. 2015. Budgeting in institutional complexity: the case of performing arts organizations. *Management Accounting Research*, 27(2015), 47–66.
- Ashraf, J. and Uddin, S. 2015. Military, “managers” and hegemonies of management accounting controls: A critical realist interpretation. *Management Accounting Research*. 29, pp. 13–26.
- Aufrecht, S. E., and Bun, L. S 1995. Reform with Chinese characteristics: the context of Chinese civil service reform. *Public Administration Review*. 55(2), 175–182.
- Auzair, S. M. 2015. A configuration approach to management control systems design in service organizations. *Journal of Accounting and Organizational Change*. 11(1), pp. 47–72.
- Barretta, A. D. and Noto, G. 2023. Management control practices in interorganizational initiatives: the case of a public program. *Financial Accountability and Management*, 39(3), pp. 493-513.
- Barros, R. S. and Ferreira, A. M. D. S. D. C. 2019. Bridging management control systems and innovation: the evolution of the research and possible research directions. *Qualitative Research in Accounting and Management*. 16(3), pp. 342–372.



- Beaubien, L. 2013. Technology, change, and management control: A temporal perspective. *Accounting, Auditing and Accountability Journal*. 26(1), pp. 48–74.
- Becker, S.D., Mahlendorf, M.D., Schäffer, U., and Thaten, M. 2016. Budgeting in times of economic crisis. *Contemporary Accounting Research*. 33(3), pp. 1489-1517.
- Bedford, D. S. 2020. Conceptual and empirical issues in understanding management control combinations. *Accounting, Organizations and Society*. 86(2020), p. 1-8.
- Bedford, D. S., Bisbe, J. and Sweeney, B. 2019. Performance measurement systems as generators of cognitive conflict in ambidextrous firms. *Accounting, Organizations and Society*, 72, pp. 21–37.
- Bedford, D. S. and Malmi, T. 2015. Configurations of control: an exploratory analysis. *Management Accounting Research*, 27, pp. 2–26.
- Bedford, D. S. and Sandelin, M. 2015. Investigating management control configurations using qualitative comparative analysis: an overview and guidelines for application. *Journal of Management Control*, 26(1), pp. 5–26.
- Bedford, D. S., Malmi, T. and Sandelin, M. 2016. Management control effectiveness and strategy: an empirical analysis of packages and systems. *Accounting, Organizations and Society*, 51, pp. 12-28.
- Beekun, R. I. and Glick, W. H. 2001. Organization structure from a loose coupling perspective: a multidimensional approach. *Decision Sciences*. 32(2), pp. 227–250.
- Bénet, N., Deville, A. and Naro, G. 2019. BSC inside a strategic management control package. *Journal of Applied Accounting Research*. 20(1), pp. 120–132.
- Berente, N. and Yoo, Y. 2012. Institutional contradictions and loose coupling: postimplementation of NASA's enterprise information system. *Information Systems Research*. 23(2), pp. 376–396.
- Berg, T. and Madsen, D. Ø. 2020. The evolution of a management control package: a retrospective case study. *Journal of Applied Accounting Research*. 21(4), pp. 763-781.
- Bertolotti, F., Macrì, D. M. and Vignoli, M. 2019. Strategic alignment matrix: supporting management coordination in complex organizations. *Journal of Accounting and Organizational Change*. 15(4), pp. 557–579.
- Bisbe, J. and Malagueño, R. 2009. The choice of interactive control systems under different

- innovation management modes. *European Accounting Review*. 18(2), pp. 371-405.
- Boland, A., Cherry, G., Dickson, R. 2017. *Doing a systematic review: a student's guide*. London: Sage.
- Bormann, S. 2020. Strategic priority and organizational design. *Journal of Management Accounting Research*. 32(3), pp.7-26
- Bourne, M., Franco-Santos, M., Micheli, P. and Pavlov, A. 2017. Performance measurement and management: a system of systems perspective. *International Journal of Production Research*. 56(8), pp. 1-12.
- Bouten, L. and Hoozée, S. 2016. Let's do it safely: how Altrad Balliauw configured a package of control systems. *Journal of Cleaner Production*. 136, pp. 172–180.
- Braun, V. and Clarke, V. 2006. Using thematic analysis in psychology. *Qualitative Research in Psychology*. 3(4), pp. 77-101.
- Braumann, E. C., Grabner, I. and Posch, A. 2020. Tone from the top in risk management: A complementarity perspective on how control systems influence risk awareness. *Accounting, Organizations and Society*. 86(2020), p. 101128.
- Bruns, W. J. and Waterhouse, J. H. 1975. Budgetary control and organization structure. *Journal of Accounting Research*. 13(2), pp. 177-203.
- Bryman, A. 2001. *Social Research Methods*. Oxford: Oxford University Press.
- Bryman, A., and Bell, E. 2015. *Business research methods*. USA: Oxford University Press.
- Bürkland, S., Zachariassen, F. and Oliveira, J. 2019. Meeting up for management control: bracketing interaction in innovation development. *Qualitative Research in Accounting and Management*. 16(1), pp. 144–178.
- Caglio, A. 2003. Enterprise resource planning systems and accountants: towards hybridization? *European Accounting Review*. 12(1), pp. 123-153
- Cäker M., Siverbo S. 2011. Management control in public sector joint ventures. *Management Accounting Research*. 22(4), pp. 330-348.
- Cardinal, L. B., Sitkin, S. B., and Long, C. P. 2004. Balancing and rebalancing in the creation and evolution of organizational control. *Organization Science*, 15(4),411-431.
- Carlsson-Wall, M., Goretzki, L., Kraus, K. and Lind, J. 2021. Exploring the role of

management control anchor practices in new product development. *European Accounting Review*. 30(2), pp. 251–276.

Chatterjee, S., Sarker, S. and Siponen, M. 2017. How do mobile ICTs enable organizational fluidity: toward a theoretical framework. *Information and Management*. 54(1), pp.1-13.

Chen, Y., Brown, A. S., Hu, J., King, C., and Chen, H. 2011. Managing emerging infectious diseases with information systems: Reconceptualizing outbreak management through the lens of loose coupling. *Information Systems Research*. 22(3), pp. 447–468.

Chenhall, R. H. 2003. Management control systems design within its organizational context: findings from contingency-based research and directions for the future. *Accounting, Organizations and Society*. 28(2–3), pp. 127–168.

Chenhall, R. H., Hall, M., and Smith, D. 2013. Performance measurement, modes of evaluation and the development of compromising accounts', *Accounting, Organizations and Society*. 38(4), 268–287

Chenhall R.H., Kallunki J.P., Silvola H. 2011. Exploring the relationships between strategy, innovation, and management control systems: The roles of social networking, organic innovative culture, and formal controls. *Journal of Management Accounting Research*. 23(1), pp. 99-128.

Chenhall, R. H. and Langfield-Smith, K. 1998. The relationship between strategic priorities, management techniques and management accounting: An empirical investigation using a systems approach. *Accounting, Organizations and Society*. 23(3), pp. 243–264.

Chenhall, R. H. and Moers, F. 2015. The role of innovation in the evolution of management accounting and its integration into management control. *Accounting, Organizations and Society*. 47, pp. 1–13.

Choi, J. 2020. Studying “and”: a perspective on studying the interdependence between management control practices. *Accounting, Organizations and Society*. 86(2020), pp: 101188.

Collier, P. M. 2005. Entrepreneurial control and the construction of a relevant accounting. *Management Accounting Research*,.16(3), pp. 321–339.

Cooper, D. J., Ezzamel, M. and Robson, K. 2019. The multiplicity of performance management systems: heterogeneity in multinational corporations and management sense-making. *Contemporary Accounting Research*. 36(1), pp. 451–485.

Covaleski, M. A., and Dirsmith, M. W. 1983. Budgeting as a means for control and loose

coupling. *Accounting, Organizations and Society*. 8(4), 323–340.

Cruz, I., Major, M. and Scapens, R. W. 2009. Institutionalization and practice variation in the management control of a global/local setting. *Accounting, Auditing and Accountability Journal*. 22(1), pp. 91–117.

Curtis, E., Sweeney, B. 2017. Managing different types of innovation: mutually reinforcing management control systems and the generation of dynamic tension. *Accounting Business Research*. 47, pp. 313–343.

Dai, N. T., Tan, Z. S., Tang, G., and Xiao, J. Z. 2017. IPOs, institutional complexity, and management accounting in hybrid organisations: a field study in a state-owned enterprise in China. *Management Accounting Research*, 36, pp. 2–23.

Damayanthi, S., Gooneratne, T. N. and Jayakody, J. A. S. K. 2021. Logics, complexities and paradoxical tensions: management controls in a clustered firm. *Accounting, Auditing and Accountability Journal*. 34(2), pp.307-337.

Davarzani, H. Fahimnia, B., Bell, M and Sarkis, J. 2016. Greening ports and maritime logistics: A review. *Transportation Research Part D: Transport and Environment*. 48, pp. 473–487.

Dechow, N. and Mouritsen, J. 2005. Enterprise resource planning systems, management control and the quest for integration. *Accounting, Organizations and Society*. 30(7–8), pp. 691–733.

Danneels, E. 2003. Tight-loose coupling with customers: the enactment of customer orientation. *Strategic Management Journal*. 24(6), pp. 559–576.

Demartini, M. C. and Otley, D. 2020. Beyond the system vs package dualism in performance management systems design: a loose coupling approach. *Accounting, Organizations and Society*. 86(2020), pp.101072.

Deore, A., Gallani, S., and Krishnan, R. 2023. The effect of systems of management controls on honesty in managerial reporting. *Accounting, Organizations and Society*. 105(2023), pp. 101401.

Dess, G. G., Newport, S. and Rasheed, A. M. A. 1993. Configuration research in strategic management: key issues and suggestions. *Journal of Management*, 19(4), pp. 775–795.

Du, F., Tang, G., and Young, S. M. 2012. Influence activities and favouritism in subjective performance evaluation: evidence from Chinese state-owned enterprises. *The Accounting Review*, 87, pp. 1555–1588.

- Durdella, N. 2019. *Qualitative dissertation methodology: A guide for research design and methods*. London: Sage.
- Easterby-Smith, M., Thorpe, R. and Lowe, A. 1991. *Management research: an introduction*. London: Sage.
- Efferin, S. and Hopper, T. 2007. Management control, culture and ethnicity in a Chinese Indonesian company. *Accounting, Organizations and Society*. 32(3), pp. 223–262.
- Einhorn, S., Heinicke, X. and Guenther, T. W. 2021. Management control packages in family businesses: a configurational approach. *Journal of Business Economics*. 91, pp. 433-478.
- Elbashir, M. Z., Collier, P. A. and Sutton, S. G. 2011. The role of organizational absorptive capacity in strategic use of business intelligence to support integrated management control systems. *Accounting Review*. 86(1), pp. 155–184.
- Eldridge, S., van Iwaarden, T. and Williams, R. 2014. Management control systems for business processes in uncertain environments. *International Journal of Quality and Reliability Management*. 31(1), pp. 66–81.
- Endenich, C. 2014. Economic crisis as a driver of management accounting change: Comparative evidence from Germany and Spain. *Journal of Applied Accounting Research*. 15(1), 123-149.
- English, T. 2001. Tension analysis in international organizations: a tool for breaking down communication barriers. *International Journal of Organizational Analysis*. 9(1), pp.58–83.
- Evans, M. and Tucker, B. P. 2015. Unpacking the package: Management control in an environment of organisational change. *Qualitative Research in Accounting and Management*, 12(4), pp. 346–376.
- Ezzamel, M., and Xiao, J. Z. 2015. The development of accounting regulations for foreign invested firms in China: the role of Chinese characteristics. *Accounting, Organizations and Society*. 44(2015), pp. 60-84.
- Felício, T., Samagaio, A. and Rodrigues, R. 2021. Adoption of management control systems and performance in public sector organizations. *Journal of Business Research*. 124(2020), pp. 593–602.
- Ferreira, A. and Otley, D. 2009. The design and use of performance management systems: an extended framework for analysis. *Management Accounting Research*. 20(4), pp. 263–282.

- Fiss, P. C. 2011. Building better causal theories: a fuzzy set approach to typologies in organization research. *Academic Management Journal*. 54, pp. 393–420.
- Fiss, P. C., and Zajac, E. J. 2004. The diffusion of ideas over contested terrain: the (non)adoption of a shareholder value orientation among German firms. *Administrative Science Quarterly*. 49(4), pp. 501–534.
- Frare, A. B., Cruz, A. P. C., Lavarda, C. E. F. and Akroyd, C. 2022. Packages of management control systems, entrepreneurial orientation and performance in Brazilian start-ups. *Journal of Accounting and Organizational Change*. 18(5), pp. 643–665.
- Friedland, R., and Alford, R. R. 1991. Bringing society back in symbols, practices and institutional contradictions. In W. W. Powell and P. J. DiMaggio. eds. *The new Institutionalism in Organizational Analysis*. USA: University of Chicago Press, pp.232-266.
- Fullerton, R. R., Kennedy, F. A. and Widener, S. K. 2013. Management accounting and control practices in a lean manufacturing environment. *Accounting, Organizations and Society*. 38(1), pp. 50–71.
- Garcia Osmá, B., Gomez-Conde, J. and Heras, E. 2018. Debt pressure and interactive use of control systems: effects on cost of debt. *Management Accounting Research*. 40(2017), pp. 27–46.
- Gerdin, J. 2005. Management accounting system design in manufacturing departments: an empirical investigation using a multiple contingencies approach. *Accounting, Organizations and Society*. 30(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*. 29(3-4), pp. 303-326.
- Gerdin, J. 2020. Management control as a system: integrating and extending theorizing on MC complementarity and institutional logics. *Management Accounting Research*, 49(2020), pp: 1-13.
- Gerdin, J., Greve, J. 2004. Forms of contingency fit in managerial accounting research – a critical review. *Accounting Organization and Society*. 29 (3–4), pp. 303–326.
- Gomez-Conde, J., Lunkes, R. J. and Rosa, F. S. 2019. Environmental innovation practices and operational performance: The joint effects of management accounting and control systems and environmental training. *Accounting, Auditing and Accountability Journal*. 32(5), pp. 1325–1357.

- Gond, J. P., Grubnic, S., Herzig, C. and Moon, J. 2012. Configuring management control systems: theorizing the integration of strategy and sustainability. *Management Accounting Research*. 23(3), pp. 205–223.
- Gong, M. Z. and Ferreira, A. 2014. Does consistency in management control systems design choices influence firm performance? An empirical analysis. *Accounting and Business Research*. 44(5), pp. 497–522.
- Grabner, I. and Moers, F. 2013. Management control as a system or a package? conceptual and empirical issues. *Accounting, Organizations and Society*. 38(6–7), pp. 407–419.
- Grabowski, M. and Roberts, K. H. 1999. Risk mitigation in virtual organizations. *Organization Science*. 10(6), pp.704-721.
- Granlund, M. and Malmi, T. 2002. Moderate impact of ERPS on management accounting: a lag or permanent outcome? *Management Accounting Research*. 13(3), pp. 299–321.
- Greenhalgh, T., Thorne, S., and Malterud, K. 2018. Time to challenge the spurious hierarchy of systematic over narrative reviews. *European Journal of Clinical Investigation*. 48(6), pp. 1-6.
- Greenwood, R., Raynard. M., Kodeih, F., Micelotta, E. R., and Lounsbury, M. 2011. Institutional complexity and organizational responses. *Academy of Management Annals*. 5(1), pp. 317–371.
- Gschwantner, S. and Hiebl, M. R. W. 2016. Management control systems and organizational ambidexterity. *Journal of Management Control*. 27(4), pp. 371–404.
- Gul, F. A. and Chia, Y. M. 1994. The effects of management accounting systems, perceived environmental uncertainty and decentralization on managerial performance: a test of three-way interaction. *Accounting, Organizations and Society*. 19(4–5), pp. 413–426.
- Hall, M. 2016. Realising the richness of psychology theory in contingency-based management accounting research. *Management Accounting Research*. 31, pp. 63–74.
- Heinicke, A., Guenther, T. W. and Widener, S. K. 2016. An examination of the relationship between the extent of a flexible culture and the levers of control system: the key role of beliefs control. *Management Accounting Research*. 33, pp. 25-41.
- Heinzelmann, R. 2018. Occupational identities of management accountants: the role of the IT system. *Journal of Applied Accounting Research*. 19(4), pp. 465–482.

- Henri, J and Wouters, M. 2020. Interdependence of management control practices for product innovation: the influence of environmental unpredictability. *Accounting, Organizations and Society*. 76(2020), pp. 1-14.
- Hiebl, M. R. W. 2018. Management accounting as a political resource for enabling embedded agency. *Management Accounting Research*. 38(2018), pp. 22–38.
- Hoepner, A. G. F. and Unerman, J. 2012. Explicit and implicit subject bias in the ABS journal quality guide. *Accounting Education*. 21(1), pp. 3-15.
- Hofmann, C. and Indjejikian, R. J. 2021. Authority, monitoring, and incentives in hierarchies. *Contemporary Accounting Research*, 38(3), pp. 1643–1678.
- Hyvönen, T., Järvinen, J. and Pellinen, J. 2008. A virtual integration-the management control system in a multinational enterprise. *Management Accounting Research*, 19(1), pp. 45–61.
- Hyvönen, T. Järvinen, J., Pellinen, J. and Rahko, T. 2009. Institutional logics, ICT and stability of management accounting. *European Accounting Review*, 18(2), pp. 241–275.
- Ibarra, H. 1993. Network centrality, power, and innovation involvement: determinants of technical and administrative roles. *The Academy of Management Journal*, 36(3), 471-501.
- Jack, L. and Kholeif, A. 2008. Enterprise resource planning and a contest to limit the role of management accountants: A strong structuration perspective. *Accounting Forum*, 32(1), pp. 30–45.
- Jankowicz, A. D. 2005. *Business Research Projects (4<sup>th</sup> ed.)*. London: Thomson Learning.
- Jansen, E. P. 2011. The effect of leadership style on the information receivers' reaction to management accounting change. *Management Accounting Research*, 22(2), pp. 105–124.
- Järvenpää, M. 2007. Making business partners: a case study on how management accounting culture was changed. *European Accounting Review*, 16(1), pp. 99–142.
- Jiao, L., Harrison, G. and Chen, J. 2022. Revenue growth in not-for-profit organisations: the effects of interactive and diagnostic controls and organisational culture. *Accounting and Finance*, 63(2), pp. 1–22.
- Johansson, T. 2018. Testing for control system interdependence with structural equation modeling: A research note with the levers of control (LOC) framework as example. *Journal of Accounting Literature*. 41(2018), pp. 47-62.
- Kapiyangoda, K. and Gooneratne, T. 2018. Institutions, agency, culture and control: a case



study of a multinational operating company. *Journal of Accounting and Organizational Change*. 14(4), pp. 402–428.

Kennedy, F. A. and Widener, S. K. 2008. A control framework: insights from evidence on lean accounting. *Management Accounting Research*. 19(4), pp. 301–323.

King, R. and Clarkson, P. 2015. Management control system design, ownership, and performance in professional service organisations. *Accounting, Organizations and Society*. 45, pp. 24–39.

Kitchener, M. 2002. Mobilizing the logic of managerialism in professional fields: The case of academic health centre mergers. *Organization Studies*. 23(3), pp: 391–420.

Kovács, G. and Spens, K. M. 2005. Abductive reasoning in logistics research. *International Journal of Physical Distribution and Logistics Management*. 35(2). pp.132-144.

Kristensen, T. B. and Nielsen, H. 2020. Configuring a profile-deviation-analysis to statistical test complementarity effects from balanced management control systems in a configurational fit approach. *Journal of Management Control*. 30, pp. 439-475.

Kruis, A. M., Speklé, R. F. and Widener, S. K. 2016. The levers of control framework: an exploratory analysis of balance. *Management Accounting Research*, 32, pp. 27–44.

Laguir, L., Laguir, I. and Tchemeni, E. 2019. Implementing CSR activities through management control systems: a formal and informal control perspective. *Accounting, Auditing and Accountability Journal*, 32(2), pp. 531–555.

Lambert, S. A., Herbert, I. P. and Rothwell, A. T. 2019. Rethinking the career anchors inventory framework with insights from a finance transformation field study. *British Accounting Review*.

Langfield-Smith, K. 2008. The relations between transactional characteristics, trust and risk in the start-up phase of a collaborative alliance. *Management Accounting Research*, 19(4), pp. 344–364.

Langley, A. 1999. Strategies for theorizing from process data. *Academy of Management Review*, 24(4), 691–710.

Lewis, M.W. 2000. Exploring paradox: toward a more comprehensive guide. *Academic of Management Review*. 25(4), pp.760–776.

Liff, R. and Wahlstrom, G. 2018. Usefulness of enterprise risk management in two banks. *Qualitative Research in Accounting and Management*. 15(1), pp. 124–150.

- Lill, J. B. 2020. When the boss is far away and there is shared pay: the effect of monitoring distance and compensation interdependence on performance misreporting. *Accounting, Organizations and Society*. 86 (2020), p. 101143.
- Lim, S., Pettit, S., Abouarghoub, W. and Beresford, A. 2019. Port sustainability and performance: a systematic literature review. *Transportation Research Part D: Transport and Environment*. 72, pp. 47–64.
- Lipscomb, M. 2012. Abductive reasoning and qualitative research. *Nursing and Philosophy*. 13(4), pp. 244-256.
- Lopez-Valeiras, E., Gomez-Conde, J., Naranjo-Gil, D., and Malagueño, R. 2022. Employees' perception of management control systems as a threat: effects on deliberate ignorance and workplace deviance. *Accounting Forum*. (in press).
- Lou, Z. Ye, A., Mao, J. and Zhang, C 2022. Supplier selection, control mechanisms, and firm innovation: configuration analysis based on fsQCA. *Journal of Business Research*. 139(2021), pp. 81–89.
- Lounsbury, M. 2008. Institutional rationality and practice variation: new directions in the institutional analysis of practice. *Accounting Organization and Society*. 33 (4–5), 349–361.
- Lövstål, E. and Jontoft, M. 2017. Tensions at the intersection of management control and innovation: a literature review. *Journal of Management control*. 2017(28), pp: 41-79.
- Lueg, R. and Radlach, R. 2016. Managing sustainable development with management control systems: A literature review. *European Management Journal*, 34(2), pp. 158–171.
- Lukka, K. 2007. Management accounting change and stability: loosely coupled rules and routines in action. *Management Accounting Research*. 18(1), pp. 76–101.
- Macintosh, N. B. and Daft, R. L. 1987. Management control systems and departmental interdependencies: an empirical study. *Accounting, Organizations and Society*. 12(1), pp. 49–61.
- Malmi, T., Bedford, D. S., Brühl, R., Dergård, J., Hoozée S., Janschek, O. and Willert, J. 2022. The use of management controls in different cultural regions: an empirical study of Anglo-Saxon, Germanic and Nordic practices. *Journal of Management Control*. 33(2022), pp. 273-334.

- Malmi, T., Bedford, D.S., Brühl, R., Dergård, J., Hoozée, S., Janschek, O., Willert, J., Ax, C., Bednarek, P., Gosselin, M., Hanzlick, M., Israelsen, P., Johanson, D., Johanson, T., Madsen, D.Ø., Rohde, C., Sandelin, M., Strömsten, T. and Toldbod, T. 2020. Culture and management control interdependence: An analysis of control choices that complement the delegation of authority in Western cultural regions. *Accounting, Organizations and Society*, 86(2020), p. 101116.
- Malmi, T. and Brown, D. A. 2008. Management control systems as a package—Opportunities, challenges and research directions. *Management Accounting Research*, 19(4), pp. 287–300.
- Marriott, N., Mellett, H. and Macniven, L. 2011. Loose coupling in asset management systems in the NHS. *Management Accounting Research*, 22(3), pp. 198–208.
- Martin, M. A. 2020. An evolutionary approach to management control systems research: A prescription for future research. *Accounting, Organizations and Society*. 86 (2020), 101186.
- Masschelein, S. and Moers, F. 2020. Testing for complementarities between accounting practices. *Accounting, Organizations and Society*. pp. 1-27.
- Merchant, K. A. and Otley, D. 2020. Beyond the Systems Versus Package Debate. *Accounting, Organizations and Society*. 86 (2020), p. 1-7.
- Merchant, K. A. and Van der Stede, W. A. 2007. *Management control systems: performance measurement, evaluation and incentives*. (2<sup>nd</sup> ed). New York: Pearson.
- Merchant, K.A. and Van der Stede, W.A. 2017. *Management control systems: performance measurement, evaluation and incentives*. (4<sup>th</sup> ed). New York: Pearson.
- Miller, D. 1987. The genesis of configuration. *Academy of Management Review*. 12, pp. 686-701.
- Mingers, J and Yang, L 2017. Evaluating journal quality: A review of journal indicators and ranking in business and management. *European Journal of Operational Research*. 257(1), pp. 323-337.
- Misangyi, V. F. 2016. Institutional complexity and the meaning of loose coupling: connecting institutional sayings and (not) doings”, *Strategic Organization*, 14(4), pp.407–440.
- Moilanen, S. 2012. Learning and the loosely coupled elements of control. *Journal of Accounting and Organizational Change*. 8(2), pp. 136–159.
- Moore, K. and Yuen, S. 2001. Management accounting systems and organizational

configuration: a life-cycle perspective. *Accounting, Organizations and Society*. 26(4–5), pp. 351–389.

Mouritsen, J., Pedraza-Acosta, I. and Thrane, S. 2022. Performance, risk, and overflows: when are multiple management control practices related? *Management Accounting Research*. 55(2022), pp. 100796.

Mundy, J. 2010. Creating dynamic tensions through a balanced use of management control systems. *Accounting, Organizations and Society*, 35(5), pp. 499–523.

Narayanan, V. and Boyce, G. 2019. Exploring the transformative potential of management control systems in organizational change towards sustainability. *Accounting, Auditing and Accountability Journal*, 32(5), pp. 1210–1239.

Newman, M. and Westrup, C. 2005. Making ERPs work: accountants and the introduction of ERP systems. *European Journal of Information Systems*. 14(3), pp. 258–272.

Nor-Aziah, A. K. and Scapens, R. W. 2007. Corporatization and accounting change: the role of accounting and accountants in a Malaysian public utility. *Management Accounting Research*. 18(2), pp. 209–247.

Nuhu, N. A., Baird, K. and Appuhami, R. 2016. The association between the use of management accounting practices with organizational change and organizational performance. *Advances in Management Accounting*. 26, pp. 67-98.

O’Grady, W. and Akroyd, C. 2016. The MCS package in a non-budgeting organization: a case study of Mainfreight. *Qualitative Research in Accounting and Management*. 13(1), pp. 2–30.

O’Grady, W., Morlidge, S. and Rouse, P. 2016. Evaluating the completeness and effectiveness of management control systems with cybernetic tools. *Management Accounting Research*. 33, pp. 1–15.

Okasha, S. 2016. *Philosophy of science: a very short introduction (2<sup>nd</sup> ed.)*. Oxford: Oxford University Press.

Oliver, C. 1991. Strategic responses to institutional processes. *Academy of Management Journal*, 16(1), 145– 179

Orton, J. D. and Weick, K. E. 1990. Loosely coupled systems: a reconceptualization. *The Academy of Management Review*. 15(2), pp: 203-223.

Otley, D. T. 1980. The contingency theory of management accounting: achievement and

- prognosis. *Accounting, Organizations and Society*. 5(4), pp. 413–428.
- Otley, D. 2016. The contingency theory of management accounting and control: 1980 – 2014. *Management Accounting Research*. pp. 1980–2014.
- Otley, D.T. and Berry, A.J. 1980. Control, organisation and accounting. *Accounting, Organizations and Society*. 5(2), pp. 231-244.
- Passetti, E., Battaglia, M., Bianchi and Annesi, N. 2021. Coping with the COVID-19 pandemic: the technical, moral and facilitating role of management control. *Accounting, Auditing and Accountability Journal*. 34(6), pp. 1430–1444.
- Petticrew, M., Roberts, H., 2008. *Systematic reviews in the social sciences: a practical guide*. Oxford: Blackwell Publishing.
- Pelz, M. 2019. Can management accounting be helpful for young and small companies? Systematic review of a paradox. *International Journal of Management Reviews*. 21(2), pp. 256–274.
- Preston, A. M., Cooper, D. J. and Coombs, R. W. 1992. Fabricating budgets: a study of the production of management budgeting in the national health service. *Accounting, Organizations and Society*. 17(6), pp. 561–593.
- Quattrone, P. and Hopper, T. 2005. A “time” space odyssey’: management control systems in two multinational organizations. *Accounting, Organizations and Society*. 30(7–8), pp. 735–764.
- Rasche, A. 2012. Global policies and local practice: loose and tight couplings in multi-stakeholder initiative. *Business Ethics Quarterly*. 22(4), pp. 679–708.
- Reay, T., and Hinings, C. R. 2009. Managing the rivalry of competing institutional logics. *Organization Studies*, 30(6), pp. 629–652.
- Reid, G. C. and Smith, J. A. 2000. The impact of contingencies on management accounting system development. *Management Accounting Research*. 11(4), pp. 427–450.
- Riege, A. M. 2003. Validity and reliability tests in case study research: a literature review with “hands-on” applications for each research phase”, *Qualitative Market Research: an International Journal*. 6(2), pp.75–86.
- Rikhardsson, P., Rohde, C., Christensen and Batt, C. E. 2021. Management controls and crisis: evidence from the banking sector. *Accounting, Auditing and Accountability Journal*. 34(4), pp. 757–785.

- Rom, A and Rohde, C. 2007. Management accounting and integrated information systems: a literature review. *International Journal of Accounting Information systems*. 8(1), pp. 40-68
- Sánchez-Rodríguez, C. and Spraakman, G. 2012. ERP systems and management accounting: A multiple case study. *Qualitative Research in Accounting and Management*. 9(4), pp. 398–414.
- 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*. 19(4), pp. 324-343
- Santini, F. Elisei, L. Malmi, T. and Scrucca, L. 2022. Management-control-system configurations in medium-sized mechanical-engineering firms: an exploratory analysis. *Accounting Research Journal*. 35(6), pp. 834–853.
- Saunders, M., Lewis, P., and Thornhill, A. 2012. *Research Methods for Business Students*. (6th edition.). London: Pearson.
- Seuring, S., Yawar, S.A., Land, A., Khalid, R.U. and Sauer, P.C. 2020. The applications of theory in literature reviews – illustrated with examples from supply chain management. *International Journal of Operations and Production Management*. 41(1), pp. 1-20
- Scapens, R. W. and Jazayeri, M. 2003. ERP systems and management accounting change: opportunities or impacts? A research note. *European Accounting Review*. 12(1), pp: 201-233.
- Schäffer, U., Strauss, E. and Zecher, C. 2015. The role of management control systems in situations of institutional complexity. *Qualitative Research in Accounting and Management*, 12(4), pp. 395–424.
- Skjølsvik, T, Perner, F, Løwendahl, B. L and Notes, A. 2017. Strategic management of professional service firms: reviewing ABS journals and identifying key research themes. *Journal of Professions and Organisations*. 4(2), pp: 203-239.
- Siggelkow, N. 2002. Misperceiving interactions among complements and substitutes: Organizational consequences. *Management Science*. 48(7), 900–916.
- Simons, R. 1995. *Levers of Control*. Boston: Harvard Business School Press.
- Simons, R. and Dávila, A. 2021. How top managers use the entrepreneurial gap to drive strategic change. *European Accounting Review*. 30(4), pp. 583–609.
- Smets, M., Morris, T., and Greenwood, R. 2012. From practice to filed: a multilevel model of

- practice-driven institutional change. *The Academy of Management Journal*, 55(4), 877–904.
- Smith, K. W. and Lewis, W. M. 2011. Toward a theory of paradox: a dynamic equilibrium model of organizing. *The Academy of Management Review*. 36(2), pp: 381-403.
- Speckbacher, G. and Wabnegg, M. 2020. Incentivizing innovation: The role of knowledge exchange and distal search behavior. *Accounting, Organizations and Society*. 86(2020), pp: 101142.
- Speklé, R. F., Verbeeten, F. H. M. and Widener, S. K. 2022. Nondyadic control systems and effort direction effectiveness: evidence from the public sector. *Management Accounting Research*, 54(2022), pp. 100769.
- Sridharan, V. G. 2021. Methodological insights theory development in qualitative management control: revisiting the roles of triangulation and generalization. *Accounting, Auditing and Accountability Journal*. 34(2), pp. 451–479.
- Stake (1995). *The Art of Case Study Research*. London: Sage.
- Strauss, E. R., Nevries, P. and Weber, J. 2013. The development of MCS packages - balancing constituents' demands. *Journal of Accounting and Organizational Change*. 9(2), pp. 155-187.
- Su, S., Baird, K. and Schoch, H. 2017. Management control systems: the role of interactive and diagnostic approaches to using controls from an organizational life cycle perspective. *Journal of Accounting and Organizational Change*. 13(1), pp. 2–24.
- Sundin, H. and Brown, D. A. 2017. Greening the black box: integrating the environment and management control systems. *Accounting, Auditing and Accountability Journal*. 30(3), pp. 620–642.
- Taipaleenmäki, J. 2014. Absence and variant modes of presence of management accounting in new product development - theoretical refinement and some empirical evidence. *European Accounting Review*. 23(2), pp. 291–334.
- Thompson, J. D. 1967. *Organizations in action: Social science bases of administrative theory*, New York: McGraw-Hill.
- Thornton, P. and Ocasio, W. 1999. Institutional logics and the historical contingency of power in organizations: executive succession in the higher education publishing industry, 1958–1990. *American Journal of Sociology*. 105 (3), pp. 801–843.
- Thornton, P. H., Ocasio, W. and Lounsbury, W. 2012. *The Institutional logics perspective: a*

*new approach to culture, structure, and process*. Oxford: Oxford University Press.

Toldbod, T. and van der Kolk, B. 2022. Cascading control changes, incoherence, and dialogue: insights from a longitudinal case study. *European Accounting Review*. 31(2), pp. 377–407.

Tranfield, D., Denyer, D. and Smart, P. 2003. Towards a methodology for developing evidence-informed management knowledge by means of systematic review. *British Journal of Management*. 14(3), pp. 207–222.

Tsamenyi, M., Noormansyah, I. and Uddin, S. 2008. Management controls in family-owned businesses (FOBs): a case study of an Indonesian family-owned University. *Accounting Forum*, 32(2008), pp. 62–74.

Tucker, B. P. and Alewine, H. C. 2022. The roles of management control: lessons from the Apollo Program. *Contemporary Accounting Research*, 40(2), pp. 1046-1081.

Unluer, S. 2012. Being an insider researcher while conducting case study research. *The Qualitative Report*. 17(58), pp.1-14.

Van der Kolk, B. and Schokker, T. 2016. Strategy implementation through hierarchical couplings in a management control package: an explorative case study. *Journal of Management Control*. 27(2–3), pp.129–154.

Van der Kolk, B., van Veen-Dirks, P. M. G. and Bogt, H. J. 2020. How combinations of control elements create tensions and how these can be managed: an embedded case study. *Management Accounting Research*. 48, pp. 1-15.

Waldorff, S. B. 2013. Accounting for organizational innovations: mobilizing institutional logics in translation. *Scandinavian Journal of Management*. 29(3), pp. 219-234.

Weick, K. E. 1976. Educational organizations as loosely coupled systems. *Administrative Science Quarterly*. 21(1), pp.1-19.

Westphal, J. D., & Zajac, E. J 2001. Explaining institutional decoupling: the case of stock repurchase programs. *Administrative Science Quarterly*. 46(2), pp. 202–228.

Widener, S. K. 2007. An empirical analysis of the levers of control framework. *Accounting, Organizations and Society*. 32(7–8), pp. 757–788.

Williams, J. J. and Seaman, A. E. 2001. Predicting change in management accounting systems: National culture and industry effects. *Accounting, Organizations and Society*. 26(4–5), pp. 443–460.



Xu, W., and Uddin, S. 2008. Public sector reforms, privatisation and regimes of control in a Chinese enterprise. *Accounting Forum*. 32(2), 162–177.

Yang, C. L. and Modell, S. 2015. Shareholder orientation and the framing of management control practices: a field study in a Chinese state-owned enterprise. *Accounting, Organizations and Society*. 45, pp. 1–23.

Yatsenko, D. 2022. Productivity effects of shared peer effort and relative performance information. *Management Accounting Research*. 56(2022), pp. 100779.

Yin, Robert K. 1994. *Case Study Research: Design and Methods*. USA: Sage.

## Appendix 1

<b>Date</b>	<b>Position</b>	<b>Company</b>	<b>Duration</b>
20/04/2021	Deputy Head of Financial Department	Headquarter	1 hour
20/05/2021	Head of Information Centre	Headquarter	1 hour
30/06/2021	Head of Human Resource Department	NE	1 hour 15 mins
01/07/2021	Head of Financial Department	NE	1 hour
15/07/2021	Deputy head of Financial Department	NE	30 mins
31/07/2021	Head of Planning Department	NE	1.5 hours
10/08/2021	Head of Human Resource Department	NE	45 mins
12/08/2021	Head of Financial Department	NE	30 mins
21/08/2021	Head of Operation Department	NE	1 hour
21/08/2021	Head of Construction department	NE	30 mins
22/08/2021	Head of Planning department	NE	30 mins
22/08/2021	Head of Financial department	NE	30 mins

23/08/2021	Deputy head of Financial department	NE	15 mins
27/08/2021	Head of Operation Department	NE	45 mins
29/08/2021	CEO	NE	1 hour
06/09/2021	Financial Department Employee	NE	30 mins
07/09/2021	Head of Financial Department	NE	15 mins
08/09/2021	Deputy head of Financial Department	NE	40 mins
15/09/2021	Head of Human Resource Department	NE	40 mins
20/09/2021	Head of Planning Department	NE	30 mins
23/09/2021	Deputy Head of Financial Department	NE	15 mins
15/10/2021	Deputy Head of Financial Department	NE	30 mins
16/10/2021	Head of Planning Department	NE	30 mins

## Appendix 2

<b>Questions List</b>
Theme 1: The type and use of MC practices

‘What is your company structure? How many employees?’

‘What are the functions of your department?’

‘What is the work routine and work process of your department?’

‘How can employees’ results be monitored and evaluated? How often?’,

‘How can employees be responsible to their actions and behaviours? Is there any rules and regulations or others?’,

‘How can employees be consolidated about company culture’,

‘How does employees understand what kinds of skills and expertise are expected?’

Theme 2: The link of MC practices

‘How can the information of control practices be included to one other practice?’

‘Do you think how these practices are related?’.

Theme 3: The use of ISs

‘What are ICTs using in the work routine of your department?’

‘How do these ICTs work in your departments?’

### Appendix 3: Interviewee Information

Interview date	Department	Interviewee position	Gender	Length of working (yrs.)	Interview type	Duration
7.4	Administration Office	Head	Male	15	Face to Face	40 mins
7.14	Strategic planning	Head	Male	18	Face to Face	1 hour
7.14	Finance	Head	Male	18	Face to Face	1 hour 40 mins
7.15	Engineering management	Deputy Head	Male	14	Face to Face	1 hour
7.15	Engineering finance	Head	Male	18	Face to Face	1 hour 30 mins
7.19	Audit	Head	Male	15	Face to Face	1 hour 30 mins
7.19	Engineering operation	Head	Male	16	Face to Face	1 hour
7.20	Safety operation	Head	Male	14	Face to Face	40 mins
7.20	Human resource	Head	Male	18	Face to Face	1 hour 15 mins
7.26	Engineering management	Head	Male	18	Face to Face	30 mins

7.26	Technology development	Head	Female	10	Face to Face	40 mins
7.27	Information centre	Head	Male	8	Face to Face	40 mins
7.27	Culture	Head	Male	18	Face to Face	1 hour
8.4	Labour union	Head	Male	15	Face to Face	1 hour 10 mins
8.4	Law and regulation	Head	Male	17	Face to Face	1 hour
8.16	Resource and equipment	Head	Male	15	Face to Face	1 hour
8.18	Transportation management	Head	Male	18	Face to Face	1 hour 30 mins
8.18	Transportation finance	Head	Female	15	Face to Face	1 hour
8.18	Vehicle management	Head	Male	10	Face to Face	30 mins
8.23	Finance	Employee	Male	7	Face to Face	30 mins
8.23	Culture	Head	Male	18	Face to Face	20 mins
9.9	Administration Office	Head	Male	15	Face to Face	30 mins
9.9	Human resource	Employee	Male	10	Face to Face	20 mins
9.13	Strategic planning	Head	Male	18	Face to Face	20 mins

9.13	Finance	Deputy head	Male	11	Face to Face	15 mins
9.13	Engineering management	Employee	Male	12	Face to Face	30 mins
9.16	Administration Office	Head	Male	15	Face to Face	15 mins
9.16	Strategic planning	Head	Male	18	Face to Face	20 mins
9.19	Strategic planning	Head	Male	18	Face to Face	20 mins
9.19	Finance	Head	Male	18	Face to Face	20 mins
9.19	Engineering finance	Deputy Head	Male	14	Face to Face	40 mins
10.26	Engineering finance	Head	Male	18	Face to Face	30 mins
11.2	Engineering management	Deputy Head	Male	14	Face to Face	40 mins
11.8	Finance	Deputy Head	Male	11	Face to Face	30 mins
2.13/2023	Finance	Deputy Head	Male	11	Phone	20 mins
2.14/2023	Engineering finance	Head	Male	18	Phone	15 mins
3.9/2023	Finance	Deputy Head	Male	11	Phone	15 mins
3.16/2023	Administration Office	Head	Male	15	Phone	20 mins
3.24/2023	Administration Office	Head	Male	15	Phone	10 mins

## Appendix 4 Interview Questions

### Interviewee Information

The role of the interviewees

How long has he/she worked for the role and in the company

### Identification of use and reform of MC practices

When was the company established?

When was the budget introduced?

When was the PM introduced

Before the budgeting was introduced, how did company ensure the smooth process of working and meeting the target?

How did you ensure the project can be achieved?

What is important for your company?

Was profit important then? What were the main goals that were important to you?

How did the company ensure that the goals would be achieved?

Why did budget establish in the period? Is related to government's expects?

Why did PM establish in the period? Is related to government's expects?



Why did the profit decrease?

After budget and PM were introduced, how were the budget and PM prepared then?

Did you check the performance against budget? How frequently? Any consequences?

Do you think the budgeting was useful then? In which way useful or not useful? Why?

#### Appendix 5 Archive Documents

Documents	Descriptions
Governments documents	The type of documents provides much information about the policies and guidelines of the railway industry. These documents contribute to understand the external environment of railway SOEs. The documents were collected from two sources. One was provided by case enterprise. One was provided from government websites, such as SASAC website and NDRE website
Working procedures documents	The working procedures documents were collected from case enterprise. The documents set out the specific working procedures of different departments. These procedures are presented by words and diagrams. These documents contribute to clearly present the working content of different departments.
Enterprise policy and regulation documents	These documents were provided by case enterprise. These documents highlight the general requirements for employees' working and business procedures, and include related reforms conducted by case enterprise.

Enterprise planning and strategy documents	Case enterprise provide the two-years planning and strategy documents. These documents highlight the specific tasks, targets and expectations of the enterprise. The documents contribute to understand the primary aims and developmental directions of enterprise
Some internal presentations	These includes some tables and figures about budget and PM designed by enterprise, such as: project budget calculation table, cost information table and PM marking table.
Yearbooks	The 10 Yearbooks were allowed to read on the spot but not borrow. The books present the basic information, financial statements, and all-important reforms and changes of ET.

#### Appendix 6: The illustration of institutional logics, control problems and MC practices

	Government-orientation Stage (2003-2012)		Hybrid business-like stage (2013-2022)	
Themes	Concepts in ET	Quotation	Concepts in ET	Quotation
State logic	Is viewed as a belief and value to convey the signal that ET needs to maintain and fulfil the social welfares and state expectations, and comply with the state policies and regulations	<i>'We mainly looked at the information of railway ministry. Railway ministry, for an example, required to develop the south-western area within these three years. We will mainly bid railway projects of south-western area.'</i> (CEO)	Is viewed as a belief and value to convey the signal that ET needs to maintain and fulfil the social welfares and state expectations, and comply with the state policies and regulations	<i>'We want to pay more attention on our railway transportation business and reduce the construction business, because transportation business is profitable. However, we cannot do it. We need to achieve our expected volume'</i>

		<p><i>'The formulation of our planning is based on national 5-year development targets; thus, the construction volume is also the expectation of state. The planning can also tell us how much of programs we need to bid for achieving the task.'</i> (Head of engineering department)</p>		<p><i>task.'</i> (Head of transportation department)</p> <p><i>'We have to continue to construct railways even though they are less profitable, because it is government expectation'</i> (Head of engineering department)</p>
Corporate logic	-	-	<p>Is viewed as a belief and value to convey the signal that ET needs to pay more attention on itself development and improve its profitability</p>	<p><i>'We ever thought of and tried many ways to improve profit, like diversity operation, we are also doing this. But the benefit of the method is imperceptible... We cannot change the police cancellation and the trend of cost increase. So, we can only put our eyes</i></p>

				<p><i>on our management... ’ (Head of engineering department)</i></p> <p><i>For <b>increasing our profit</b>, we must adopt and design much of actions and ways to cope with the challenge... ’ (Head of financial department)</i></p>
Control problem	Working efficiency	<p><i>‘[ET] as a state-owned enterprise, it is necessary to <b>deepen the consciousness of employees</b>, realizing the importance of completing enterprise tasks, and vigorously improving the <b>work efficiency</b> of employees become the main content of enterprise development’ (Extracting from ET’s 2009 Yearbook)</i></p>	Cost control	<p><i>‘The sharp <b>increase of cost</b> is also an important reason that enables us to more concern about profit.’ (Head of financial department)</i></p> <p><i>‘The cancellation of police brought much of challenge and problems to us. <b>Most of cost</b> cannot be amended and adjusted. For example, the difference of raw material cost cannot be adjusted. The</i></p>

		<p><i>'To be honest, our construction level is enough to cope with these projects. We only worried about the working efficiency of employee. Because it to large extents decided whether we can achieve our tasks on time. Thus, we need to figure out to improve employees' working efficiency and let them to put their heart and inspirits on one place.'</i></p> <p>(CEO)</p>		<p><i>increase of land cost during construction was also afford by us.'</i> (Head of financial department)</p>
Cultural control	<p>Using shaped company culture to direct employee behaviour. 'Sense of mission'; 'sense of responsibility'</p>	<p><i>'Em...there were no explicit measures in that time. However, we are working for the state. It is a serious politic task. Who dares to be slack? If there was a little of problems on railway projects due to slack and thus resulted in a safety accident, No one can afford</i></p>	<p>Using shaped company culture to direct employee behaviour. 'Sense of mission'; 'sense of responsibility'; 'concern about profit'</p>	<p><i>'We had <b>communicated with our employee about our plight.</b> Our profit has experienced a sharp reduce. So, we usually told our colleague to save cost as much as possible in our meeting because it is related to our money. Budget, performance,</i></p>

		<p><i>the result. It is a politic mistake!</i> (An employee)</p> <p><i>'In the beginning of ET, only if we can securely and stably achieve government-expected tasks, like achieving projects construction on time and in quantity, our managers and other employees can keep their jobs and positions. <b>Our employee also knew the thing</b>'</i> (The Head of human resource)</p>		<p><i>cost become our common vocabularies.'</i> (Head of financial department)</p> <p><i>'The new <b>'compliance concept</b> emphasizes a 'monitor' and 'adjustment' feature. We focus on the rationality in the process of formulation and summary of use...'</i> (Head of law department)</p>
Budgeting control	Project budget; Planning function	<p><i>'The main function of project budgeting was for understanding how many raw materials we need to use and labour we need to hire. This helps us plan the project well.'</i> (Head of engineering finance department)</p>	Comprehensive budget; Planning function; monitoring function; performance assessment function	<p><i>'Now, we need to plan our work more carefully because we have budget. We need to comply with the budget.'</i> (An employee of transportation department)</p> <p><i>'The Cost 2.0 was designed by us. It can monitor the use of</i></p>

				<p><i>expenditure and cost under budget' (Deputy head of financial department)</i></p> <p><i>'The nature of budget KPIs is to assess whether different departments and different subsidiaries can achieve the budget, and whether they excess these budgeting targets. We can check and summary the KPI each quarter and remind the achievement situations. But it's not the final measurement. The final measurement is conducted in December.'</i> (The Deputy head of financial department)</p>
PM	-	-	financial indicators and non-financial indicators	<i>'The performance measurements were formally</i>

				<p><i>introduced in 2014. Based on our working content, formulating five modules'</i>          (Head of human resource)</p>
--	--	--	--	---

**Appendix 7: The pictures of ET thematic speeches and seminars**







**Appendix 8: A template of project budget about the material arrangement**

No.	Concrete types	Total consumption of concrete	Each square concrete unit price	Net consumption of raw materials of concrete per square	cement			Whitewash coal	Mineral powder	Gravel	coarse sand	water
					P032.5	P042.5	.....					
					kg	kg	kg	kg	kg	M <sup>3</sup>	M <sup>3</sup>	kg
				loss rate:								
1	C20											
2	C30											

3	C30 (underwater)											
...	5											
Total				Total of Raw materials								

Compilation:

Review

Head of  
compilation

Date:

Date:

Date:

## Appendix 9: Ergo Form Submission

### 63841 - The Shape of Combinations of Management Accounting and Controls by Development of ICTs in Chinese State-owned Enterprises

**Submission Overview**

Submission Questionnaire

Attachments

History

Details

**Status** Approved  
**Category** Category   
**Submitter's Faculty** Faculty of Social Sciences (FSS)

The end date for this study is currently 27 January 2023

 [Request extension](#)

*If you are making any other changes to your study please create an amendment using the button below.*

Latest Review Comments

25/04/2021 19:43:14 - Committee: Approved

Comments:

Note: it is your responsibility to ensure that the forms written in Mandarin represent a faithful translation of the forms written in English.

Good luck with your project.

