

Revisiting the interplay between contractual and relational governance: A qualitative and meta-analytic investigation



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ARTICLE INFO

Article history:

Received 20 February 2014
Received in revised form 29 July 2014
Accepted 21 September 2014
Available online 2 October 2014

Keywords:

Interorganizational relationships
Contractual governance
Relational governance
Complementarity
Substitution
Meta-analysis

ABSTRACT

Although extant literature has shown that formal contracts and relational governance play a key role in interorganizational relationships, the nature of their interplay still remains equivocal. To better understand the relationships between contractual and relational governance, we conducted a qualitative review and meta-analysis of the existing literature. Meta-analytic results from 33,051 interorganizational relationships across 149 empirical studies have indicated that contractual governance is positively related to both sides of relational governance—trust and relational norms. Our results have also indicated that contracts, trust, and relational norms jointly improve satisfaction and relationship performance and jointly reduce opportunism. These findings provide strong evidence for the complementarity arguments of the contractual–relational governance relationships and their joint impacts on performance. We also found that the mutual relationships between contractual and relational governance are moderated by the institutional environments, the interorganizational relationship type and length, and the construct measurement of contracts. Overall, this study provides new insights on *when* contractual and relational governance complement or substitute each other. We discuss the implications of our study for theory and practice and propose a research agenda for future research on governance in interorganizational relationships.

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1. Introduction

Supply chain scholars have devoted much attention to interorganizational relationships (IORs) and have pointed out their critical importance to achieve competitive advantage (Carey et al., 2011; Goffin et al., 2006; Lumineau and Henderson, 2012). The literature has suggested that two main types of governance are at play in IORs. One is contractual governance, which highlights the importance of contracts between firms and its formal rules to safeguard against opportunism and conflict. Contractual governance may define outputs to be delivered, specify monitoring procedures, and detail duties, rights, and contingencies (Mesquita and Brush, 2008; Reuer and Ariño, 2007; Ryall and Sampson, 2009). However, governance of IORs involves more than formal contracts. It is shown that relational governance, trust in particular, is another type of governance to mitigate exchange hazards associated with uncertainty and transaction-specific investments (Noordewier et al., 1990; Uzzi, 1997) and coordinate IORs (Dyer and Singh, 1998; Heide and

John, 1992; Macneil, 1980). This distinction between contractual and relational governance reflects two distinct, while interrelated, types of governance to support and manage IORs (Williamson and Ouchi, 1981; Zaheer and Venkatraman, 1995).

As firms often simultaneously use both contractual and relational governance to organize their relationships (Bradach, 1997), the interplay of contractual and relational governance in IORs has been a topic of considerable ongoing debate in operations and supply chain management (Li et al., 2010b; Liu et al., 2009; Lumineau and Henderson, 2012) as well as in related areas such as marketing (Cannon et al., 2000; Yang et al., 2012), strategy (Li et al., 2010a; Poppo and Zenger, 2002), entrepreneurship (Chen et al., 2013a,b; Strätling et al., 2012), and international business (Zhou and Xu, 2012) for more than a decade. Particularly, since the influential work of Poppo and Zenger (2002), this issue has gained increasing attention (Fig. 1).¹ Nevertheless, knowledge on the interplay between contractual and relational governance has not been cumulative, and consistent conclusions are far from being reached

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¹ To date (07/29/2014), this study has been cited 633 times in the Web of Science and more than 1700 times in Google Scholar.

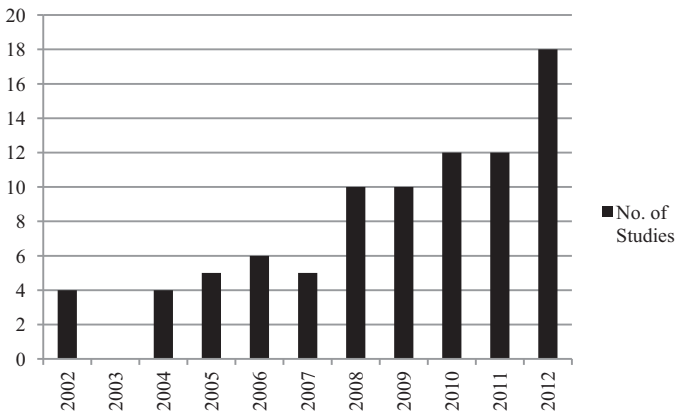


Fig. 1. Number of empirical studies on the interplay of contractual and relational governance by year. (The number of studies in each year shown in the figure is conservative as it only counts the empirical studies that examine the relationships between contractual and relational governance directly. Studies that investigate only contractual or relational governance are not counted.)

(Puranam and Vanneste, 2009; Schepker et al., 2014). Existing research can be broadly divided into two groups. One group argues that the two types of governance substitute each other; that is, the use of one type of governance decreases the use of or the benefits of using the other one (Huber et al., 2013; Li et al., 2010c; Lui and Ngo, 2004). In contrast, another group contends that the two types of governance may be complementary; that is, the use of one increases the use of or the benefits of using the other one (Liu et al., 2009; Poppo and Zenger, 2002). However, our understanding of how and when contractual and relational governance interact is still limited. In a recent review, Schepker et al. (2014) specifically called for more research efforts on the issue of “when do relational contracts obviate the need or partially substitute for formal contracts” (p. 218). From a practitioner perspective, the success of IORs strongly relies on the types of governance chosen by managers (Caniëls et al., 2012; Faems et al., 2008). The inconsistent findings on the interplay of contractual and relational governance are likely to confuse managers. A clarification of the way in which these governance mechanisms work may be very helpful to guide practitioners to make the best choice between contractual and/or relational governance. In particular, investigation of the possible moderating effects on the contractual–relational governance in terplay may inform managerial practice by highlighting important contextual factors.

We argue that the inconsistent findings on the interplay between contractual and relational governance can be attributed to three main limitations in existing research. First, existing research uses “complementary” or “substitute” to refer to both the relationships between contractual and relational governance and the relationships between contractual and relational governance and performance (Poppo and Zenger, 2002). The underlying assumption is that when contractual and relational governance are complements (substitutes), they have complementary (substitute) impacts on performance (Li et al., 2010c; Poppo and Zenger, 2002; Wang et al., 2011). However, it has been shown that contractual and relational governance may be substitutes in explaining performance even when they are positively related (Li et al., 2010c; Wang et al., 2011). Thus, the existing literature needs a more rigorous distinction between the debate of how contractual and relational governance interact and the debate of the relationships of contractual and relational governance and performance. Second, few studies have investigated the boundary conditions of the relationships between contractual and relational governance, and the theoretical logic underlying the moderating effects remains

fragmented. For example, some studies have drawn upon institutional theory to investigate moderating effects and have highlighted the role of the legal environments (Zhou and Poppo, 2010). Some other studies have relied on the social network theory and have argued that contracting in close and dense networks may signal a lack of trust (Yang et al., 2011). However, researchers have typically focused on only one theoretical perspective to explain the boundary conditions of the interplay between contractual and relational governance. We instead investigated how the interplay may be moderated by factors from multiple perspectives simultaneously. Third, extant studies are subject to methodology limitations. Most of prior studies have been conducted in single contexts such as single country, single relationship type (e.g., only buyer–supplier IORs or only strategic alliances), and at a single point in time. However, contexts are likely to bias the findings (Leavitt et al., 2010; Mayer and Whittington, 2003). Moreover, sampling errors, measurement errors, and other statistical artifacts in prior research are also possible causes of inconsistency across the studies (Combs et al., 2011; Hunter and Schmidt, 2004).

The purpose of this study is to ascertain the relationships between contractual and relational governance and to explore the factors moderating these relationships with a meta-analysis review. By combining a quantitative meta-analysis with a qualitative literature review, this study addresses the above limitations and reconciles the conflicting findings on the relationships between contractual and relational governance and performance. Note, however, that we have not aimed to investigate the dynamic process of the interplay of contractual and relational governance because most of the input of meta-analysis is cross-sectional data. Meta-analysis is an effective theory extension method to reconcile the conflicting findings through quantitatively aggregating a large amount of existing findings while correcting for distorting effects of artifacts (see Chen et al., 2010; Mackelprang and Nair, 2010; Nair, 2006 for examples of meta-analyses in the operations management literature). This method not only effectively handles statistical artifacts, thus providing more accurate assessment of a relationship, it also brings the advantage of testing the theoretical and methodological moderating effects of the relationship which are difficult to examine in a single-sample primary study (Crook et al., 2008; Heugens and Lander, 2009).

The contributions of this study to the supply chain management literature are threefold. First, by summarizing and categorizing the extensive studies on the relationships between contractual and relational governance and performance, we have developed a better understanding of how the existing studies defined and measured the concepts and derived their conclusions. Second, the meta-analysis results have helped us cross validate insights from different studies and reconcile inconsistent findings on the interplay between contractual and relational governance. We found that the contractual and relational governance are positively related to each other, and both have positive impacts on relationship performance and satisfaction, providing strong evidence for the complementarity arguments. Third, we found that the mutual relationships between contractual and relational governance are moderated by institutional environments, relationship type, relationship length, and contracts measurement. The findings have thus extended our understanding on the boundary conditions of the interplay between contractual and relational governance.

In the following sections, we first propose an overview of the concepts and relationships of contractual and relational governance. Then, we present the meta-analysis methods including the literature search, coding, and computation. Finally, we present the meta-analysis results and discuss the theoretical contributions, managerial implications, and future research directions.

2. Conceptual framework

2.1. Contractual governance

Contractual governance, also called “formal contract” (Li et al., 2010a), “legal contract” (Achrol and Gundlach, 1999), “explicit contract” (Zhou and Poppo, 2010), or “legal safeguards” (Lui and Ngo, 2004), refers to the extent to which one IOR is governed by a formal and written contract which explicitly stipulates the responsibilities and obligations of each party (Abdi and Aulakh, 2012; Ryall and Sampson, 2009). By specifying each party’s rights and duties, contractual governance may reduce opportunism and safeguard IORs (Williamson, 1985). Existing literature has regarded it as an important way to control exchange hazards (Poppo and Zenger, 2002; Weber and Mayer, 2011). In recent research, it has been argued that contractual governance also plays important roles in the coordination and adaptation of IORs (Malhotra and Lumineau, 2011; Schepker et al., 2014).

Nevertheless, contractual governance is subject to several limitations. First, contracts may be incomplete. Because of human being’s bounded rationality, it is impossible to write a complete contract that anticipates all possible events and clarifies the appropriate actions of each party (Hart, 1988; Deakin and Wilkinson, 1998; Lewis and Roehrich, 2009; Williamson, 1979). An incomplete contract is less legally binding because it contains fewer clauses and/or the clauses are not observable nor verifiable (Woolthuis et al., 2005). The lack of specific clauses may also bring ambiguity and leave space for opportunistic behavior (Luo, 2002a,b). Thus, the safeguarding function of an incomplete contract may be less effective. Moreover, incomplete contracts may not contain adequate contingency clauses and are more likely to be ineffective to regulate each party’s behaviors in unexpected situations, thus constraining the flexibility of IORs (Cavusgil et al., 2004). Second, contracts may signal a lack of trust, which is detrimental for the cooperative IORs (Ghoshal and Moran, 1996; Poppo and Zenger, 2002). Third, the application of contracts may be mismatched between cooperative parties. Some firms use contractual terms more rigidly while other firms use the terms more flexibly. The mismatch of the contract application between cooperative parties may generate conflicts and degrade cooperation. It is suggested that the rigid application of contracts may not only negatively impact the flexibility of cooperation but also lead to disputes and trust deterioration (Cao et al., 2013; Faems et al., 2008). These limitations may constrain the use of contractual governance in governing IORs.

2.2. Relational governance

Relational governance, also named “relational mechanism” (Jayaraman et al., 2013) or “social control” (Li et al., 2010c), refers to the extent to which one IOR is governed by social relations and shared norms (Poppo et al., 2008b; Zhou and Xu, 2012). Different from contractual governance relying on formal structure and third party enforcement, relational governance relies on informal structure and self-enforcement of each party (Dyer and Singh, 1998; Malhotra and Murnighan, 2002).

In existing literature, trust and relational norms are two of the most frequently discussed relational governance types (Griffith and Myers, 2005; Gulati, 1995). Trust refers to the confidence in the partner’s integrity, credibility, and benevolence in a risky exchange relationship (Das and Teng, 1998; Zaheer et al., 1998) whereas relational norms refer to shared expectations about the behaviors of each party in IORs (Cannon et al., 2000; Heide and John, 1992). When a high level of mutual trust exists in a relationship, both parties share mutual confidence that the other party will not exploit any adverse situation (Barney and Hansen, 1994) and they are more likely to consider their partner’s interests rather than

just their own (Liu et al., 2009). Relational norms provide a framework of references to guide firms to act in expected ways (Cannon et al., 2000; Liu et al., 2009). Therefore, both trust and relational norms can reduce opportunism and both are regarded as important governance mechanisms (Liu et al., 2009; Poppo and Zenger, 2002).

However, relational governance also suffers from limitations. While it takes extensive time and resources to develop (Das and Teng, 1998; Dyer and Singh, 1998), it can be easily destroyed (Barber, 1983). It is also threatened by its ambiguous nature (Cannon et al., 2000; Weitz and Jap, 1995) and is likely to be abused by opportunism (Dyer and Singh, 1998; Uzzi, 1997).

2.3. Theoretical foundation

Before moving to the discussion of the interplay between contractual and relational governance, we will first clarify the underlying theoretical foundations of contractual and relational governance. In the existing literature, there are three main theories in explaining the effectiveness of contractual and relational governance; i.e., transaction cost theory (TCT), social exchange theory (SET), and relational exchange theory (RET).

TCT maintains that appropriate governance should be adopted to control potential opportunism caused by uncertainty and asset specificity (Williamson, 1985). The theory argues that well-established contractual governance could be an effective mechanism to control exchange hazards by specifying each party’s roles in both stable and changing environments (Liu et al., 2009; Lui and Ngo, 2004; Williamson, 1985). This perspective is widely used in many studies on contractual governance (e.g., Arranz and de Arroyabe, 2012; Gençtürk and Aulakh, 2007; Poppo and Zenger, 2002). However, TCT also acknowledges that the effectiveness of contracts is constrained when the conditions of bounded rationality and opportunism are admitted (Cannon et al., 2000; Williamson, 1985). In this case, alternative governance mechanisms such as relational-based governance and relational contracting are proposed (Goo et al., 2009; Williamson, 1985). However, the nature of relational-based governance under TCT is economic, and the nature of trust is calculative (Williamson, 1993).

Social exchange theory (SET) maintains that trust is essential for stable social relations (Blau, 1964; Cropanzano and Mitchell, 2005; Palmatier et al., 2007). The nature of relational governance here is not only economic but also sociological. SET focuses on the role of social exchange which is defined as voluntary actions of exchange parties that are motivated by the returns they are expected to obtain (Blau, 1964). The basic elements of social exchange are unspecified obligation and reciprocity (Blau, 1964; Cropanzano and Mitchell, 2005). To prove that they are trustworthy, exchange parties will regularly discharge their obligations and invest in the relationship to show their commitment to the relationship (Lambe et al., 2001). Cooperative parties are also required to follow the rules of reciprocity; otherwise, they will be punished by social relationships (Blau, 1964; Cropanzano and Mitchell, 2005). Thus, according to SET, trust derived from social interaction and socially-embedded relationships could be an effective instrument to govern IORs (Arranz and de Arroyabe, 2012; Faems et al., 2008; Huang et al., 2014; Liu et al., 2009).

Relational exchange theory (RET) is another theoretical lens to understand relational governance. Highlighting relational norms, RET provides another mechanism to analyze the behaviors that are expected in IORs (Macneil, 1980; Palmatier et al., 2007).² Relational

² SET also involves norms (see Blau, 1964, Chapter 10). However, norms in SET are social norms such as cultural values, different from the relational norms discussed in this study and in RET.

Table 1
Illustrations of main dimensions of key studies on interplay of contractual and relational governance.^a

Key studies	Theoretical lenses ^b	Country	Type ^c	Length ^d	Contracts measurement	Type of relational governance
Abdi and Aulakh (2012)	Institutional theory	USA	1	–	Reflective	Relational governance
Arranz and de Arroyabe (2012)	TCT and SET	Europe	4	–	Reflective	Relational norms and trust
Burkert et al. (2012)	Governance view	Germany	1 and 3	≥2	Single item	Trust
Cai and Yang (2008)	TCT	China	3	2.83	Reflective	Cooperative norms
Cannon et al. (2000)	TCT and relational contracting	USA	3	–	Reflective	Cooperative norms
Carson et al. (2006)	TCT and relational contracting	USA	4	1.33	Single item	Trust
Cavusgil et al. (2004)	TCT, SET, and relationship marketing	USA	1	–	Reflective	Trust
Chen et al. (2013a)	Governance view	China	6	2.30	Reflective	Trust
De Jong and Woolthuis (2008)	TCT and contract theory	Netherlands	4	–	Formative	Trust
Fang et al. (2008)	Trust theory	China	1	5.52	Reflective	Trust
Ferguson et al. (2005)	Contract theory (TCT and RET)	USA, Canada, and Mexico	6	10.91	Reflective	Relational governance
Gençtürk and Aulakh (2007)	TCT and relational contracting	USA	1	15.37	Reflective	Relational norms
Goo et al. (2009)	TCT and relational contracting	South Korea	2	–	Formative	Trust and Relational norms
Han et al. (2011)	TCT and relational exchange	China	3	–	Single item	Relational governance
Handfield and Bechtel (2002)	–	USA	3	–	Reflective	Trust
Hofenk et al. (2011)	–	Netherlands	2	≥3	Reflective	Trust
Homburg et al. (2009)	Relational contracting	US and Germany	1	2.59	Reflective	Trust
Huang et al. (2014)	TCT, SET, and relational exchange	Taiwan	3	3.00	Reflective	Social control
Jayaraman et al. (2013)	TCT	India	2	–	Reflective	Relational mechanism
Jiang et al. (2013)	–	China	4	–	Reflective	Trust
Judge and Dooley (2006)	TCT	USA	4	6.00	Formative	Trust
Lee and Johnson (2010)	TCT and relational contracting	USA	4	5.14	Reflective	Norms
Li et al. (2010a)	Governance mechanism	China	3	4.95	Reflective	Trust
Li et al. (2010c)	Institutional theory	China	3	6.98	Reflective	Social control
Liu et al. (2009)	TCT and SET	China	5	5.80	Reflective	Trust and Relational norms
Lui and Ngo (2004)	TCT	Hong Kong	6	1.92	Formative	Trust
Lui (2009)	Relational exchange	Hong Kong	3	–	Reflective	Trust
Lui et al. (2009)	TCT and SET	Hong Kong	3	–	Reflective	Trust
Lusch and Brown (1996)	Contract theory	USA	5	12.58	Reflective	Relational norms
Malhotra and Lumineau (2011)	TCT	European	3	2.58	Formative	Trust
Mellewigt et al. (2007)	TCT and RBV	Germany	2	–	Formative	Trust
Parmigiani and Mitchell (2010)	Relational contracting	North America	3	6.02	Single item	Relational governance
Pittino and Mazzurana (2013)	TCT and relational exchange	Italy	4	–	Reflective	Relational governance
Poppo and Zenger (2002)	TCT and relational perspective	USA	2	3.82	Single item	Relational governance
Rai et al. (2012)	Contract theory	Germany	2	–	Reflective	Trust
Ren et al. (2010)	Institutional theory	China	5	≥5	Reflective	Trust
Srivastava and Teo (2012)	Structural and process control	India	6	–	Reflective	Relational governance
Schilke and Cook (2014)	–	Germany	4	6.85	Formative	Trust
Wang et al. (2011)	–	China	3	7.17	Reflective	Trust
Wu et al. (2007)	–	USA	1	–	Reflective	Trust
Yang et al. (2011)	Strong and weak ties	China	3	–	Reflective	Trust
Yang et al. (2012)	–	China	1	≥4, ≤5	Reflective	Norms
Yang et al. (2012a)	TCT	17 countries	2	–	Reflective	Relational adaptation
Yu et al. (2006)	–	China	1	4.74	Reflective	Trust
Zhang and Hu (2011)	–	China	3	–	Formative	Trust
Zhang and Zhou (2013)	Relational exchange	China	3	1.84	Reflective	Trust
Zhao and Wang (2011)	TCT and relational exchange	China	5	–	Reflective	Trust
Zhou and Poppo (2010)	TCT and institutional theory	China	3	4.18	Reflective	Trust
Zhou and Xu (2012)	TCT and relational exchange	China	1	1.45	Reflective	RG

^a Only studies on the interplay of contractual and relational governance are included in this table.

^b TCT (transaction cost theory), SET (social exchange theory), RBV (the resource-based view)

^c 1 – Cross-border relationship, 2 – outsourcing relationship, 3 – buyer–supplier (domestic) relationship, 4 – strategic alliance, 5 – distributor–manufacturer relationship, 6 – other.

^d Relationship length, in years. Values in the logarithm form are transformed.

norms such as flexibility, information exchange, and solidarity remind cooperative parties that their relationship is whole, and they are expected to behave according to the shared relational norms (Heide and John, 1992; Gençtürk and Aulakh, 2007). Thus, relational norms are also considered an effective type of governance in existing IOR governance literature (e.g., Cannon et al., 2000; Parmigiani and Mitchell, 2010; Zhou and Xu, 2012). In the existing literature on the interplay between contractual and relational governance, these three main theories are often used jointly. TCT is traditionally used to support the effectiveness of contractual governance, and SET and RET are used to explain the effects of trust and relational norms respectively. However, to explain the effects of relational governance which is a comprehensive concept beyond trust and relational norms, SET and RET may be used together in the

same study (e.g., Huang et al., 2014; Poppo and Zenger, 2002). Some scholars have also discussed these two theoretical approaches with an umbrella term such as “relational contracting” (e.g., Carson et al., 2006). We present the theoretical lenses used in the main studies on the interplay of contractual and relational governance in Table 1.

2.4. The interplay between contractual and relational governance

Considering the roles and limitations of both contractual and relational governance, many studies have investigated their interaction. According to our observations, these studies can be categorized into two main groups (Table 2). One group focuses on the *mutual relationships* between contractual and relational

Table 2
Summary of the regression results in existing literature.

Categories	Conclusions	List of studies	No.
Mutual relationships between contractual and relational governance	Substitute	De Jong and Woolthuis (2008), de Reuver and Bouwman (2012), Gençtürk and Aulakh (2007), Liu et al. (2008), Yang et al. (2011)	5
	Complementary	Ahimbisibwe et al. (2012), Burki and Buvik (2013), Burkert et al. (2012), Cai and Yang (2008), Charterina and Landeta (2010), Goo et al. (2009), Han et al. (2011), Hendrikse and Windsperger (2011), Liu et al. (2008), Poppo and Zenger (2002), Ren et al. (2010), Schilke and Cook (2014), Vandaele and Gemmel (2007), Yang et al. (2011), Zhou and Poppo (2010)	15
	Non-significant	Ahimbisibwe et al. (2012), Carson et al. (2006), Handfield and Bechtel (2002), Lui et al. (2006), Lusch and Brown (1996), Mellewigt et al. (2007), Pavlou (2002), Vandaele and Gemmel (2007)	8
Joint impacts of contractual and relational governance on performance outcome	Substitute	Chen et al. (2013a), Jiang et al. (2013), Lee and Cavusgil (2006), Li et al. (2010c), Lui and Ngo (2004), Lumineau and Henderson (2012), Mesquita and Brush (2008), Wang et al. (2011), Yu et al. (2006)	9
	Complementary	Ahimbisibwe et al. (2012), Arranz and de Arroyabe (2012), Cannon et al. (2000), Gopal and Koka (2012), Huang et al. (2014), Jayaraman et al. (2013), Jiang et al. (2013), Li et al. (2010a), Liu et al. (2009), Lui and Ngo (2004), Lumineau and Henderson (2012), Mesquita and Brush (2008), Murray and Kotabe (2005), Parmigiani and Mitchell (2010), Yang et al. (2012), Zhang et al. (2012), Zhang and Zhou (2013), Zhao and Wang (2011), Zhou and Xu (2012)	19
	Non-significant	Achrol and Gundlach (1999), Boulay (2010), Cavusgil et al. (2004), Chen et al. (2013a), Huang et al. (2014), Li et al. (2010c), Liu et al. (2009), Parmigiani and Mitchell (2010), Pittino and Mazzurana (2013), Rai et al. (2012), Yu et al. (2006)	11

governance.³ The other group focuses on the *joint impacts* of the two governance mechanisms on performance.⁴ Below, we briefly summarize the main arguments developed in the two groups of studies as the baseline of our analysis.

2.4.1. Mutual relationships between contractual and relational governance

A first group of studies has focused on the mutual relationships between contractual and relational governance. Here, opposing arguments have been advanced. The stream of research holding the substitute relationship has argued that contractual governance and relational governance substitute each other by two main mechanisms: “replacing” and “dampening” (Huber et al., 2013). The replacing mechanism refers to the substitution caused by functional equivalents of contractual and relational governance (Huber et al., 2013). It is argued that contractual governance is redundant when trust and relational norms are well developed because relational governance alone can govern the relationships effectively (Gulati, 1995; Wang et al., 2011). The dampening mechanism refers to the substitution caused by pernicious effects of one type of governance on the bases or strengths of the other type of governance (Huber et al., 2013). It is frequently argued that contractual governance may signal a lack of trust and harm the development of relational governance (Ghoshal and Moran, 1996; Gulati and Nickerson, 2008; Malhotra, 2009).

In contrast, another stream of studies has supported the complementary relationship between contractual and relational governance. Existing literature has suggested several mechanisms. First, clearly articulated contractual terms may inspire the confidence of cooperative parties in their cooperation, paving the way for the development of relational governance (Cannon et al., 2000; Poppo and Zenger, 2002). Second, contracts usually contain terms defining the rights and duties, long-term commitment, and punishment for opportunism. These terms help reduce information asymmetry and support fair climate to facilitate relational governance development (Yang et al., 2012). Moreover, the contracting process could also be used purposely to increase mutual

understanding and improve trust (Blomqvist et al., 2005; Lumineau et al., 2011). Third, relational governance can complement contractual governance by creating new contractual mindset. For example, in the servitization context, Bastl et al. (2012) found that inter-party trust could create a “win-win” mindset, which facilitates the contracting process. The three mechanisms are called “enabling mechanisms” by Huber et al. (2013) which refer to the fact that one type of governance creates conditions to facilitate the other type. In addition to these “enabling” mechanisms, contractual and relational governance may also rely on a “compensating mechanism” to complement each other. The compensating mechanism indicates that contractual governance can address the limitations of relational governance and vice versa. By specifying the roles and obligations of each party formally and clearly, contracts can provide formal assurance for relational governance (Li et al., 2010a). Relational governance allows cooperative parties to learn from these situations and refine their contracts in the future (Poppo and Zenger, 2002). For instance, Ryall and Sampson (2009) found that a firm’s contract includes more details after repeated deals. Therefore, they contend that contractual and relational governance are positively related to each other.

Recent studies have provided more nuanced explanations of the mutual relationship between contractual and relational governance. They have argued that both complementary and substitute propositions are possible, depending on the contents and functions of contracts as well as contextual factors (Malhotra, 2009; Woolthuis et al., 2005; Zaheer and Harris, 2006). In particular, recent works point out the multiple dimensions of contractual governance (Malhotra and Lumineau, 2011; Schepker et al., 2014; Vlaar et al., 2007). They have claimed that different dimensions of contracts may have different impacts on relational governance. For example, Malhotra and Lumineau (2011) suggested that the control dimension of contracts may signal a lack of trust and crowd out goodwill trust while the coordination dimensions of contracts may mitigate misunderstanding and strengthen goodwill trust. They also argued that both control and coordination dimensions of contracts enhance competence trust but in different ways. The control dimension forces partners to focus on roles and responsibilities while the coordination dimension creates a common knowledge structure and facilitates the development of competence trust. From regulatory focus and expectancy violation theories, Weber and Mayer (2011) argued that prevention contracts substitute relational governance whereas promotion contracts complement relational governance in transactions requiring flexible, creative, and cooperative behaviors.

³ The complementary vs. substitute debate in this group centers on the “technical” definition of complementary (Milgrom and Roberts, 1995), i.e., the increase of one variable (e.g., contract) encourages the increase of another variable (e.g., trust).

⁴ The complementary vs. substitute debate in this group centers on the “Edgeworth” definition of complementary (Milgrom and Roberts, 1995), i.e., raising one variable increases the return to raising the other (Siggelkow, 2002).

2.4.2. Joint impacts of contractual and relational governance on performance

A second group of studies has focused on the joint impacts of the two governance mechanisms on performance. Here, again, different arguments have been suggested and the findings are not consistent between studies. Some scholars have asserted that the joint use of the two governance mechanisms is *negatively* related to performance for two main reasons. First, contracts may signal a lack of trust and destroy relational governance, thus reducing the positive impacts of relational governance on performance (Cavusgil et al., 2004; Lee and Cavusgil, 2006). Relational governance may also reduce the positive influences of contracts on performance by encouraging partners to enforce contracts less strictly to avoid ruining the cooperative foundations of the IOR (Antia and Frazier, 2001; Wang et al., 2011). Second, it has been argued that the simultaneous application of contractual and relational governance may be redundant since contractual and relational governance are “functional equivalents” (Huber et al., 2013; Yang et al., 2011). Thus, when one governance mechanism is well developed, it is unnecessary to develop another costly type of governance (Ben-Ner and Putterman, 2009; Gulati, 1995; Li et al., 2010c). As a result, it has been claimed that contractual and relational governance substitute in explaining performance.

However, some other studies have stated that the complementarities between the two governance mechanisms may be leveraged to increase performance (Liu et al., 2009; Poppo and Zenger, 2002; Yang et al., 2011). First, the simultaneous application of the contractual and relational governance can save *ex post* transaction costs by reducing the opportunities of contract breach and renegotiation (Yang et al., 2012). Second, contractual and relational governance can address each other's limitations in governance and complement each other to improve performance. For instance, in their qualitative analysis of IT outsourcing relationships, Cao et al. (2013) found that neither overemphasis on contractual nor overemphasis on relational governance is beneficial to outsourcing performance. Instead, performance is improved only when contractual governance and relational governance are balanced. Similarly, Roehrich and Lewis (2014) discovered that the case in which relational governance accompanies contractual governance performs better. In addition to the evidence of qualitative studies, existing quantitative studies have shown that contractual and relational governance could jointly improve performance by facilitating knowledge transfer (Li et al., 2010a; Zhang and Zhou, 2013), promoting innovation (Wang et al., 2011), and seizing emerging opportunities (Lazzarini et al., 2008; Mesquita and Lazzarini, 2008).

2.5. Exploratory analysis: moderating effects on the interplay

We suggest that the inconsistent findings on the interplay between contractual and relational governance may be explained by the existence of important moderating effects, which have been largely ignored so far. Meta-analysis literature has suggested that this inconsistency of findings could be attributed to both theoretical and methodological factors. Theoretically, our literature review suggests that two sets of factors may moderate the interplay between contractual and relational governance: institutional (Luo, 2005; Zhou and Poppo, 2010) and interorganizational factors (Gulati, 1995; Weber and Mayer, 2011). Methodologically, the variation of measurement and sampling methods may also influence the inconsistency of findings. As prior literature does not advance consensual answers to these issues, we have not offered formal directional hypotheses for these moderators.

2.5.1. Institutional environments

Institutional environments, including both formal and informal aspects (North, 1990), refer to the set of “fundamental political,

social, and legal ground rules that establish the basis for production, exchange, and distribution” (Davis and North, 1971: 6). As such, it has been suggested that formal and informal aspects of the institutional environments may influence the effectiveness of IOR governance (Handley and Angst, 2014; Luo, 2005; Meyer et al., 2009; Zhou and Poppo, 2010). Specifically, institutional theory suggests that the regulatory and normative pillars of the institutional environment affect the mutual relationship of contractual and relational governance (Grewal and Dharwadkar, 2002; Scott, 1995). Regulatory pillars such as legal systems can modify the effectiveness of contracts and impose constraints on cooperative parties' behaviors (Cavusgil et al., 2004). With credible regulatory pillars, contracts are more reliable, and firms can depend on them to safeguard opportunism and coordinate with each other. In this case, firms need not spend time and effort to develop relational governance (Zhou and Poppo, 2010). In contrast, in the absence of effective regulatory institutions and enforceable contracts, firms have to rely on relational governance (Cavusgil et al., 2004; Meyer et al., 2009; Mesquita and Lazzarini, 2008). In addition, normative pillars like prevailing social values can legitimize the use of contractual and relational governance. As contractual governance can serve various purposes (Lumineau and Henderson, 2012; Schepker et al., 2014), normative institutions may legitimize one or multiple purposes of contracts in certain environments (Lewis, 2006), thus influencing their interplay with relational governance. For example, when the use of contracts is legitimized as a signal of commitment in some cultures, contracts may complement relational governance (Zhou and Poppo, 2010). When the function of contracts is legitimized as coordination rather than safeguarding (Duan, 2012), contracts may increase trust (Malhotra and Lumineau, 2011). Similarly, when the legitimacy of relational governance is well established in institutional environments that value inter-personal reciprocity and harmony (Duan, 2012; Zhou and Xu, 2012), relational governance can work so well that it may substitute contractual governance. Thus, based on the above discussion, we expect that institutional environments will influence the mutual relationships between contractual and relational governance. However, the different arguments advanced so far in the literature do not show a clear causal relationship between the types of institutional environments and the interplay of contractual and relational governance.

2.5.2. Relationship types

IORs vary by type (Albers et al., 2014) and can be classified, for example, as cross-border vs. domestic IORs based on their geographic location (Burkert et al., 2012; Li et al., 2010c) or as vertical vs. horizontal IORs based on their relative position in the value chain of their industry (Baum et al., 2000; Rindfleisch, 2000). The mutual relationships of contractual and relational governance are likely to vary in different types of IORs because of the difference of exchange hazards inherent in these relationship types. Extant studies have suggested that different types of IORs contain various exchange hazards (Oliver, 1990; Rindfleisch, 2000). In particular, it is maintained that cross-border IORs, because of their complexities and cultural distance, cause more uncertainties than domestic IORs (Burkert et al., 2012; Fryxell et al., 2002; Li et al., 2010c) while the degree of uncertainty and transaction-specific know-how is greater in IORs encompassing R&D than those involving existing know-how (Pisano, 1989). As shown in existing literature, exchange hazards may require contractual or relational governance (Poppo and Zenger, 2002; Williamson, 1985; Zhou and Poppo, 2010). However, when exchange hazards are severe, relational governance may be more difficult to establish (Burkert et al., 2012; Rindfleisch, 2000) and the effectiveness of contractual governance may decline (Poppo and Zenger, 2002). Thus, both the positive relationships between contracts and relational governance will be

weakened. Considering the variety of exchange hazards inherent in different types of IORs (Burkert et al., 2012; Li et al., 2010c; Rindfleisch, 2000), we argue that the mutual relationship between contractual and relational governance is likely to vary in different types of IORs.

2.5.3. Relationship length

Relationship length refers to the number of years firms have been dealing with each other. Existing literature has suggested that relationship length may moderate the interplay of governance mechanisms (Heide, 2003; Jap and Ganesan, 2000). In particular, relationship length may positively moderate the mutual relationships of contractual and relational governance for two reasons. First, when relationship length is quite short and trust and relational norms are not well developed, contracts will complement relational governance by providing confidence for each party through safeguarding transaction-specific investments and controlling opportunism (Fryxell et al., 2002; Wagner and Bode, 2014). As relationship length increases, partners may have a better understanding of each other, and trust and relational norms will be formed. The trust and relational norms will create more opportunities for cooperative parties to learn knowledge and contracting skills (Lumineau et al., 2011; Mayer and Argyres, 2004), thus complementing contractual governance by making it more complete and effective (Ryall and Sampson, 2009). Second, as relationship length increases, cooperative parties will have more interactions and accumulate experience in dealing with each other (Mayer and Argyres, 2004; Mesquita and Brush, 2008). Meanwhile, they may make investments specific to the relationship (Wagner and Bode, 2014). As a result, both parties may have strong incentives to continue the relationship, and relationship length signals a high likelihood of relationship continuity (Li et al., 2010c). It is alleged that the contract that promotes relationship continuity may complement relational governance (Weber and Mayer, 2011). Thus, it is here argued that relationship length positively moderates the mutual relationships between contractual and relational governance.

However, existing literature has also suggested that relationship length may negatively moderate the relationships between contractual and relational governance. While, as the above discussion has indicated, contractual governance may complement relational governance in the initial period of cooperation (Fryxell et al., 2002), it is likely to foster the atmosphere of distrust as relationship length increases because the use of contracts is only effective for a relatively short time in turbulent environments (Dyer, 1997; Fryxell et al., 2002) and the frequency of conflicts is likely to increase as IORs tend to mature (Fryxell et al., 2002; Ring and Van de Ven, 1994). It is also argued that contracting in long-term IORs may signal a lack of trust, thus hampering the development of relational governance (Yang et al., 2011). Given the opposing arguments in the literature, the moderating effects of relationship length on the mutual relationships between contractual and relational governance need further examination.

2.5.4. Methodology factors

In addition to theoretical factors, methodological factors such as construct measurements may be at the origin of the inconsistent findings on the contractual–relational governance interplay (Combs et al., 2011). Although measurement issues are mentioned by several IOR governance scholars (Mellewigt et al., 2007; Poppo and Zenger, 2002), the possible moderating effects of measurement have rarely been examined in the existing literature, and the role of measurement disparity on the inconsistency of extant findings is unknown. One advantage of meta-analysis is to detect how measurement heterogeneities influence the studied relationships (Luo et al., 2012). It has been suggested to code different types of

measurement as a moderator and examine the possible impacts of the moderator on debated relationships (Combs et al., 2011). Through our literature review, we have found that there are three main measurement methods of contracts, ranging from a single item (Poppo and Zenger, 2002) through a composite value of contract provisions (Mellewigt et al., 2007; Schilke and Cook, 2014) to several reflective items (Li et al., 2010a,b,c). Although there is no prior theoretical reason suggesting that one type of contractual measurement has a stronger impact on relational governance, this question is important for future relationship governance research. In fact, less precise measurements may lead to opposite findings. De Jong and Woolthuis (2008), for instance, argued that simple and “crude” measurements of contracts cannot reflect each party’s true intentions of contracting, leading to unexpected negative relationships between contracts and trust. In this study, we have examined in depth the moderating effects of measurement variations on the mutual relationships between contractual and relational governance.

In sum, the interplay between contractual and relational governance is likely to be moderated by institutional, interorganizational, and measurement factors. We have built our conceptual framework (summarized in Fig. 2) based on the above discussion. With the meta-analysis technique, we have explored the answer to the nature of contractual and relational governance interplay and its boundary conditions (both theoretical and methodological).

3. Methodology

3.1. Literature search and coding procedures

We adopted meta-analysis to examine the model in Fig. 2 and used five complementary steps to collect relevant studies. First, we searched for potential studies in the ABI-Global, Business Source Premier, ISI Web of Knowledge, and Science Direct databases in June 2014.⁵ We listed one set of key words for contractual governance which included “contract,” “contract complexity,” “formal governance,” “formal control,” “legal bond,” “legal safeguard,” and “contract formalization” and another set of key words for relational governance which included “trust,” “cooperative norms,” “relationalism,” “relational norms,” “informal governance,” “informal control,” “relational governance,” “relational mechanism,” and “social control.” Each time, we selected one word either from the contractual governance set or from the relational governance set and searched in the four databases.⁶ This process yielded a total of 3176 articles. Second, we searched the four databases with keywords such as “governance mechanism,” “interfirm governance,” and “interorganizational governance” for studies that did not describe specific types of governance but summarized them as “governance” in the abstract or keywords section. This process yielded another set of 516 articles. Third, we manually searched nine top journals in operations management, general management, strategy, marketing, and international business which had published articles related to interorganizational governance since 2002 (from which year the

⁵ We thank the anonymous reviewer who suggested that we add the Web of Knowledge database. Please note that we did not exclude unpublished studies during the search process. The ABI-Global database contains working papers, dissertations, and theses in addition to academic journals. After searching articles with predefined key words in ABI-Global, we narrowed the search results by limiting the source type as scholarly journals, working papers, and dissertations and theses.

⁶ For “contract” and “trust,” we used “contract and performance,” “contract and opportunism,” “trust and performance,” and “trust and opportunism” to search studies because otherwise there are tens of thousands of studies when we only used “contract” and “trust” as keywords. We only kept the studies written in English that were from academic or scholarly journals, working papers, dissertations, and theses. Articles in magazines or trade journals and/or using other languages were excluded.

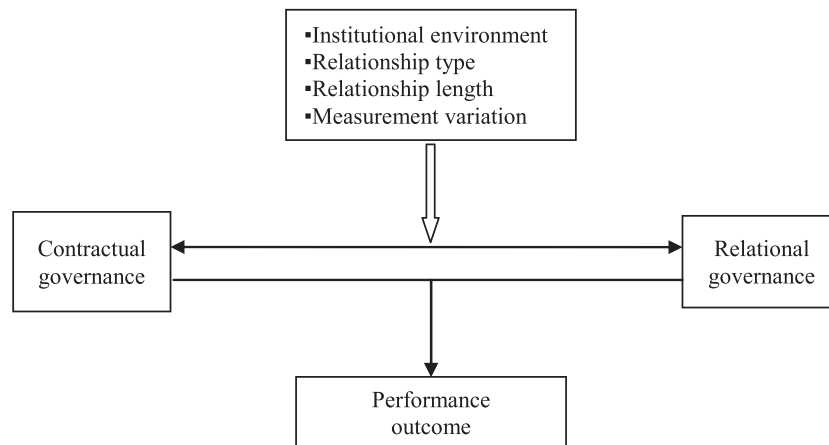


Fig. 2. Factors moderating the interplay of contractual and relational governance.

number of empirical studies on contractual and relational governance surges, see Fig. 1) (Chang et al., 2009).⁷ We found another set of 170 articles on contractual or relational governance. Fourth, we manually searched the reference lists of highly-cited and newly published studies such as Huber et al. (2013), Jayaraman et al. (2013), Liu et al. (2009), Yang et al. (2012), and Zhou and Poppo (2010) to check if any study could have been lost in the previous search process. We found 27 additional articles that were not identified in the previous steps. Finally, we emailed the authors who did not report a correlation matrix and asked them to provide the matrix and their unpublished studies, if any, on this topic for us. Another five articles were provided. In sum, after these five steps, we retrieved a total of 3894 articles.

We set up three inclusion criteria to select studies (Heugens and Lander, 2009; Jiang et al., 2012).⁸ The selected studies must have met the requirements of all criteria. If one study violated any of these criteria, it was excluded from further analysis. Our three criteria were as follows: first, the unit of analysis of selected studies must have been an interorganizational dyad. 3349 articles at the organization (e.g., Cruz et al., 2010; Gomez-Mejia et al., 2001; Rediker and Seth, 1995; Tosi et al., 1997), team (e.g., Chatman and Flynn, 2001; De Jong and Elfring, 2010), and individual level (e.g., Malhotra and Murnighan, 2002; McAllister, 1995; Raja et al., 2004) were excluded and 545 articles remained. Second, the selected studies must have been empirical and report at least one correlation between contractual governance, relational governance, performance, and opportunism. Non-empirical studies such as case studies (e.g., Faems et al., 2008; Huber et al., 2013; Mahapatra et al., 2010; Vlaar et al., 2007; Zheng et al., 2008) and conceptual studies (e.g., Inkpen and Currall, 1998, 2004; Luo, 2006) or empirical studies that did not report any of the correlations were dropped from our sample for the meta-analysis (e.g., Saporito et al., 2004; Wasti and Wasti, 2008; Zhou et al., 2008).⁹ From the remaining 545 articles, we further excluded 402 articles, and 143 articles were selected. Third, selected studies must have had independent samples (Geyskens et al., 2006). We checked the sampling processes

description of each study. Studies sharing the same sample were all dropped except one that was published in the journal with the highest impact factor.¹⁰ Four studies were excluded, and our final database thus included 139 articles. The process of studies search and selection is illustrated in Fig. 3.

Following prior research (Lipsey and Wilson, 2001), we designed a coding protocol to record information about the study (e.g., author, publication date, research question, and abstract), sample (e.g., sample size, country, industry, unit of analysis, and relationship length mean), measurement (measurement items and reliability), and effect size (correlation). For studies only reporting correlations between measures (e.g., Cavusgil et al., 2004; Poppo and Zenger, 2002) or between different dimensions (e.g., Lui and Ngo, 2004; Malhotra and Lumineau, 2011) of contractual and relational governance, we calculated the composite correlations and reliabilities according to the formulas provided by Hunter and Schmidt (2004: 433–442) to approach the correlation between contractual and relational governance. We averaged the inter-item correlations or inter-dimension correlations only when information for the formulas was not available (Geyskens et al., 2006, 2009). We checked all recorded information three months later, and few discrepancies (less than 1%) were identified and solved through discussions (Geyskens et al., 2006).

We calculated the sample-adjusted meta-analytic deviancy (SAMD) statistics to detect outliers (Huffcutt and Arthur, 1995; Geyskens et al., 2006). One outlier was detected and checked before being finally dropped.¹¹ After dropping the outlier, we had 149 studies across 138 articles reporting correlations of contractual and relational governance.¹² All studies except two unpublished studies and one book chapter were published in academic journals.

¹⁰ Liu et al. (2008, 2009), and Luo et al. (2011) shared the same dataset, and we only kept Liu et al. (2009). Similarly, we dropped Cannon et al. (2000) and Bianchi and Saleh (2010) but kept Cannon and Perreault (1999) and Bianchi and Saleh (2011).

¹¹ Jap and Ganesan (2000) was the outlier for the contracts–relational norms relationship. We dropped it for three reasons (Geyskens et al., 2009): (1) it has extremely high negative SAMD statistics (−30.41) while the values of SAMD of other studies range from −1.36 to 7.93; (2) the unit of analysis of this study is different from all other studies; and (3) the final results are quite sensitive to effect size of this study.

¹² There may be more than one study in one article. There is no consistent criterion on the acceptable sample size in meta-analysis. The size of the sample may range from 39 (Joshi and Roh, 2009) to 209 studies (Geyskens et al., 2006). Generally, the number of relationships examined in the meta-analysis was positively correlated with the size of the sample. For example, although Geyskens et al. (2006) had a relatively large sample, most of the relationships were examined in less than 30 studies. In this study, we have 149 studies in total. Meanwhile, the number of studies in contracts–trust (43 studies), contract–relational norms (14 studies), and contract–relational governance (16 studies) is comparable to the ratio used in other meta-analyses published in top journals.

⁷ We did not set up the constraints of 2002 for the other parts of the search process. These journals were the *Academy of Management Journal*, *Journal of International Business Studies*, *Journal of Management*, *Journal of Management Studies*, *Journal of Marketing*, *Journal of Marketing Research*, *Journal of Operations Management*, *Organization Science*, and *Strategic Management Journal*.

⁸ We had a fourth inclusion criterion about the language and publication outlet because in the literature search process, we excluded the studies that are written in non-English and published in magazine and trade journals.

⁹ Although we did not include these studies in the meta-analysis, we discussed this part of the literature in the discussion section.

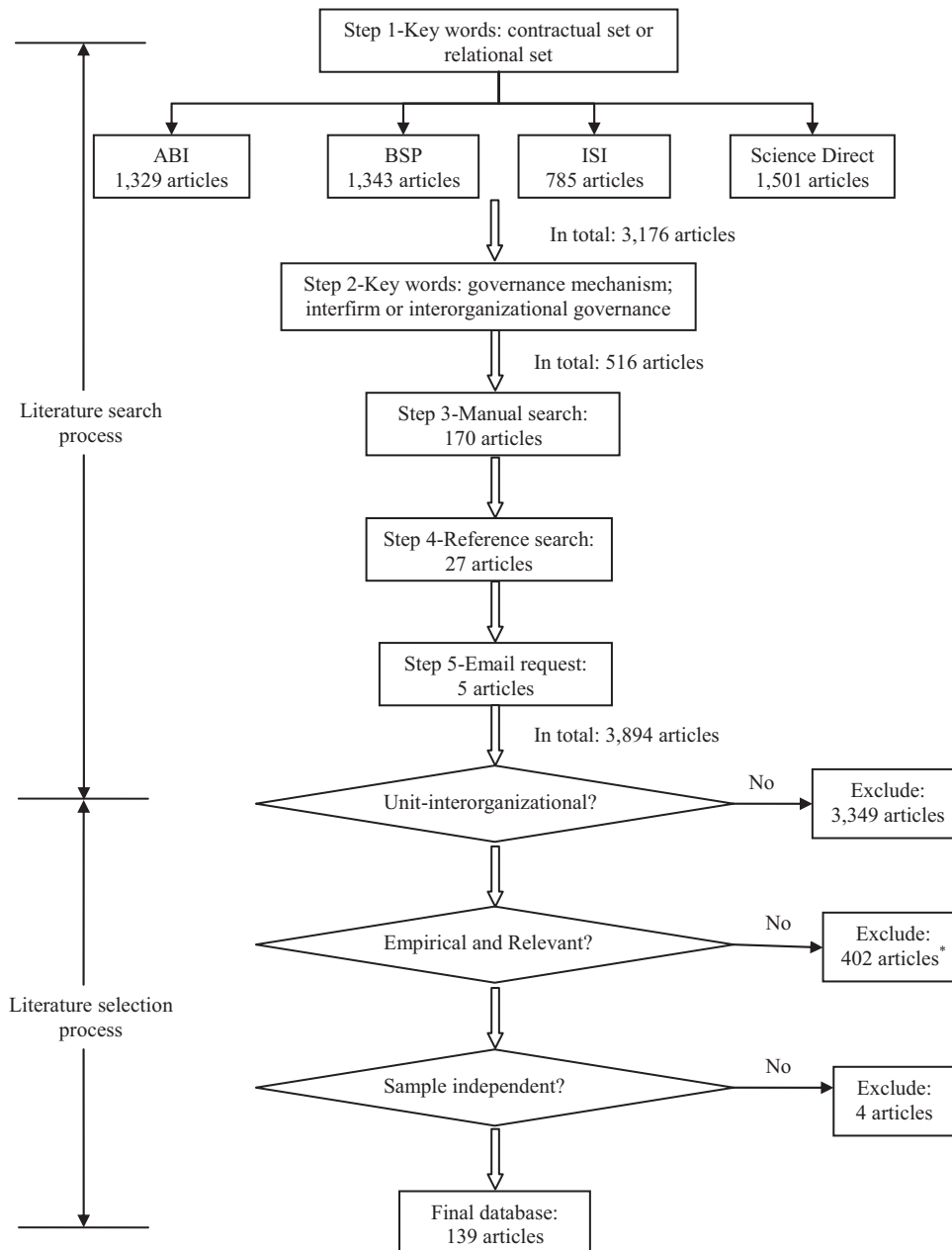


Fig. 3. Literature search and selection process of meta-analysis. *Among the excluded 402 articles, 16 qualitative articles which investigate the interplay of contractual–relational governance were identified.

Among the 149 studies, there are a total of 33,051 IORs reporting the correlations between contractual and relational governance. The 149 studies were conducted in various institutional environments such as China (21.3%), Germany (4.3%), Hong Kong (3.5%), the Netherlands (6.4%), and the United States (27.0%). These studies covered different types of IORs including buyer–supplier (44.7%), cross-border (19.9%), distributor–manufacturing (3.5%), outsourcing (7.8%), and strategic alliance (12.1%).¹³

¹³ All types of IORs, except cross-border, are domestic and we did not add “domestic” for convenience. Cross-border relationship includes cross-border buyer–supplier, importer–exporter, international joint venture, and international strategic alliance.

3.2. Measures

We list the definitions and measurements of key variables in Table 3.

3.2.1. Performance outcomes

In existing literature, performance outcomes can be categorized into four groups: opportunism (Liu et al., 2009; Zhou and Xu, 2012), overall satisfaction (Jap and Ganesan, 2000; Poppo and Zenger, 2002), relationship performance (Cannon et al., 2000; Chen et al., 2013a,b), and market performance (Abdi and Aulakh, 2012). However, we did not investigate market performance because the number of studies investigating it is too small. To better understand how contract, trust, and relational norms are related to the other three performance outcomes and to avoid the problems of

Table 3
Measures of contractual and relational governance.

Constructs	Definitions	Measure types	Representative measures	Representative studies
Contractual governance	The extent to which roles, obligations, responsibilities, contingency adaptation, and legal penalty are specified or well-detailed in formal agreements (Abdi and Aulakh, 2012; Luo, 2005).	Reflective (Cannon and Perreault, 1999; Lusch and Brown, 1996) ^a	1. We have a specific, well-defined agreement with this partner 2. We have customized agreements that detail the obligations of both parties 3. We have detailed contractual agreements specifically designed with this partner 4. Most aspects of our relationship are specified in the contract 5. Our contract precisely defines what will happen in case of unexpected events	Abdi and Aulakh (2012), Gençtürk and Aulakh (2007), Zhou and Poppo (2010), Zhou and Xu (2012)
		Formative (Parkhe, 1993)	1. Create a list of commonly used safeguards for particular cooperation. 2. Ask respondents to indicate which were included in their contracts. 3. Use the unweighted sum of their response as the measure of contractual governance.	Lui and Ngo (2004), Lumineau and Oxley (2012), Parkhe (1993), Reuer and Ariño (2007)
		Single item	The formal contract is highly customized and required considerable work.	Poppo and Zenger (2002)
Relational governance	The extent to which the relationship is governed by trust, flexibility, solidarity, information exchange, fairness, and informal rules and procedures (Abdi and Aulakh, 2012; Poppo and Zenger, 2002).	Trust (Doney and Cannon, 1997; Kumar et al., 1995; Zaheer et al., 1998)	1. This partner is trustworthy. 2. This partner has always been evenhanded/fair in its negotiations with us. 3. This partner keeps promises it makes to us. 4. This partner has a good reputation and is dependable We believe the information provided by the partner	Burkert et al. (2012), Lui et al. (2006), Strätling et al. (2012), Zhang and Zhou (2013)
		Relational norms (Heide and John, 1992; Jap and Ganesan, 2000)	First-order construct measured by norm items. Or, second order construct measured by three first-order constructs, information exchange, flexibility, and solidarity	Jap and Ganesan (2000), Lumineau and Oxley (2012), Yang et al. (2012)
		Relational ^b (Cannon et al., 2000)	1. Our relationship with this supplier is characterized by high trust 2. Over the years, our relationship is guided by informal roles and procedures 3. Flexibility to respond to changes is a strong character of our relationship	Abdi and Aulakh (2012), Zhou and Xu (2012)
Performance outcomes	Opportunism: self-interest seeking with guile.	Opportunism (Gundlach et al., 1995; Rokkan et al., 2003)	1. This partner does not act in accordance to the contract 2. This partner sometimes breaks an informal agreement to maximize their interests 3. This partner will try to take advantage of the “hole” of our contract for their interests	Cavusgil et al. (2004), Liu et al. (2009), Zhou and Xu (2012)
	Satisfaction: the degree that focal firm is satisfied with the exchange performance	Satisfaction (Saxton, 1997)	1. We are satisfied with the performance of the relationship 2. We are satisfied with the business performance of the partner 3. We are satisfied with the quality of the product or service	Cai and Yang (2008), Lui and Ngo (2004), Poppo and Zenger (2002)
	Relationship performance: partner's performance in quality, cost, delivery, etc.	Relationship performance (Zaheer et al., 1998)	Please rate your partner's performance in: Competitive price; 2. On-time delivery; 3. Quality of product; 4. Sales, service, and/or technical support	Cai and Yang (2008), Cannon et al. (2000)

^a Studies in the parentheses represent the main sources of the measures in the fourth column.

^b Relational refers to “relational governance,” “relationship mechanism,” or “social control” (with no detail about whether the construct is trust-oriented or norm-oriented).

“combining apples and oranges” (Sharpe, 1997), we used the three variables as separate dependent variables in our model.

3.2.2. Contractual governance

The measurements of contractual governance can be classified into three groups (Table 3). The first group uses only one single item to measure contractual governance (labeled as “single item”), such as “the formal contract is highly customized and required considerable legal work” (Poppo and Zenger, 2002). The second group follows the measurements of contractual governance in studies such as Cannon and Perreault (1999), Jap and Ganesan (2000), and

Lusch and Brown (1996).¹⁴ These studies used several reflective items to measure contractual governance (labeled as “reflective”), such as “we have [a] specific, well-defined agreement with this partner,” or “most aspects of our relationship are specified in the contract” (Zhou and Poppo, 2010; Zhou and Xu, 2012). The third group uses a composite index to measure contractual governance (labeled as “formative”). The authors invited relevant experts to list

¹⁴ Although the study Jap and Ganesan (2000) was dropped in our meta-analysis, its measures of contracts are used in several other articles.

all typical provisions in a contract in specific contexts and summed all employed provisions of a given contract according to the list. This measurement can be traced back to Parkhe (1993) and has been used by many studies (Lumineau and Oxley, 2012; Malhotra and Lumineau, 2011; Reuer and Ariño, 2007). We used the three groups to examine the moderating effects of measurements. However, we aggregated the three groups together to estimate the overall effect size between contractual and relational governance.

3.2.3. Trust

The measurements of trust are similar in existing studies. They focus on the focal firm's confidence in the partner's integrity, credibility, and competence. As only a few studies divided trust into different dimensions, such as benevolence and competence (e.g., Lui and Ngo, 2004), we studied trust as a single variable in this study.

3.2.4. Relational norms

There are two ways to measure relational norms. Most studies have used the first-order reflective model to measure relational norms (Cannon et al., 2000; Liu et al., 2009). In contrast, only a few studies have used the second-order model to measure relational norms (Yang et al., 2012).

3.2.5. Institutional environments

Following prior studies (Carney et al., 2011; Van Essen et al., 2012), we used country affiliation to represent the institutional environments that relationships are embedded in. Five main countries or districts were used for moderator analysis because there are at least three studies, the minimum threshold for sub-groups analysis (Dalton et al., 2003), conducted in these countries. Studies conducted in multinational contexts or in other countries were not used for the moderating analysis of institutional environments. To avoid the bias caused by relationships across two countries (Abdi and Aulakh, 2012; Yang et al., 2012), we separated the cross-border relationships for further analysis.

3.2.6. Relationship type

Criteria classifying IORs into different types are not consistent in existing literature (Albers et al., 2014). Fortunately, each study in our literature review reports its unit of analysis (e.g., buyer–supplier or strategic alliance). To avoid imposing classification criteria on IORs and mixing dissimilar studies together (Sharpe, 1997), we classify IORs into different types based on the reported unit of analysis of each study (see Delbufalo, 2012; Pérez-Nordtvedt et al., 2008 for a similar approach). We therefore made a distinction between the following IOR types: cross-border, strategic alliance, buyer–supplier, manufacturer–distributor, and outsourcing.

3.2.7. Relationship length

Relationship length is treated as a control variable in most studies. We measured it by the mean of relationship length of each study. We ranked studies by their mean of relationship length and then divided the studies equally into two groups to measure its moderating effects. Studies that did not provide relationship length mean were not used for the moderating analysis of relationship length.

3.2.8. Measurements

As the above discussion has indicated, measurements of contract can be divided into three groups whereas trust measurements cannot be clearly further distinguished because they share a lot of similarities. Although some studies use the second-order model to measure relational norms, most studies use the first-order model. Moreover, both the first-order model and second-order model

involve mutual behavior expectations on information exchange, solidarity, and participation. Therefore, we only used the measurement differences of contracts to examine the moderating effects of the measurements.

The comparison of institutional environments, relationship type, relationship length, and measurements across representative studies is presented in Table 1.

3.3. Meta-analytic calculation

Following prior research (Campbell-Hunt, 2000), we interpreted each sample as random as we kept only one of the studies using the same sample. We regarded the variables with the same names (e.g., trust) in different studies as identical because we reviewed all measurements of the variables and grouped variables with different measurements into different groups in a sub-group analysis. Moreover, we used correlation rather than the regression coefficient as the effect size to avoid the problem of different scales (Campbell-Hunt, 2000). To correct measurement and sampling errors, we first calculated the reliability corrected effect size (Hunter and Schmidt, 2004). We used Cronbach's alpha or composite reliability to represent reliability. If neither were reported, we used the mean of reliability to replace the missing values (Jiang et al., 2012; Lipsey and Wilson, 2001). Then, we transformed the origin correlation into Fisher's z to adjust distribution skewness (Geyskens et al., 2009; Kirca et al., 2011). As suggested by previous studies (Cheung and Chan, 2005), we used the random effects model and calculated the sample size and reliability adjusted correlation r_c to correct the sampling error (Hunter and Schmidt, 2004; Jiang et al., 2012; Luo et al., 2012). We also calculated sample weighted correlation (r_s) to compare the two results (Luo et al., 2012).¹⁵ Q statistics measuring the heterogeneity of r_c and standard error of r_c (SE) were also calculated. To detect moderating effects, we used the "confidence interval" method (Hunter and Schmidt, 2004) and calculated the 95% confidence interval (C.I.) of the proposed relationships with the value of SE and r_c . We only confirmed the moderating effects when the 95% C.I. of the relationships did not overlap in the different sub-groups of studies (Cohen, 1992; Hunter and Schmidt, 2004).

We used two methods to examine potential publication bias, i.e., the potential selection bias toward statistically significant published results (Rosenthal, 1979). We first computed the fail-safe N with the method suggested by Hunter and Schmidt (2004: 501) and then used the "trim and fill" method (Duval and Tweedie, 2000) suggested by Geyskens et al. (2009). The high values of fail-safe N (see Table 5) have suggested that there are at least 810, 826, and 1892 missing studies averaging zero effect size to reduce the observed relationships between contracts and relational governance, relational norms, and trust to trivial effect respectively, which is quite unlikely to happen (Hunter and Schmidt, 2004). The "trim and fill" results show that the number of studies missing because of publication bias is zero for all three relationships (i.e., trust, relational norms, and relational governance with contracts). Both results have suggested that publication bias is not a major concern in this study.

After calculating the correlation matrix, we used the meta-structural equation modeling (MASEM) technique to investigate the relationships among contractual governance, trust, relational norms, and performance outcomes (Carney et al., 2011; Cheung and Chan, 2005). As recommended by Viswesvaran and Ones (1995) and Jiang et al. (2012), we used the harmonic mean of the correlation

¹⁵ Please note that both r_c and r_s are values already transformed back into the original scale from the Fisher z .

Table 4
Meta-analytic correlation between contractual and relational governance and performance.

Constructs	1	2	3	4	5	6
1. Trust	1.00	44 ^b (8381)	12 (2367)	18 (3959)	49 (9795)	12 (2788)
2. Contracts	.22 ^a	1.00	14 (3070)	14 (5483)	18 (6332)	11 (2066)
3. Relational norms	.60	.30	1.00	9 (2766)	18 (4996)	8 (2182)
4. Satisfaction	.63	.35	.72	1.00	9 (2130)	2 (418)
5. Relationship performance	.52	.40	.44	.55	1.00	6 (1324)
6. Opportunism	-.49	-.16	-.42	-.37	-.27	1.00

^a Number below the diagonal represents correlation.

^b Number above the diagonal represents the number of studies (k) and sample size (N) in the form of $k(N)$.

sample sizes as the sample size when running the SEM command in LISREL 8.54 (Jöreskog and Sörbom, 2003).

Then, we examined the moderating effects of institutional environments, relationship type, relationship length, and measurements. As recommended by the existing literature, we used two methods, sub-group analysis and meta-regression, to conduct the moderator analysis (Geyskens et al., 2009; Heugens and Lander, 2009; Hunter and Schmidt, 2004). First, we divided our dataset into different groups according to country, relationship type, relationship length, and contract measurement and did sub-group meta-analysis. The 95% C.I. and r_c of sub-groups were compared to examine the moderating effects of these variables (Hunter and Schmidt, 2004). Second, as a robustness check, we used meta-analytic regression to examine the potential moderating effects of the four moderators (Carney et al., 2011; Geyskens et al., 2009).

4. Results

4.1. Relationships between contractual and relational governance and performance

The sample size and reliability adjusted correlation (r_c) among contract, trust, relational norms, and the three performance outcomes are displayed in Table 4. More detailed analysis results are shown in Table 5. Results in Table 5 indicate that contractual and relational governance are positively related ($r_c = 0.24$; 95% C.I. = 0.22–0.25). Specifically, the relationship between contracts and trust ($r_c = 0.22$; 95% C.I. = 0.20–0.24), between contracts and relational norms ($r_c = 0.30$; 95% C.I. = 0.25–0.33), and between contractual and relational governance ($r_c = 0.23$; 95% C.I. = 0.19–0.26) are all positive. The results show that the general complementarity argument that contractual and relational governance are positively related is supported.

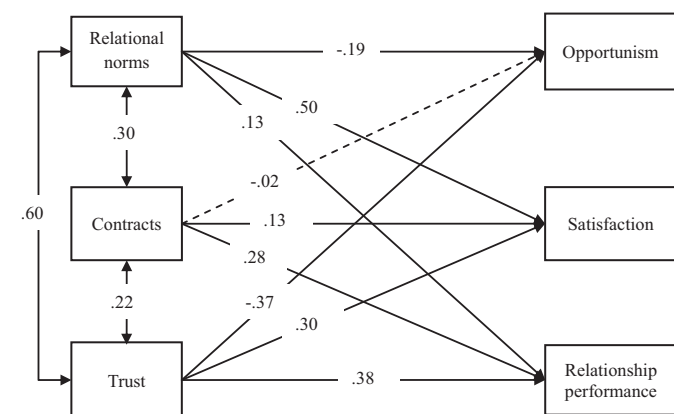


Fig. 4. The relationships of contractual governance, relational governance, and performance. (^a Standardized coefficients are presented; $N = 3032$.)

The SEM results are presented in Fig. 4.¹⁶ The fit indices of the model are $\chi^2(3) = 177.91$ ($p < 0.001$), CFI = 0.98, GFI = 0.98, NNFI = 0.91, and SRMR = 0.03, indicating that the model is acceptable (Carney et al., 2011; Hu and Bentler, 1999; Jiang et al., 2012). Results in Fig. 4 indicate that contracts are positively related to trust and relational norms (0.22 and 0.30), providing further support for the complementarity arguments. Furthermore, trust and relational norms are negatively related to opportunism (–0.37 and –.19), while contracts are not significantly related to opportunism (–.02; t value = –1.29). Relational norms, trust, and contracts are positively related to satisfaction (0.50; 0.30; and 0.13) and relationship performance (0.13; 0.38; and 0.28). Contracts, trust, and relational norms not only impact opportunism, satisfaction, and relationship performance directly but also impact these variables by reinforcing each other. For example, the direct impact of contracts on satisfaction is 0.13 while the indirect impact of contracts on satisfaction through trust and relational norms is 0.216 (= 0.22 * 0.30 + 0.30 * 0.50) (Alwin and Hauser, 1975); that is, the total effect (0.346) is greater than the direct impact (0.13). According to the definition of complementarity, “doing more of one thing increases the value of doing more of the other” (Ennen and Richter, 2010; Milgrom and Roberts, 1995), we can conclude that trust and relational norms complement contracts to improve satisfaction. Similar analysis could be applied to the impact of trust and relational norms on opportunism and relationship performance in addition to satisfaction. All the analyses suggest that contracts, trust, and relational norms complement each other to increase satisfaction and relationship performance. Although the direct impact of contracts on opportunism is not significant, it can still curtail opportunism indirectly by increasing trust and relational norms. In sum, these results demonstrate that the joint impacts of contractual and relational governance are complements in decreasing opportunism and increasing satisfaction and relationship performance.

4.2. Tests of moderators

The Q statistics of the contractual and relational governance relationship are quite large and significant (866.15;

¹⁶ There are two methods to examine the complementary or substitute effects: (1) add the interaction of contractual and relational governance into the structural model (Song et al., 2005); (2) examine the relationships between contract, trust, relational norms, and performance simultaneously to see whether contractual and relational governance reinforce each other and whether the two types of governance are both positively related to performance simultaneously (Poppo and Zenger, 2002). Given that few studies have reported the information about the correlation or covariance between the interaction terms and other variables, we used the second method to examine the joint effects of contractual and relational governance on performance. Furthermore, limited by the meta-analysis technique, we could not examine the endogeneity issue in the meta-SEM results. To mitigate this concern in our study, we collected data on exchange hazards (asset specificity, environmental uncertainty, and behavioral uncertainty), treated exchange hazards variables as control variables, and reran all our models with these variables. Our findings were not changed with these additional control variables.

Table 5
Meta-analytic results of contractual-relational governance relationships.

Relationships	K	N	r_s	r_c	SE	95% C.I.		Q	Fail-safe N
						Lower	Upper		
Contractual ↔ Relational	76	15,673	.18	.24	.01	.22	.25	866.15***	3572
Contract ↔ Trust	44	8381	.17	.22	.01	.20	.24	426.85***	1892
<i>Country</i>									
China	17	3741	.27	.33	.02	.29	.36	207.22***	1105
US	6	859	-.03	-.04	.04	-.12	.04	11.48*	42
Hong Kong	4	817	-.02	-.03	.05	-.11	.06	2.42	12
Netherlands	5	699	.03	.04	.05	-.05	.13	6.93	35
Germany	4	871	.14	.16	.04	.08	.24	17.92***	124
<i>Relationship type</i>									
Cross-border	5	966	.04	.04	.04	-.03	.12	.73	35
Outsourcing	7	1059	.31	.38	.04	.31	.44	14.91*	511
Buyer-supplier	16	3492	.17	.22	.02	.18	.26	173.93***	656
Strategic alliance	6	1086	.04	.06	.04	-.01	.13	48.88***	66
Distributor-manufacturer	3	755	.32	.40	.04	.33	.47	20.22***	237
Other	7	1023	.18	.24	.04	.17	.31	84.72***	329
<i>Relationship length</i>									
Long	10	2064	.24	.31	.03	.26	.36	152.29***	610
Short	10	2096	.16	.21	.03	.16	.25	72.69***	370
<i>Measurement of contract</i>									
Formative	10	1758	.13	.17	.03	.12	.23	105.94***	330
Reflective	29	5791	.20	.25	.02	.22	.28	299.33***	1421
Single item	5	832	.09	.10	.04	.02	.19	7.50	95
<i>Industry</i>									
Manufacturing	22	4786	.15	.20	.02	.16	.23	243.75***	858
Mixed	9	1356	.17	.22	.03	.16	.28	72.32***	387
Service	7	1034	.30	.37	.04	.30	.43	54.77***	483
Contract ↔ Relational norms	14	3070	.23	.30	.02	.25	.33	90.89***	826
<i>Country</i>									
China	3	708	.22	.27	.05	.18	.36	1.21	212
US	4	1107	.16	.20	.04	.13	.27	22.43**	156
<i>Relationship type</i>									
Cross-border	3	494	.12	.16	.05	.05	.26	14.52***	93
Buyer-supplier	3	776	.15	.19	.04	.10	.27	4.93	111
<i>Relationship length</i>									
Long	4	968	.21	.27	.04	.19	.34	20.71***	212
Short	4	713	.20	.24	.05	.15	.32	2.63	188
Contractual ↔ Relational	18	4222	.17	.23	.02	.19	.26	338.30***	810
<i>Relationship type</i>									
Cross-border	4	863	.20	.25	.04	.17	.33	6.65	188
Outsourcing	3	1459	.06	.12	.03	.06	.19	255.02***	69
Buyer-supplier	7	1211	.25	.30	.04	.24	.37	20.82**	413
<i>Relationship length</i>									
Long	4	924	.27	.37	.05	.29	.45	19.68***	292
Short	5	810	.12	.20	.04	.12	.28	18.40**	195
<i>Industry</i>									
Manufacturing	7	2030	.07	.09	.03	.03	.14	70.34***	119
Mixed	5	992	.14	.17	.04	.09	.24	43.06***	165
Service	3	460	.58	.71	.06	.65	.76	65.82***	393

K = number of studies; r_s = sample size weighted correlation; r_c = sample size and reliability corrected correlation; SE = standard error of r_c ; C.I. = confidence interval; variance %, artifacts = percentage of variance accounted for by artifacts; Q = chi-square statistics.

* $p < 0.05$.

** $p < 0.01$.

*** $p < 0.001$.

$p < 0.001$), suggesting the existence of moderators. We first divided the relationship into three groups: contracts-trust ($r_c = 0.22$; 95% C.I. = 0.20–0.24), contracts-relational norms ($r_c = 0.30$; 95% C.I. = 0.25–0.33), and contracts-relational governance ($r_c = 0.23$; 95% C.I. = 0.19–0.26). The results indicate that the effect size is higher in the contract-relational norms relationship than in the contracts-trust relationship.

We found that the relationship between contract and trust is higher in China ($r_c = 0.33$; 95% C.I. = 0.29–0.36) than in the United States ($r_c = -0.04$; 95% C.I. = -0.12–0.04), Hong Kong

($r_c = -0.03$; 95% C.I. = -0.11–0.06), the Netherlands ($r_c = 0.04$; 95% C.I. = -0.05–0.13), and Germany ($r_c = 0.16$; 95% C.I. = 0.08–0.24). The results thus reveal that the contracts-trust relationship is probably moderated by institutional environments. It should be noted however that the contracts-trust relationship in the United States, Hong Kong, and the Netherlands is not significant.

We then looked at the moderating effects of relationship types. We found that the contracts-trust relationship is not significant in cross-border IORs ($r_c = 0.04$; 95% C.I. = -0.03–0.12) and strategic alliances ($r_c = 0.06$; 95% C.I. = -0.01–0.13). However, the

contracts–trust relationship is positive in outsourcing ($r_c = 0.38$; 95% C.I. = 0.31–0.44), buyer–supplier ($r_c = 0.22$; 95% C.I. = 0.18–0.26), and distributor–manufacturer IORs ($r_c = 0.40$; 95% C.I. = 0.33–0.47). These contrasts indicate that the contracts–trust relationship is moderated by relationship type.

In terms of relationship length, we discovered that the contracts–trust relationship is stronger in the long length group ($r_c = 0.31$; 95% C.I. = 0.26–0.36) than in the short length group ($r_c = 0.21$; 95% C.I. = 0.16–0.25). This suggests that the relationship between contract and trust is stronger when partners have cooperated for a long time.

Finally, our results show that the relationship between contracts and trust is moderated by the types of contract measurement. The difference of effect size between the “single item” ($r_c = 0.10$; 95% C.I. = 0.02–0.19) and the “formative” group ($r_c = 0.17$; 95% C.I. = 0.12–0.23) is not significant. However, the effect sizes in the “single” item group is weaker than in the “reflective” groups ($r_c = 0.25$; 95% C.I. = 0.22–0.28). The results purport that “single item” measurement of the contract may underestimate the contracts–trust relationship.

For contract–relational norms and the contractual–relational governance relationship, constrained by the small number of studies, we only detected significant moderating effects of relationship type and relationship length on the contractual–governance relationships.

In addition to the four key moderators discussed above, we tested other potential moderating effects. We found insignificant moderating effects of publication outlet (top journals vs. other sources) on the contracts–trust relationship. However, we discovered the moderating effects of publication year and industry.¹⁷ We revealed that the effect size of the contracts–trust relationship was stronger in the year 2010 and after (0.32; 95% C.I. = 0.29–0.35) than in the year 2009 and before (0.05; 95% C.I. = 0.01–0.10). The contractual–relational governance relationship is also moderated by industry type. The contracts–trust relationship is higher in service ($r_c = 0.37$; 95% C.I. = 0.30–0.43) than in manufacturing industry ($r_c = 0.20$; 95% C.I. = 0.16–0.23). The contract–relational governance relationship is also higher in service ($r_c = 0.71$; 95% C.I. = 0.65–0.76) than in manufacturing industry ($r_c = 0.09$; 95% C.I. = 0.03–0.14).

4.3. Robustness checks

To further understand the moderating effects of institutional environments, relationship type, relationship length, and construct measurement, we used an alternative meta-regression technique to complement the sub-group analysis (Geyskens et al., 2009; Heugens and Lander, 2009). Meta-regression is designed to assess the relationships between effect size and moderators (Lipsey and Wilson, 2001). It is similar to the traditional multiple regression method employed in primary studies (Carney et al., 2013). The difference is that the covariates are at the study level rather than at the subject level, and the dependent variable is the effect size rather than the subject scores (Borenstein et al., 2011). In addition, compared with sub-group analysis, meta-regression can control the correlations among moderators and separate effects of different moderators (Geyskens et al., 2009).

For each selected study, we created variables to measure institutional environments, relationship type, relationship length, and

¹⁷ We did not investigate the moderating effects of data sources (primary vs. secondary data), design (cross-sectional vs. longitudinal/experimental), and year of sample because most of the empirical studies use cross-sectional primary data, and the year of sampling is rarely reported.

construct measurements.¹⁸ For institutional environments, we created two variables (rule of law and enforcing efficiency) to measure formal institutional environments (Kaufmann et al., 2005; Carney et al., 2011) and three variables (uncertainty avoidance, power distance, and individualism) to measure informal institutional environments (Handley and Angst, 2014; Hofstede, 2001; Steenkamp and Geyskens, 2012).¹⁹ Specifically, if one study was conducted in the United States, we used the values of the United States on rule of law, enforcing contract, uncertainty avoidance, individualism, and power distance to represent the five variables. For relationship type, we created several dummy variables such as the buyer–supplier IOR (= 1 if the unit of analysis is buyer–supplier IOR; = 0, otherwise). This method has also been used in creating construct measurement dummies. For relationship length, we created the relationship length variable by using the mean of relationship length reported by each study (for those studies that did not report the mean of relationship length, we treated them as missing values). Compared with sub-group analysis which only aggregates the effect size (i.e., correlation) of the studies within certain sub-group and compares the differences of effect sizes between different sub-groups, the meta-regression technique uses effect size (i.e., correlation) across all studies.

In the first step of meta-regression, we only included one variable as the moderator (Balkundi and Harrison, 2006) for two reasons: (1) to avoid the multicollinearity problem because the correlations between the indicators are high (see Table 6); (2) the number of studies on contracts–trust relationship is only 44. Borenstein et al. (2011: 188) asserted that the ratio of the number of studies over the number of covariates should be at least 10.²⁰ In the second step, we regressed r_c (as well as correlation r as robustness check) by including all significant moderators in the first step simultaneously (Heugens and Lander, 2009; Sterne, 2009). Results in Table 7 show that the rule of law negatively while enforcing contract positively moderates the contracts–trust relationship (M1–M2), suggesting that formal institutions negatively moderate the contracts–trust relationship. Results also reveal that power distance positively but individualism negatively moderates the contracts–trust relationship (M3–M4). In M6 and M7, we found that the moderating effects of formal institutions and individualism are still negative. However, the moderating effects of power distance become negative. Even if all variables were included, the impacts of power distance are still negative (M8). These results suggest that power distance negatively but collectivism (the opposite of individualism) positively moderates the contracts–trust relationship. Considering that in China the legal system is less efficient, the power distance is higher, and the individualism is lower, our results could provide a complementary explanation for the sub-group analysis.²¹

Moreover, we found that strategic alliance negatively moderates the contracts–trust relationship at the 0.10 level. However,

¹⁸ Sub-group analysis is useful when the moderators are categorical and not useful for continuous variables (Aguinis et al., 2011; Shirom et al., 2008) while meta-regression is useful when the moderators are continuous (Aguinis et al., 2011). Since all of our moderators except relationship length were categorical, we used sub-group analysis. Nevertheless, as a robustness check, we created continuous variables and used the meta-regression method to re-examine our findings derived from the sub-group analysis.

¹⁹ The enforcing contract in the World Bank database is measured by the number of days to solve a dispute, the number of procedures to enforce a contract, and the cost of the debt value. Thus, the higher the value of the enforcing contract, the less efficient the legal system to enforce a contract.

²⁰ Because of the small number of the studies on the contract–norms and contract–relational governance, we did not examine the moderating effects of institutional environments on the two focal relationships.

²¹ We also used correlation r as dependent variables and conducted a robustness check. The results were not changed.

Table 6
Correlation matrix of variables in meta-regression analysis.^a

	1	2	3	4	5	6	7	8	9	10
1. Enforcing contract	1.00									
2. Rule of law	-.79	1.00								
3. Power distance	.67	-.90	1.00							
4. Individualism	-.58	.81	-.88	1.00						
5. Uncertainty avoidance	-.24	.63	-.73	.50	1.00					
6. Buyer–supplier (dummy)	.27	-.29	.33	-.25	-.25	1.00				
7. Strategic alliance (dummy)	-.13	.21	-.24	.32	.10	-.29	1.00			
8. Cross-border (dummy)	-.09	.15	-.17	.29	.01	-.26	-.13	1.00		
9. Relationship length	.39	-.43	.32	-.24	-.25	.12	-.08	.28	1.00	
10. Reflective measurement	.41	-.38	.39	-.22	-.32	.32	-.38	.05	.28	1.00

^a N = 40 for all correlations except the correlations between relationship length and other variables (N = 22 for these correlations).

the moderating effect becomes non-significant when formal and informal institutional variables are included. In addition, we discovered that the moderating effects of the buyer–supplier IOR, cross-border IOR, relationship length, and reflective measurement are not significant (not shown in Table 7, available on request).

5. Discussion

The objectives of this study were twofold: (1) to investigate how contractual and relational governance interplay; (2) to explore how the interplay between contractual and relational governance is moderated by theoretical and methodological factors. By categorizing and aggregating previous findings, we have provided a more accurate assessment of the relationships between contractual and relational governance and have identified important factors moderating their relationships. Our findings thus provide new insights on the contractual–relational governance relationships and contribute to both theory and practice.

5.1. Interplay of contractual and relational governance: complementary vs. substitute

This study contributes to the debate on the interplay between contractual and relational governance in three ways. First, departing from extant studies, we have categorized the arguments of contractual–relational governance interplay into (1) the mutual relationships of the two governance mechanisms and (2) their joint impact on performance. Most existing studies do not make this distinction when investigating the “complementary vs. substitute” relationships of contractual and relational governance. For example, when discussing the joint impacts of contract and trust on innovation performance, Wang et al. (2011) only discussed why contracts and trust are complementary and substitute,

without discussing why the complementary (substitute) contracts and trust increase (decrease) innovation performance. Similarly, Li et al. (2010c) did not explain why formal and social control jointly impact cooperation performance. Most of the existing literature thus implicitly assumes that when contractual and relational governance are reinforcing or offsetting each other, their joint effects will increase or decrease performance automatically. However, our study challenges this assumption. Our findings reveal that, although trust and relational norms increase contracts, contracts could not complement them to suppress opportunism because contracts are not significantly related to opportunism. This finding suggests that the logic why contractual and relational governance are complementary is not always in line with the logic why they interact to safeguard against opportunism. Therefore, we cannot replace the logic of why contractual and relational governance matter to performance to the logic of why contractual and relational governance matter to each other. The categorization we introduced clarifies how contractual governance, relational governance, and performance are related to each other. We believe this clarification may help scholars to better position their studies and the exact nature of their contribution.

Second, we have contributed to the debate on the mutual relationships between contractual and relational governance by showing that, overall, contractual and relational governance tend to complement rather than substitute each other. A close reading of the studies that have posited a substitutive relationship between contracts and relational governance reveals a focus, albeit a generally implicit one, on the control function of contracts (e.g., Malhotra and Murnighan, 2002; Sitkin and Roth, 1993; Tenbrunsel and Messick, 1999). Substitute arguments have held that contracts may signal a lack of trust or may conflict with relational governance (Ghoshal and Moran, 1996; Macaulay, 1963; Rai et al., 2012) and relational governance may prevent the use of

Table 7
Meta-analytic regression results of contracts–trust relationship.^a

Model	M1	M2	M3	M4	M5	M6	M7	M8
Rule of law	-.109*** (.030 ^b)					-.190** (.069)		-.127 (.085)
Enforcing contract		.023*** (.006)					.022* (.008)	.013 (.010)
Power distance			.004 [†] (.002)				-.006* (.004)	-.010 [†] (.004)
Individualism				-.003** (.001)			-.005 [†] (.002)	-.005 [†] (.002)
Strategic alliance					-.161 [†] (.094)	-.104 (.094)	-.096 (.095)	-.102 (.093)
K	41	41	40	40	44	40	40	40
τ ²	.031	.031	.037	.034	.041	.027	.028	.027
Adjust R ² (%)	28.99	29.82	13.43	22.22	4.67	36.45	34.41	37.71
Model F	–	–	–	–	–	5.26**	4.98**	4.59**
I ² _{res} (%)	84.39	83.86	86.49	85.74	88.00	83.02	83.45	82.95

^a Only significant results are reported in this table.

^b Number in the parentheses represents standard error of coefficient.

* p < 0.05.

** p < 0.01.

*** p < 0.001.

[†] p < 0.10.

contractual enforcement (Antia and Frazier, 2001; Ghoshal and Moran, 1996). However, these arguments have been built on the assumption that the main function of contracts is control. In Ghoshal and Moran's (1996: 24) words, "the use of rational control signals that they are neither trusted nor trustworthy to behave appropriately without such controls." Strict control by means of contractual provisions evokes the question of the partners' good intentions (Faems et al., 2008; Malhotra, 2009). While the control function of contracts has been emphasized by early literature, the coordination function of contracts have been highlighted in recent studies (Faems et al., 2008; Malhotra and Lumineau, 2011; Schepker et al., 2014; Vlaar et al., 2007). When contracts also support coordination, they may not signal a lack of trust but a commitment to the relationship (Woolthuis et al., 2005). Thus, contracts or the contracting process could be valuable in facilitating mutual understanding and improving trust (Blomqvist et al., 2005; Carson et al., 2006) and relational governance could perfect contracts for adaptation (Ryall and Sampson, 2009). This logic may help to understand why our findings demonstrate support for the complementarity of contractual and relational governance. Research on the relationships between contractual and relational governance may be at a transition point. Instead of studying contractual and relational governance as two constructs, we believe that an important step to move forward will be to disentangle distinct facets for each governance mechanism. We specifically encourage scholars to study how the nature of each facet of governance mechanisms enables firms to interpret and process information differently. The different contractual dimensions may specifically influence the way information is interpreted and how firms make sense of its importance (Lumineau and Malhotra, 2011). As each contractual dimension leads firms to structure attention and frame issues in different ways, it is likely to induce specific behaviors to foster or destroy trust. We therefore see many opportunities for future research to better understand which categorizations of governance dimensions are relevant to extend the debate.

Third, we have contributed to the debate on the joint impacts of contractual and relational governance on performance. Existing literature documents inconsistent findings on the joint impacts of contractual and relational governance on performance (e.g., Li et al., 2010c; Liu et al., 2009; Poppo and Zenger, 2002; Wang et al., 2011). By categorizing performance into opportunism, satisfaction, and relationship performance, we find that contracts, trust, and relational norms complement each other in decreasing opportunism and improving satisfaction and relationship performance. The findings provide evidence for the complementary joint effects of contractual and relational governance in reducing opportunism and improving satisfaction and relationship performance. Our findings suggest that when contractual governance and relational governance are used jointly, the effects of contracts in reducing opportunism could be enhanced by the cooperative intention of the parties and the social assurance for contract execution which are generated by relational governance; furthermore, the effects of relational governance in reducing opportunism are improved by the explicit statements of expectations and punishments in contracts (Cannon et al., 2000; Liu et al., 2009; Zhou and Xu, 2012). By supporting the incentive structures of contracts, reducing the costs of contract execution, and facilitating more flexible adaptation to environmental changes, relational governance may improve the impacts of contracts on satisfaction and relationship performance (Liu et al., 2009; Yang et al., 2012). At the same time, by making each party's behaviors more observable, reducing information asymmetry, and improving justice perception, contracts may strengthen the impacts of relational governance on satisfaction and relationship performance (Liu et al., 2009; Yang et al., 2012). Thus, appropriate configurations of contractual and relational governance could make them jointly decrease opportunism and improve satisfaction

and relationship performance. Our findings are also supported by recent qualitative evidence. For instance, in their analysis of the governance of a complex procurement project in the Norwegian offshore oil and gas industry, Caniëls et al. (2012) found that the project outcome is improved only when relational governance is accompanied by contractual incentives. Faems et al. (2008) found that a positive interplay between contracts and trust is the key to the success of exploratory R&D alliance whereas a negative interplay may lead to alliance failure.

5.2. The moderating effects of institutional environments

In the existing literature, cumulative findings on the mutual relationships between contractual and relational governance are not consistent, and the theoretical explanation on the inconsistency is also limited. Typically, extant studies either overlook the contingent nature of the mutual relationships between contractual and relational governance or focus on a single moderator (Jap and Ganesan, 2000; Poppo and Zenger, 2002; Yang et al., 2011; Zhou and Poppo, 2010). We have extended this line of research by proposing that the mutual relationships between contractual and relational governance are moderated by multiple factors and we have explored the underlying mechanisms to explain the inconsistencies in the existing literature.

We first focused on the moderating effects of the institutional environments. Institutional environments are important for the effectiveness of contractual governance as they directly influence the enforcement of contracts (Zhou and Poppo, 2010) as well as for relational governance as they can signal which behaviors are acceptable (Meyer et al., 2009). However, the moderating effects of institutional environments on the mutual relationships between contractual and relational governance have been underexplored. We have advanced this stream of research by showing that both formal and informal institutions moderate the contracts–trust relationships. More specifically, our meta-regression findings indicate that the legal system and power distance negatively moderate and collectivism positively moderates the contracts–trust relationship. A way to interpret the findings is to consider that when the legal system is effective, it can provide protection for the implementation of agreements specified in contracts and, in turn, parties are less likely to break their relationship. Thus, contracts could be a substitute for the control function of relational governance when the legal system is effective (Zhou and Poppo, 2010). Moreover, the existence of an effective legal system may highlight the control function of contracts (Child and Möllering, 2003). The emphasis on control may ruin the foundation of trust, making contracts substitute trust (Malhotra and Lumineau, 2011). However, when the legal system becomes less effective, the coordination function of contracts may be more likely to be used to complement trust (Duan, 2012). Furthermore, in institutional environments with a high power distance, partners are less likely to be treated as equals and contracts are relatively more likely to be interpreted as control instruments (Wuyts and Geyskens, 2005). In this case, contracts may destroy the foundation of trust (Ghoshal and Moran, 1996). In contrast, in a collectivistic culture, social factors rather than detailed contracts are emphasized (Handley and Angst, 2014; Wuyts and Geyskens, 2005). Simple contracts are less likely to function as control mechanisms than as a commitment to the IOR. Thus, contracts are likely to complement trust in a collectivist culture. In sum, the findings demonstrate that both formal and informal institutions moderate the contracts–trust relationships. These findings challenge the traditional overemphasis on formal institutional environments in the IOR governance literature (Cavusgil et al., 2004; Luo, 2005; Zhou and Poppo, 2010). The findings also suggest that the functions of contracts may change from control to coordination when institutional environments change, thus extending

the previous literature which has argued that contracts are essentially control instruments which rely on the effectiveness of formal institutional environments (Williamson, 1985). As such, our study provides fruitful insights to understand, for instance, how contracts interact with trust in emerging economies where an effective legal system is typically lacking.

In addition to the individual impacts of the different dimensions of institutional environments, we have also identified how these dimensions jointly, in terms of country affiliation, impact the contracts–trust relationships. We have revealed that the contracts–trust relationships are complementary in China but independent in Hong Kong, the Netherlands, and the United States where formal institutions are more effective and informal institutions are less personal than those in China (Bruton and Ahlstrom, 2003; Lin et al., 2009; Whitcomb et al., 1998). Such findings can be partially explained by the meta-regression results. For example, China is characterized by a relatively ineffective legal system and strong collectivism, which positively impact the contracts–trust relationships. At the same time, China also has a high power distance, which negatively moderates the contracts–trust relationships. It seems that, overall, the positive moderating effects of the configurations of formal and informal institutional environments outweigh the negative moderating effects in China. In addition, the normative force of institutional environments may legitimize contracting as a standard practice (Suchman, 2003), and thus contracting may signal neither a lack of nor an increase of trust in countries such as the Hong Kong, the Netherlands, and the United States, which would help to explain why the contracts–trust relationships are independent in these countries.

In sum, the findings help us understand how formal and informal institutional environments individually and jointly moderate contracts–trust relationships. We propose the following:

Proposition 1. *Ceteris paribus, the mutual relationships between contractual and relational governance are negatively moderated by the legal system and power distance but are positively moderated by collectivism.*

5.3. The moderating effects of relationship type

Relationship type is important to understand firm behaviors in the interorganizational cooperation (Albers et al., 2014). To date, the contracts–trust interplay has been investigated in different types of IORs such as strategic alliances (Judge and Dooley, 2006; Lee and Cavusgil, 2006), buyer–supplier IORs (Li et al., 2010a; Liu et al., 2009), and outsourcing IORs (Carson et al., 2006; Poppo and Zenger, 2002). Although different types of IORs have varied characteristics (Hagedoorn and Heslen, 2007; Mayer and Teece, 2008), comparisons across different IOR types are rare, and we have little knowledge on how the differences between the types of IORs impact the contracts–trust interplay (Ebers and Oerlemans, 2014; Mayer and Teece, 2008). Our study has addressed this gap by showing that trust and contracts are independent in cross-border IORs and strategic alliances while complementary in vertical IORs (outsourcing, buyer–supplier, and manufacturer–distributor). One way to interpret these findings is to investigate the dual roles of exchange hazards inherent in different types of IORs in impacting the use of contractual and relational governance. On the one hand, more extensive use of contracts and trust is required to control exchange hazards (Poppo and Zenger, 2002; Roehrich and Lewis, 2014; Zhou and Poppo, 2010). On the other hand, however, too many exchange hazards make governance mechanisms difficult to establish (Burkert et al., 2012; Rindfleisch, 2000) and weaken the positive interplay between contracts and trust. Thus, the presence of exchange hazards has trade-off effects on the contracts–trust interplay, and the total effects are determined by both the need

of governance and the difficulty to establish governance mechanisms. The existing literature has shown that different types of IORs contain different degrees of exchange hazards (Burkert et al., 2012; Mayer and Teece, 2008; Rindfleisch, 2000). For example, cross-border IORs face more uncertainties caused by geographical and cultural distance (Burkert et al., 2012; Li et al., 2010c) and strategic alliances tend to contain more risk than vertical IORs caused by the underlying competitive tensions between partners (Rindfleisch, 2000). For example, through a detailed comparison of risks of technological change, demand change, opportunism, and cost overruns inherent in buyer–supplier IORs and alliances between a major aerospace manufacturer and its partners, Mayer and Teece (2008) found that each type of risk is higher in alliances than in buyer–supplier IORs. To control for the higher risks, the alliance contracts are more complex and cover broader issues than supplier contracts do. Similarly, Burkert et al. (2012) proposed that the contracts of cross-border IORs tend to be more complex than those of domestic IORs. They also asserted that higher exchange hazards in cross-border IORs lower the level of relational norms. Since alliance contracts serve more functions than supplier contracts, such as joint decision making, knowledge transfer, and learning (Mayer and Teece, 2008), the multiple functions of contracts may substitute the functions of trust and relational norms, which may be lower in alliances and cross-border IORs. On the other hand, alliances and cross-border IORs may require relational governance to complement some functions of contracts (Blomqvist et al., 2005; De Man and Roijackers, 2009; Faems et al., 2008). In total, the complementary effects may offset the substitute effects, making the relationships between contracts and relational governance independent in strategic alliances and cross-border IORs. In contrast, in vertical IORs, the effects of the complementarity may be greater than the substitute effects because partners in vertical IORs have higher interdependence between each other (Rindfleisch, 2000), and the higher interdependence requires partners to share information and make mutual adjustments (Krishnan et al., 2006), thus reducing uncertainty and facilitating relational governance. The contracts–trust interplay is therefore positive in vertical IORs. Although we remain cautious to extrapolate our results given the exploratory nature of these findings, we invite further examination of these interesting insights.

Proposition 2. *Ceteris paribus, contractual and relational governance are complementary in vertical IORs but independent in strategic alliances and cross-border IORs.*

5.4. The moderating effects of relationship length

Relationship length is an important concept in understanding IORs (Poppo et al., 2008a; Wagner and Bode, 2014) as it is closely related to both contracts and trust (Reuer and Ariño, 2007; Talay and Akdeniz, 2014; Vanneste et al., 2014). Existing literature remains divided however about the effects of relationship length on the contracts–trust relationships. Some scholars have emphasized that long-term interaction improves understanding and familiarity between cooperative parties which enhances the ability to design contractual structures (Dekker, 2004; Poppo and Zenger, 2002), while others have highlighted that increased familiarity with the partner reduces the need for extensive governance structures (Gulati and Nickerson, 2008; Reuer and Ariño, 2007; Talay and Akdeniz, 2014; Zollo et al., 2002). We have extended this tension between “ability vs. need” and have contributed to the debate by showing that relationship length positively, rather than negatively, moderates the contracts–trust relationships. Our result can be explained by considering that when relationship length is short, cooperative parties mostly rely on calculative logic (Talay and Akdeniz, 2014) and use contracts more to control opportunism

(Fryxell et al., 2002; Wagner and Bode, 2014). However, over time, repeated interaction gives each party enough time to familiarize itself with each other and possible contingencies around their relationships (Mayer and Argyres, 2004). Long-term interaction also enables each party to take advantage of accumulated trust to learn how to contract with each other (Mayer and Argyres, 2004; Ryall and Sampson, 2009). Thus, contracting becomes both less costly and more efficient when the relationship length is long. Furthermore, long-term interaction gives both parties opportunities to signal their commitment and intent to continue the relationship by displaying collaborative behaviors like revising obsolete contract clauses or making relationship-specific investments. In this case, the formal control function of contracts is relatively deemphasized (Talay and Akdeniz, 2014) while the coordination and adaptation functions will be emphasized. Thus, in such circumstances, contracts are more likely to be interpreted as relationship bonds than as a lack of trust (Woolthuis et al., 2005; Zheng et al., 2008). Thus, we propose the following:

Proposition 3. *Ceteris paribus, relationship length positively moderates the relationships between contractual and relational governance.*

5.5. Methodological findings

We have also extended the interorganizational governance literature by exploring how the variations of measurements of contracts contribute to the inconsistent findings on the mutual relationships between contractual and relational governance. Although the potential impacts of construct measurements on findings have been noted by previous studies (Geyskens et al., 2006; Macher and Richman, 2008), few studies have analyzed this issue. In particular, contractual governance, as a complex construct, has been measured with great variance in the extant literature. However, the impact of measurement variations on the findings of the relationship between contractual and relational governance is unknown. In this study, we revealed that the effect sizes of the contracts–trust relationships measured by a “single item” contract is significantly lower than those measured by a “reflective” contract, suggesting that too simple measurement (single item) of contracts may underestimate the effect size of the contracts–trust relationship. The findings propose that the type of measurement may be an important source of the inconsistent findings on the relationships of contractual–relational governance. Scholars, therefore, need to be cautious in choosing their measurement methods of contracts in future governance research and, on the basis of our study, we recommend avoiding a single-item measurement.

5.6. Managerial implications

This study provides several important implications that supply chain managers should consider when managing IORs. While prior research has pointed out the role of both contractual and relational governance as essential ingredients of IORs (Li et al., 2010c; Liu et al., 2009; Lumineau and Henderson, 2012), we have contributed to a better understanding of how to combine these governance mechanisms. In our results, not only can opportunism be reduced by contracts, trust, and relational norms but also satisfaction and relationship performance can be improved by these governance mechanisms. Our findings thus provide other hints for firms to adopt contractual and relational governance. First, in addition to contracts, supply chain managers should value the importance of developing trust and relational norms for performance improvement and opportunism reduction. We discerned that contracts do not reduce opportunism directly but reduce it indirectly by increasing trust and relational norms. Therefore,

managers need to take advantage of contracts to improve trust and relational norms to reduce opportunism. Second, managers need to consider both formal and informal institutional environments when implementing contractual and relational governance. If their partners are located in countries with an effective legal system such as the United States, Hong Kong, and the Netherlands, they need to treat contractual and relational governance independently and sign a contract no matter how strong their relationships are. However, this does not mean managers do not need contracts in countries with less effective legal systems such as China. In such countries, contracts can be used mostly as a social control to coordinate relationships and thus complement relational governance. Third, we suggest managers develop long-term rather than arm's-length relationships with their important partners. As relationship length increases, firms can accumulate experience in contracting and relationship building and develop relational capabilities through frequent interaction with their partners. Frequent interactions in long-term IORs may also lower the probability that partners interpret the contract as distrust. Finally, we suggest managers match governance mechanisms and exchange hazards inherent in their relationship types. If they develop IORs like strategic alliances and cross-border partnerships, which often contain much uncertainty, managers need to take conservative attitudes and develop contracts and relational governance independently. Otherwise, managers who are in charge of IORs like outsourcing, buyer–supplier, and manufacturing–distributor can configure contractual and relational governance properly to make them exert synergic effects.

5.7. Limitations and future research

Although this study contributes to supply chain governance literature and practice, several limitations exist and await future research to address. First, we used a broad-brush approach by treating contracts, trust, and norms as unidimensional constructs and viewing all the constructs in different studies equally. Nor did we investigate the relationships between different types (provisions or dimensions) of contracts and trust with meta-analysis. Research on how different functions of contracts interact with various types of trust is an important emerging area (Malhotra and Lumineau, 2011; Schepker et al., 2014; Weber et al., 2011). However, classifications of the types and dimensions of contracts (Luo, 2005; Malhotra and Lumineau, 2011; Weber et al., 2011) and trust (Jiang et al., 2013; Lui and Ngo, 2004; Seppänen et al., 2007) are not consistent in the existing literature, and the number of studies on the topics was too small for us to conduct meta-analysis. Future research needs to further clarify the types and dimensions of contractual and trust and investigate how different dimensions of contracts and trust interact with each other.

Second, our meta-analysis is based on the correlations and does not reflect the causal relationships between contractual and relational governance. To date, the issue has not been well resolved as most quantitative studies on the interplay of contractual and relational governance are based on cross-sectional survey data rather than longitudinal data (see Malhotra and Lumineau (2011) and Palmatier et al. (2007) for exceptions). Our analysis is static and is silent on the dynamic process of how the roles and the interplay of contractual and relational governance evolve as the interorganizational cooperation proceeds. However, the interplay of contractual and relational governance may change in different phases of cooperation (Olander et al., 2010). To better understand the dynamic interplay of contractual and relational governance, a process model is called upon (e.g., Faems et al., 2008; Roehrich and Lewis, 2014; Zheng et al., 2008). In sum, we suggest that more efforts should be taken to either conduct longitudinal research or develop a process model via qualitative studies to extend our understanding on

Table 8
A research agenda: The “5Ws and H” approach.

	What?	Who?	Where?	Why?	When?	How?
<i>Key concepts</i>	Functions and dimensions of contractual and relational governance	Individuals and teams: roles, personal and professional interests, cognitive orientation, experience, bargaining power Firms: size, diversity, distance, contracting capabilities, public vs. private, parties' history (quantity and quality of experience) Involvement of third parties	Contextual factors: social-economic dimensions, informal institutions, political and legal institutions, environmental dynamism and uncertainty	Importance of governing the relationship	Temporal factors: timing of negotiations, phases of cooperation (contract drafting vs. contract enforcement)	Ways to develop, implement, and enforce governance mechanisms
<i>Possible research questions</i>	<ul style="list-style-type: none"> •How do different dimensions of contracts impact different dimensions of relational governance and vice versa? •How do different dimensions of contractual and relational governance jointly impact opportunism, relationship performance, and innovation? 	<ul style="list-style-type: none"> •How do executive preferences of governance mode moderate the interplay of contracts and relational governance? •How does interpersonal trust of boundary spanners influence the interplay of interfirm contracts and relational governance? •How does the involvement of specific actors influence the contracts-trust relationship? 	<ul style="list-style-type: none"> •How and why do contracts and relational governance interact differently in specific contexts? •How do characteristics of the legal system (e.g., stability, completeness, enforcement) moderate the contracts-relational governance interplay? •How does national culture moderate the contracts-relational governance interplay? 	<ul style="list-style-type: none"> •How does the nature of the transaction call for governance mechanisms? •What are the appropriation hazards and the risk of opportunism? 	<ul style="list-style-type: none"> •How does the phase of cooperation moderate the contracts-relational governance interplay? •How do relationship length and contracting experience moderate the contracts-relational governance relationship? •How do partners learn to use the contract and when do they renegotiate? •How does trust develop over time? •How do different dimensions of contracts and relational governance coevolve? 	<ul style="list-style-type: none"> •How is the contract used in practice? •What is the role devoted to the contract? •What are the non-legal properties of the contract? •How does fairness moderate contracts-trust relationship?
<i>Examples</i>	Interaction between the control and coordination functions of contracts and benevolence, integrity, and ability trust	Multi-level analysis between team composition (mix of executives, engineers, boundary spanners, lawyers and supply chain managers) and the firms' profile	Comparison between emerging economies vs. developed economies	Stakes, scope, and uncertainty of the transaction; existence of alternative mechanisms (administrative systems, boards of directors, etc.)	Dynamic analysis of the interplay between governance mechanisms	Flexible vs. rigid use of contracts Maximization of the beneficial effects of governance mechanisms and minimization of their detrimental effects
<i>Theoretical extensions and connections</i>	Information processing theory, regulatory focus theory, framing theory	Information economics, relational exchange theory, reputation and power theory	Institutional theory, international business literature, law literature	Transaction cost economics, agency theory	Relational contracts (shadow of future), organizational learning theory	Fairness theory, organizational justice theory
<i>Examples of studies having started to explore these issues</i>	Malhotra and Lumineau (2011), Reuer and Ariño (2007)	Argyres and Mayer (2007), Reuer et al. (2013), Zaheer et al. (1998); Zheng et al. (2008)	Abdi and Aulakh (2012), Greif (1993), Handley and Angst (2014), Zhou and Poppo (2010)	Williamson (1993)	De Man and Roijackers (2009), Jap and Ganesan (2000), Lumineau et al. (2011)	Faems et al. (2008); Gilson et al. (2010); Poppo and Zhou (2014); Suchman (2003)

the dynamic nature of the interplay of contractual and relational governance.

Third, limited by the meta-analytic technique, we could not explore the influence of endogeneity issues in our findings. Besides some exceptions (Parmigiani and Mitchell, 2010; Poppo and Zenger, 2002; Poppo et al., 2008b), most studies on the contractual–relational governance interplay did not take endogeneity issues into account. This is a serious limitation of existing literature (including our analysis). In fact, it may be that contracts and relational governance are not exogenous but depend on the expectation of transaction hazards and prior history (Lumineau and Quélin, 2012; Poppo and Zenger, 2002; Poppo et al., 2008b). Biased coefficients caused by endogeneity issues may bias our understanding of the true nature of the interplay of contractual and relational governance. Thus, we invite future scholars to take endogeneity issues into account from the start of their research design and to control the issues using typical methods such as two-stage or three-stage least square models (Bascle, 2008; Hamilton and Nickerson, 2003; Shaver, 1998).

Fourth, we acknowledge that our measurements of institutional environment, relationship type, and relationship length are somewhat crude. Although the measurements are reasonable and have been used in prior research (e.g., Carney et al., 2011; Rindfleisch, 2000; Van Essen et al., 2012; Wagner and Bode, 2014), future research using finer measurements of these constructs is needed to reexamine our findings about their moderating effects on the contractual–relational governance interplay.

Finally, because information revealed in existing literature is limited, we have only focused on four moderators. It may be that other factors such as contractual capabilities (Argyres and Mayer, 2007) and executive preferences (Reuer et al., 2013) also moderate the contractual–relational governance relationship. We also did not investigate how multiple moderators jointly impact the contractual–relational governance interplay. For example, we did not investigate how relationship length impacts the moderating

effects of relationship types on the contractual–relational governance interplay. For the same reason, we did not investigate how the joint impacts of contractual and relational governance on performance vary in different contexts. Thus, it is still a fertile research avenue to investigate the moderating mechanisms on the relationships between contractual and relational governance as well as the impacts of the governance mechanisms on performance. Meanwhile, we suggest future empirical studies to report as much information as possible, particularly the correlations among independent and dependent variables to assist future meta-analysis.

Based on the above discussion, we propose a research agenda for future research on the interplay of contractual and relational governance (see Table 8). We have organized our insights around six non-exclusive questions.

6. Conclusion

The importance of contractual and relational governance for effective IORs has been shown critical in the supply chain literature. As the first systematic investigation of the interplay of contractual and relational governance, this study paves the way for knowledge accumulation by showing that this interplay is moderated by multiple factors. Our findings extend our understanding on how institutional environments, relationship type, and relational length influence the interplay between contractual and relational governance. Scholars could examine our propositions in new contexts in the future. They could also adopt a temporal perspective to further investigate the causal relationships between contractual and relational governance. In short, our research highlights many interesting potential avenues on the contractual–relational governance interplay, and we invite more research to further extend our understanding of this important issue for both scholars and managers.

Appendix A. Information about main quantitative studies on contractual-relational governance relationships

Study	Journal	Methods	Research questions	Main findings
Achrol and Gundlach (1999)	Journal of Retailing	Simulation	The interaction effects of contract and social control on opportunism	The interaction is not significant
Arranz and de Arroyabe (2012)	British Journal of Management	Survey	Complementary roles of contract and relational governance on firm performance	Complementary
Burkert et al. (2012)	Industrial Marketing Management	Survey	The impact of internationality has impacts on governance, customer satisfaction and commitment, and their relationships	Contract improves trust
Cai and Yang (2008)	Journal of Supply Chain Management	Survey	Antecedents of cooperative norms	Contract improves cooperative norms
Cannon et al. (2000)	Journal of the Academy of Marketing Science	Survey	Performance implication of contract, norms (individually and collectively) under different conditions	When transaction uncertainty is high, increase plural governance will enhance firm performance
Carson et al. (2006)	Academy of Management Journal	Survey	Comparing the effectiveness of contractual and relational governance	Not simply substitute, each has its own advantage in a specific situation
Cavusgil et al. (2004)	Journal of International Marketing	Survey	Investigating the governance mechanisms against opportunism in a cross-border relationship	Joint use of trust and contract is not significantly associated with opportunism
Charterina and Landeta (2010)	European Journal of Innovation Management	Survey	The impact of relational factors on innovation and firm performance	Contract improves trust
Chen et al. (2013a,b)	Systems Research and Behavioral Science	Survey	Impacts of trust and contract on new venture performance	Trust and contract substitutes for economic performance but not for relationship performance (not significant)

Study	Journal	Methods	Research questions	Main findings
De Jong and Woolthuis (2008)	Industry and Innovation	Survey	The institutional arrangement for the innovation process, particularly trust	Contract decreases trust
de Reuver and Bouwman (2012)	Journal of Business Research	Survey	A phasing model of service innovation and governance	Trust decrease contract in commercialization phase
Ferguson et al. (2005)	Journal of the Academy of Marketing Science	Survey	The relative importance of contractual and relational governance on exchange performance	Relational governance is more efficient than contractual governance for exchange performance
Gençtürk and Aulakh (2007)	Journal of International Marketing	Survey	The antecedents and outcomes of control and norm based governance	Formalization decreases relational norms
Goo et al. (2009)	MIS Quarterly	Survey	Whether contract and relational governance complement each other	All characteristics but change characteristic of contract complement relational governance.
Handfield and Bechtel (2002)	Industrial Marketing Management	Survey	How to create new relational forms based on trust	The impacts of contract on trust are not significant.
Jayaraman et al. (2013)	Production and Operations Management	Survey	Antecedents and consequences of established governance	Relational governance complements structural governance
Jiang et al. (2013)	Industrial Marketing Management	Survey	How trust and contract impact knowledge leakage	Goodwill trust and competence trust have different interaction effects with the contract
Judge and Dooley (2006)	British Journal of Management	Survey	Factors associated with opportunistic behaviors and alliance performance	Trustworthiness and contract negatively related to opportunistic behavior
Lee and Cavusgil (2006)	Journal of Business Research	Survey	The impacts of governance structure on alliance performance	Relational governance is more effective than contractual governance, particularly under high environmental turbulence pressure
Li et al. (2010a)	Strategic Management Journal	Survey	The impact of relational and contractual governance on the explicit and tacit knowledge acquisition	Contract complements relational governance
Li et al. (2010c)	Journal of Operations Management	Survey	The antecedents of formal and social control and the relationship between the two controls	Substitutes in the domestic buyer–supplier relationship but neither complements nor substitutes in the international relationship
Liu et al. (2009)	Journal of Operations Management	Survey	Different roles of transactional and relational governance in opportunism and relationship performance	Complementary
Liu et al. (2008)	Journal of Business & Industrial Marketing	Survey	How a distributor's trust impacts control and values	Honest and benevolence trust have different impacts on the contract
Lui and Ngo (2004)	Journal of Management	Survey	Whether contract and trust complement or substitute	Depends on trust level and type
Lumineau and Henderson (2012)	Journal of Operations Management	Archive data	The impact of relational experience and contracts on negotiation strategy	Control contracts weaken the impacts of cooperative experience on cooperation strategy but strengthen the impacts of competitive experience on cooperation strategy. Coordination contracts reinforce the positive effect of cooperative experience
Lusch and Brown (1996)	Journal of Marketing	Survey	The impact of dependence structure on the contract which further impacts relational behavior	The relationship between contract and relational behavior is not significant
Malhotra and Lumineau (2011)	Academy of Management Journal	Archive data	How contract structure impacts goodwill-trust, competence trust, and continued cooperation	Control provision of contract increase competence-trust but reduce goodwill-trust; coordination provision increase competence-trust
Mellewigt et al. (2007)	Managerial and Decision Economics	Survey	Moderating the role of trust on the relationship of concern and contractual complexity	Trust weakens the linkage between control concern and contractual complexity but strengthens the linkage between coordination concern and contractual complexity
Mesquita and Brush (2008)	Academy of Management Journal	Survey	Different functions of contractual and relational governance in different contexts	Contractual and relational governance complement in production efficiency but not in negotiation efficiency
Poppo and Zenger (2002)	Strategic Management Journal	Survey	Relationships between contract and relational governance	Complements
Rai et al. (2012)	Journal of MIS	Survey	The impacts of contractual and relational governance on satisfaction	Contractual and relational governance substitute for BPO satisfaction
Schilke and Cook (2014)	Strategic Management Journal	Survey	Sources of organizational trustworthiness	Contract has high predictive power when reputation is lacking

Study	Journal	Methods	Research questions	Main findings
Ren et al. (2010)	Industrial Marketing Management	Survey	An integrated model of managing channel relationship	Contract and TSI are positively related to trust
Strätling et al. (2012)	International Small Business Journal	Survey	The impact of contract on trust	Neo-class contract erodes trust
Wang et al. (2011)	International Journal of Production Economics	Survey	How contract and trust impact innovation	Contract and trust are substitutes
Wu et al. (2007)	Journal of International Business Studies	Survey	The impact of contract, trust, and knowledge sharing on opportunism in export channel	Trust is the only way to curtail opportunism
Yang et al. (2012a)	International Journal of Production Research	Survey	How firms follow up outsourcing decisions to enhance competitiveness through governance mechanisms	The relationship of contract and relational adaptation is not significant
Yang et al. (2012)	Journal of Marketing	Survey	Roles of two governance strategies in bridging institutional environmental and channel performance	Contractual and relational governance are complementary for performance
Yang et al. (2011)	Industrial Marketing Management	Survey	When formal control and trust matter	Formal control and trust complement each other only with a weak tie.
Zhang and Zhou (2013)	Industrial Marketing Management	Survey	How formal and informal governance impact interfirm knowledge transfer in China	Trust and contract complements in explaining knowledge transfer
Zhang et al. (2012)	Chinese Management Studies	Survey	The effects of contract and relational mechanisms on knowledge trading along supply chain	Contract positively moderates the relationship between relational mechanism and knowledge trading
Zhang and Hu (2011)	China Agricultural Economic Review	Survey	The relationship among contract, trust, and environment	Contract and trust function as complements
Zhao and Wang (2011)	Journal of Strategic Marketing	Survey	How relational specific investment impacts channel performance through contract and trust	Trust and contract complement in explaining relationship performance
Zhou and Poppo (2010)	Journal of International Business Studies	Survey	How legal enforceability moderates the relationship between contract and relational reliability	Legal enforceability weakens the impact of the contract on relational reliability but not the effects of relational reliability on the contract
Zhou and Xu (2012)	Journal of International Business Studies	Survey	How detailed contracts and centralized control interact with relational governance to curb opportunism	Relational governance complements with the contract but substitutes with control in curbing opportunism

Appendix B. Representative qualitative studies on contractual and relational governance in IORs

Study	Research objective	Context	No. of case(s)	Key findings
Bastl et al. (2012)	How the adoption of servitization affects buyer–supplier relationships?	Servitization	Single case	Adoption of servitization strategy brings increased complexity and uncertainty, making contractual governance less effective. Trust acts as a complementary form of governance. However, due to the inconsistency of provider's strategy, establishment of relational norms is not effective
Blomqvist et al. (2005)	The roles of trust and contracts in asymmetric R&D collaboration	R&D cooperation between asymmetric partners	Single case	Investment in detailed contracts does not guarantee success. However, contracting process may be valuable in creating trust by better understanding each other and contract can improve trust by stating future expectation explicitly.
Caniëls et al. (2012)	The interactive impacts of governance mechanisms on project outcomes	Complex procurement project in Norwegian offshore oil and gas industry	Single case	Trust in itself does not guarantee an effective and beneficial interplay of all three mechanisms in a way that automatically generates project progress and desired outcomes Trust and relational governance are only beneficial for project outcomes when they are accompanied by contractual incentives and control systems
Cao et al. (2013)	How do organizations balance relational and contractual governance to achieve ambidexterity in IT outsourcing governance?	IT outsourcing arrangement of client organization	Single case	Balance of contractual and relational governance is effective in improving efficiency and reducing costs. Emphasis on contracts leads to inflexibility while emphasis on trust leads to quality problems and neglect of critical activities

Study	Research objective	Context	No. of case(s)	Key findings
De Man and Roijackers (2009)	In particular situation, which approach, control and trust, is appropriate?	Five alliance in financial, consumer goods, retail, construction and agriculture sectors	Five cases	Whether control and trust are substitutes or complements depends on the level and type of risk an alliance faces. In high risk situations companies use complex combinations of control and trust in a complementary way, rather than loose relationships as suggested by current thinking
Duan (2012)	The mechanisms through which formal contracts and relational governance complement each other	Multiple industries, from textile machinery to the dyeing industry	Five cases	Chinese managers consider reciprocating as the primordial principle to fulfill in business exchange raises the issue of how the frame of contracts helps develop the idea of reciprocity and trust. Formal contracts are used even when they are not legally enforceable because by defining the rights and obligations in an exchange, contracts reinforce reciprocity in long-term exchange relationships
Faems et al. (2008)	1. How does the content of contracts influence trust dynamics at both operational and managerial levels in alliances? How does the application of contracts coevolve with trust dynamics at both operational and managerial levels in alliances?	Exploratory R&D alliance	Two cases	In an exploratory R&D alliance: 1. A broad contractual interface structure facilitates joint sensemaking on unanticipated technological problems at the operational level, which in turn positively influences goodwill trust dynamics at the managerial level 2. Positive (negative) goodwill trust dynamics at the managerial level increase the probability of flexible (rigid) contract application A rigid application of the contract is likely to trigger negative (positive) trust dynamics at both operational and managerial levels, which in turn leads to increasing rigidity regarding contract application
Frankel et al. (1996)	The role of formal contracts and informal social contracts on logistical alliances	Logistical alliance in USA	Three cases	Both formal and informal control mechanisms are important. Contracts play an important role in the collaboration integral to initiating strategic alliances while informal control reflect the true nature of long-term commitment to the alliance
Huber et al. (2013)	How and why complementarity and substitution form over time between contractual and relational governance	Four IS outsourcing projects of human resource department of a German bank	Four cases	1. The relationship between contractual and relational governance oscillated episodically between complementarity and substitution Changes in this relationship were triggered by contextual events in many cases
Mahapatra et al. (2010)	The relationships among business context, governance structure, and exchange practices in a dyadic context	The exchanges between an OEM and five of its strategic suppliers that operate in high-end, short product life cycle motorbike industry	Single case	1. innovative, short life cycle, high end products with significant business uncertainties limit the opportunities for developing long-term, partnership oriented relational governance structures 2. This motivates higher reliance on periodically renewable, formal contracts for governing the exchanges. 3. Such contracts in case of dyads with low strategic interdependence are difficult to adjust, and due to unbalanced power structure the contracts mainly safeguard the interests of the dominant party 4. In case of dyads with high strategic interdependence, contracts are continually adjusted for higher governance effectiveness
Olander et al. (2010)	Explore the dynamics of relational and contractual governance mechanisms	Buyer–supplier R&D collaboration	Four cases	The relative importance of contractual and relational governance varies during the different phases of collaboration projects.
Olsen et al. (2005)	Investigate the use of contracts and governance mechanisms for handling complex procurements	Norwegian oil and gas industry	Two cases	The complementary nature of governance mechanisms basically means that combinations of mechanisms are better than relying on single mechanisms. Different governance mechanisms are thus not only complementary, but they can also function as facilitators for each other
Qi and Chau (2012)	To shed light on the relationship and contract issues of IT outsourcing and their impact on IT outsourcing success	IT outsourcing in China and Hong Kong	Two cases	Both relationship and contract are necessary and effective governance mechanisms in managing IT outsourcing deals
Roehrich and Lewis (2014)	The relationship between systemic complexity and complexity of contractual and relational exchange governance	Procuring complex performance (PCP) arrangements	Two cases	Joint use of simplified contractual governance and relational governance may be more effective to counteract complexity
Woolthuis et al. (2005)	To uncover how contract and trust relate to each other, and how this affects relationship outcome	Collaborative innovation	Four cases	Trust and contracts can be both substitutes and complements. Whether contracts and trust are substitutes or complements depends on the intentions with which contracts are drawn up and used. Relationships characterized by trust were more successful.

Study	Research objective	Context	No. of case(s)	Key findings
Zheng et al. (2008)	How contractual and relational governance mechanisms are deployed in managing complex, long-term public-private supply arrangements.	UK Private Finance Initiative (PFI) projects	Two cases	1. Relational and contractual mechanisms are complementary forms of exchange governance 2. Relational assumptions, experiences and intentions of all parties appear to actively frame whether the contract and contracting process is interpreted as a sign of distrust or a written manifestation of commitment Relational governance follows an incremental, cumulative trajectory. Contractual mechanisms are also incremental but cannot move with the same degree of freedom

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