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Governance and moderating effects of environmental uncertainty: The impact on performance in horizontal logistics cooperations

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ABSTRACT

Governance mechanisms are viewed as critical to prevent opportunism in horizontal cooperations, as they are more conflicting in nature than vertical cooperations. Although these forms of cooperations become particularly popular under uncertain conditions, they have not yet been analyzed in depth with respect to the efficiency of governance mechanisms under those uncertain external conditions. In this paper, we therefore seek to extend the stream of research on logistics research by systematically investigating the impact of perceived environmental uncertainty on the effectiveness of governance mechanisms in horizontal cooperations. Specifically, the paper examines relational and transactional mechanisms of governance. We collected data from 181 logistics service providers (LSPs) operating in Africa and the Middle East and analyzed the moderating effect of uncertainty on governance mechanisms using the partial least squares method. Our results suggest that relational, as well as transactional governance mechanisms, alone are not sufficient to prevent opportunism if the environmental conditions are stable. However, if the environment surrounding these cooperations is uncertain, transactional, as well as relational forms of governance become efficient governance mechanisms. To facilitate further the interpretation of the findings from our survey analysis, in-depth interviews were conducted with selected companies from our sample.

KEYWORDS: horizontal cooperations · environmental uncertainty · logistics service providers · emerging economies

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1 INTRODUCTION

Horizontal cooperations are collaboration between firms operating at the same level in the market [6, 149] and thus under absence of primary performance relations [99, 107]. In contrast to vertical cooperations the relation between firms in horizontal cooperations is not in the axis of product flow but transversely, linking competitors or firms producing complements [11, 22]. Similar types of processes and a close resemblance between the customers of the firms are typical [103]. The aim of horizontal cooperations is to create a situation that benefits the cooperating firms more than solitary activities [33, 110]. To sum it up horizontal cooperations can be defined as *inter-organizational cooperation between two or more firms operating at the same level in the market and sharing commonalities in processes or customer needs in such a way that all involved parties can benefit from the cooperation for example due to economies of scale and use of synergies*. Such cooperations have witnessed a fast-growing interest of practitioners and researchers alike particularly in emerging economies, as they provide a viable way for firms to enhance their market penetration capabilities even under higher levels of

economic volatility, weak infrastructure and poor working institutions [69, 107, 108]. However, due to lower levels of reciprocal interdependencies, horizontal cooperations usually display greater opportunism than vertical cooperations [107, 117]. Accordingly, horizontal cooperations are considered more complex than vertical cooperations and extremely difficult to govern [150], which is also reflected in failure rates of up to 70 % [133, 145]. As a result, the identification of suitable governance mechanisms to restrain opportunism and improve performance are essential in horizontal cooperations. Appropriate governance mechanisms result in long-term stability and superior economic results [37, 86]. However, while research on different governance mechanisms like transactional and relational governance mechanisms in vertical cooperations is well established in [53, 82, 83, 86, 154, 159, 161] only few contributions have been made in regards to the different governance mechanisms applicable to horizontal cooperations [123, 144, 145].

One component affecting the governance of horizontal cooperations is the perception of environmental uncertainties surrounding the individual companies. Several studies reveal that environmental uncertainty moderates the effectiveness of governance mechanisms [18, 111, 146, 155]. Luo [88] for example finds that poor performance of cooperations is more likely to arise in emerging economies, where contract law is not enforced and information cannot be verified easily. Subsequently cooperations in emerging economies face major challenges in governance. This makes the identification and understanding of effective governance mechanisms for horizontal cooperations crucial in emerging economies, as they differ significantly from the mechanisms in developed countries [7, 82]. To date, however, little theoretical or empirical work has addressed the role of perceived environmental uncertainty on different governance mechanisms in horizontal cooperations.

The market chosen as object of investigation is the logistics market in Africa and the Middle East. As Mason et al. [92] state, the overall pressure on logistics service providers (LSPs) is increasing. Consequently, this development is even more threatening for firms in environments marked by high uncertainty. Furthermore, the logistics market itself as a typical representative of the service market rather than a goods market is confronted with high uncertainties in the daily business. Additionally, the growing importance of the logistics market in Africa not only locally but on a macroeconomic level is underlined by the CFO of a globally active LSP doing business in Africa and Middle East. By his own account, the growth of business in these regions is above average despite the fact that the infrastructure in most regions is poorly developed. All this makes LSP in Africa and the Middle East a noteworthy research object and appropriate for answering the research gap by empirically investigating the moderating effect of perceived environmental uncertainty on transactional and relational governance mechanisms in horizontal cooperations.

For this, a partial least squares (PLS) analysis was employed to test the hypotheses in a model, encompassing relational and transactional forms of governance as well as the moderating effect of environmental uncertainty. The model is based on a sample of 181 LSP that are engaged in horizontal cooperations and operating in multiple countries across Africa and the Middle East. An overview of the companies is appended. The results of the empirical analysis are then discussed based on a review of the extant literature and further verified through expert interviews. Finally, implications for practice and guidance for future research are provided.

2 LITERATURE REVIEW

Horizontal cooperations have shown to be an emerging research field with various contributions being made by scholars towards different levels of analysis (e.g. [33, 94, 115]). Wilhelm [118], who found evidence through case studies and interviews that relational aspects such as regular meetings can reduce the competitive tension in horizontal supply chain relations in the automotive industry, has made an illustrative contribution to this research field. More recently, Muñoz-Villamizar et al. [100] developed a formal mathematical modeling approach to visualize the effects of horizontal collaboration in urban freight transportation, which is then applied to a case study. A commonly used denominator in research has been the governance of horizontal cooperations as they are more vulnerable to opportunism. For horizontal cooperations between LSPs, restraining opportunism is even more essential due to the idiosyncrasy of the industry, as competitive advantage between LSPs is often based on process-related knowledge that can easily be absorbed and imitated by cooperation partners [124]. Furthermore, the general results from Badri et al. [7] show the dissimilarity of mature and emerging markets concerning performance under uncertain conditions. In a study developing a framework for horizontal LSP cooperations, Verstrepen et al. [142] accentuate that control mechanisms of horizontal cooperations can positively influence the cooperation without examining their effects quantitatively. In 2011, Wallenburg and Raue examined relational and formal governance mechanisms in horizontal LSP cooperations to control conflicts. Their results indicate that relational and formal mechanisms govern conflict between partners, with relational governance having the higher impact. Most recently, Schmoltzi and Wallenburg [123] examined the effect of operational governance in horizontal LSP cooperations and found support that operational governance positively influences the commitment and performance. In their

research, they focus on operational formalization and mutual influence. However, these studies leave out the interrelation between transactional and relational governance and do not take into account the moderating effects of environmental uncertainty on the effectiveness of relational and transactional governance mechanisms in horizontal LSP cooperations.

2.1 Environmental Uncertainty

In vertical cooperations however, several contributions examine the effects of environmental uncertainty on governance instruments. Zhou and Poppo [162], for example, examine the role of the transactional mechanism *contracts* and the relational mechanism *trust* in Chinese buyer-supplier relationships. Their results reveal that the effectiveness of the individual governance mechanism is dependent on the level of environmental uncertainty. Wang et al. [146] recently examined the moderating effect of environmental uncertainty on *contracts* and *trust* in supply chain relationships. In similarity to previous findings, Zhou and Poppo [162] found a positive effect for *trust*, but no significant positive effect on *contracts*. Another recent contribution on the effects of environmental uncertainty has been made by Wong et al. [155], who provide empirical evidence of a contingency effect of environmental uncertainty on supply chain integration and operational performance.

2.2 Transactional Governance

In the extant literature, in particular in the supply chain context, it is commonly held that transaction based governance mechanisms are of special importance to restrain opportunism and improve performance within a business relation (e.g.; [111]). Scholars have frequently drawn on transaction cost economics (TCE), developed by Williamson in 1975, to show how transaction mechanisms can suppress opportunism in cooperations. Transactional mechanisms are manifested either in jointly agreed contractual paragraphs or in transaction-specific investments [86]. Srinivasan and Brush [128], for instance, identify contracts as a transactional mechanism to safeguard cooperations and drive supplier performance. Van Hoek [141] examines economic exchanges that cover customer-specific LSP service arrangements, such as final assembly or warehousing activities, and finds that they are positively related to the existence of formal contracts. Transactional mechanisms entailing transaction-specific investments were found to increase the performance in buyer-supplier relationships [86]. In another work, Vivek et al. [143] examined the role of different forms of transactional governance in cooperations and found that transaction-specific investments increase the mutual dependence of the partners.

2.3 Relational Governance

To address shortcomings of transactional mechanisms, researchers have studied governance mechanisms based upon the reciprocal and reinforcing nature of social relationships [14]. A number of contributions have been made with respect to individual aspects of relational governance mechanisms. These studies mainly focus on *trust* as a relational governance instrument. Dyer and Chu [36] examine whether *trust* operates as a self-enforcing safeguard in vertical cooperation settings and find that *trust* is particularly valuable as a governance mechanism. This is due to certain value-creating behaviors, which in turn lead to even higher levels of trust. Besides *trust*, in a study on buyer-supplier relationships by Gao et al. [45], *commitment* was identified as an important relational element to govern that exchange.

In addition to *trust* and *commitment*, researchers such as McEvily and Marcus [93] mention *embeddedness* as a further element of relational governance. The role of *embeddedness* to govern cooperations has been examined in the steel and semiconductor industry by Rowley et al. [121], who found mixed results regarding the positive effect on the performance in horizontal supplier networks. In a recent contribution on organizational difference, cooperation performance and relational mechanisms, Lavie et al. [79] stress the mutually reinforcing nature of the individual elements *trust*, *embeddedness* and *commitmen*t, consequently referring to them as a unified relational mechanisms definition. While individual aspects of relational-based governance have also been examined in horizontal cooperations (e.g. [150]), the unified relational mechanisms notion has not yet been examined as a governance tool in horizontal cooperation settings.

2.4 Interaction Effect

A number of contributions have been made with respect to interaction effects of transactional and relational governance. Poppo and Zenger [111] empirically confirm that transactional and relational governance function as complements. However, the authors do not examine their joint usage. In a study by Ferguson et al. [39], transactional and relational governance forms are examined as a socioeconomic interaction problem, and governance is based upon a transactional-relational continuum ranging from close ties based on *trust*, *reciprocity* and *interaction* towards contractual governance mechanisms. Among the few academic studies dealing with transactional and relational mechanisms as well as their interaction, Liu et al. [86] are more comprehensive. They provide a wide-ranging framework to examine the individual and joint effectiveness of the two different governance mechanisms on the relationship performance, and find partial support for interaction effects.

3 CONCEPTUAL MODEL

Transaction costs, social relations, and environmental uncertainties are commonly used to explain the behavior of firms in economic exchanges [163]. This is supported by further empirical studies on governance in cooperations, which showed that governance mechanisms entail relational and transactional mechanisms [18, 55, 162] and are moderated by their external environment [146]. Hence, environmental uncertainty moderates the effectiveness of relational and transactional governance mechanisms [18, 111]. To develop the causal relationships of the model, transaction cost theory as well as social exchange served as basis, as both these theories may provide helpful insights on the adoption of governance mechanisms in horizontal cooperations under environmental uncertainty [84, 86, 162].

This section, based on relevant research literature, contains definitions and the operationalization of the environmental uncertainty's effect on the performance of cooperations. Subsequently, the effectiveness of transactional and relational mechanisms as governance tools are operationalized individually. For both of them a positive effect on cooperation performance is assumed. In addition, a description and operationalization of the moderating effect of environmental uncertainty on transactional and relational mechanisms is given. The underlying hypothesis is that the two governance mechanisms become more important under environmental uncertainty. Figure 1 schematically outlines the conceptual model and related hypotheses.

3.1 Environmental Uncertainty

Environmental uncertainty requires exchange partners to constantly monitor their external situation and adapt their operations and strategies accordingly [101]. This is particularly apparent in emerging economies which tend to have higher levels of economic volatility [135], weak infrastructure and poor functioning institutions [60, 95]. For firms operating in emerging economies, environmental uncertainties are characterized by the lack of strong legal frameworks or binding social norms, as well as difficulties in verification of market information and unclear governmental regulations, which increases the potential for opportunism [88]. These environmental uncertainties cannot be ignored as they impact the performance of cooperating firms [146]. Therefore, the first proposal is:

H1. Environmental uncertainty has a negative impact on the performance of horizontal LSP cooperations.

3.2 Transaction mechanisms and moderating effects of environmental uncertainty

Transactional mechanisms are derived from economic rationality and emphasize governing economic exchanges through monitoring and incentive-based structures in order to reduce opportunistic behavior [151]. A major instrument of transactional mechanisms that safeguards economic exchanges are formal contracts [152]. Contracts, however, require the existence of solid institutions to guarantee their effectiveness. In most emerging economies, these solid institutions do not exist, making the enforcement

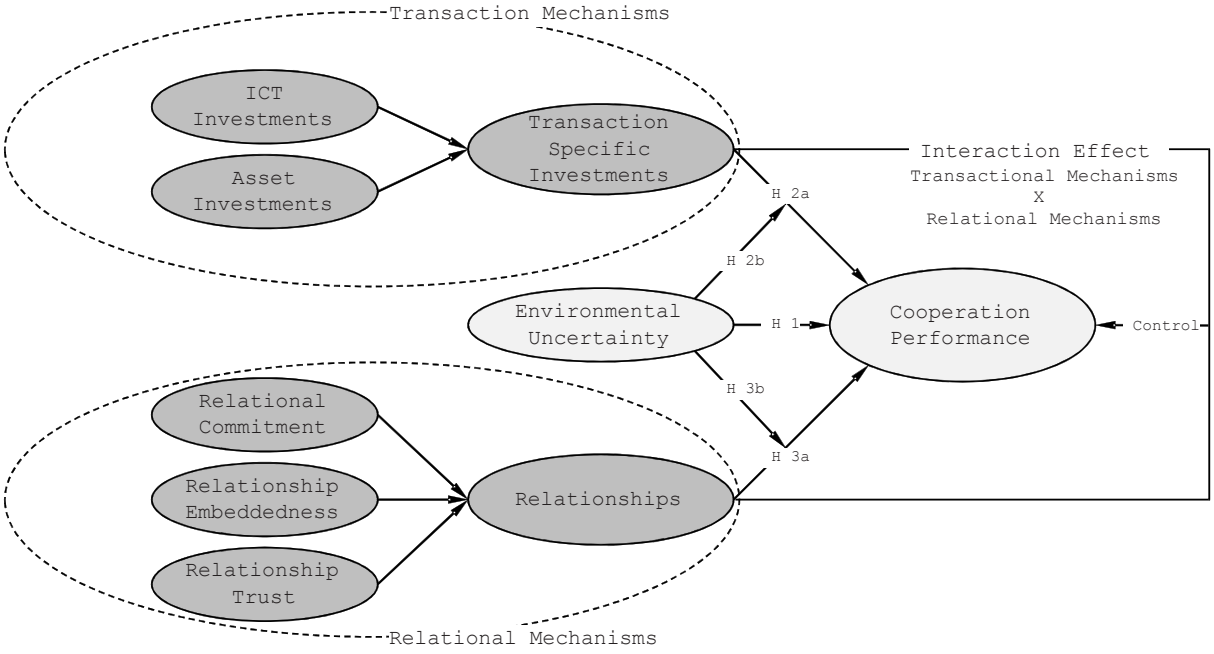

Fig. 1: Structural equation model

of such safeguards ineffective and cost intense [94]. In emerging economies, transaction-specific investments may thus act as a substitute to contracts and compensate the relatively weaker contractual governance [86]. Transaction-specific investments can therefore be seen as an important incentive tool in economic exchanges [147], as they create interdependences between partners by fostering non-opportunistic behavior [62].

In a logistics and supply chain context, transaction-specific investments can encompass investments into assets such as the integration of Information and Communication Technologies (ICT) as well as investments into assets that help to align processes between LSPs and reduce transactional uncertainties [3, 158]. One of the main purposes of ICT investments are the realization of real-time transmissions and processing of information required for decision making [113], thus facilitating cooperations between LSPs [71]. Besides technically enabling cooperation, investments into ICT also reduce transaction costs and transaction risks [66].

Joint investments of LSPs into logistics assets are another factor of transaction-specific investments that substantially reduce the individual purchasing costs [37] and serve as an important reason for LSPs to engage in horizontal partnerships [28]. In the present context, transaction specific investments into logistics assets may encompass assets such as a warehouse facility, trucks, warehouse-handling equipment, or fuel [19]. In referring to the unified transactional governance mechanisms, the following hypothesis is derived:

H2a. Transactional governance mechanisms are positively related to the performance of horizontal LSP cooperations.

An overview of literature regarding the relation between individual transactional governance mechanisms and the performance of horizontal LSP cooperations as well as the individual relational governance mechanisms and the performance of horizontal LSP cooperations is included in the appendix as supplement.

Environmental uncertainty presents operational challenges to LSPs due to difficulties in decision making for activities like transport volume and shipment schedule [148]. For cooperations, environmental uncertainty cannot be ignored [146], as the effect of transactional governance on a firm's performance may vary under the high pressure of environmental uncertainty. Higher levels of environmental uncertainty encourage firms to maintain flexibility [47] in order to effectively adapt to disruptions in the flow of goods whilst maintaining service levels [129]. ICT integration and sharing of logistics assets to counteract environmental uncertainty can achieve flexibility in horizontal LSP cooperations. It also improves the ability of LSPs to generate and disseminate information in response to the changing environment in their logistics operations. The continuous exchange of information between cooperation partners about transported goods enables LSPs to swiftly re-route them in case of any external disturbance, thus ensuring the efficient physical flow of goods even under environmental uncertainty.

In horizontal LSP cooperations the sharing of assets provides individual LSPs with operational flexibility to adapt to highly volatile markets and to reduce the uncertainty about future prospects [104].

If fluctuations in transportation volume are high, the benefits of shared assets increase as the costs for the individual LSP are reduced. If cooperation partners share their assets, goods can easily be shifted between different warehouses and transported via different routes, depending on the environmental contingencies. Further, joint investments into warehouses or trucks by cooperating LSPs signal the cooperation partners sincerity of the cooperation and at the same time reduce the dependence on individually owned assets, thus increasing flexibility. However, if the environment is predictable it reduces the need to adapt to disruptions and constantly monitor the cooperation relationships, thus mitigating the need of ICT integration and the joint investment into logistics assets with cooperation partners. Therefore, it can be argued that the effectiveness of transactional governance mechanisms is subject to the influence of environmental uncertainty. Specifically, transactional governance mechanisms enhance the performance of horizontal LSP cooperations under uncertain environmental conditions, as they increase the flexibility and promote transparency of each individual LSP [154]. Hence, it is proposed that:

H2b. The relationship between transactional governance and cooperation performance is moderated by environmental uncertainty, such that the impact of the transactional governance mechanisms is positive and stronger the higher the environmental uncertainty is.

3.3 Relational mechanisms and moderating effects of environmental uncertainty

According to social exchange theory, relational mechanisms deal with the roles of social interactions and socially embedded relationships in economic exchanges like horizontal cooperations [52, 137]. The most essential distinction between social exchanges and economic transactions is that the former entails unspecified obligations whereas the latter rests on formal contracts that specify the exact terms of exchange [159]. Governance emerges from the values and processes found in these social interactions and socially embedded relationships in economic exchanges [80, 45] as they prevent opportunism and thus reduce transaction costs [37]. In prior academic literature, most researchers mention the relational

mechanisms *trust* [74, 98, 117], *embeddedness* [52, 140, 163] and *commitment* [64, 77, 98]. Consistent with this Ferguson [39] as well as Lavie et al. [79] suggest that most relational mechanisms can be associated with either *trust*, *embeddedness* or *commitment*. This distinction in three mechanisms shall be applied in the following.

In inter-organizational cooperations social exchange scholars define trust as "the expectation of exchange partners that the other parties can be relied on, will behave as predicted and act fairly in the cooperation" [160, p. 143]. This view of interorganizational trust implies that the exchange parties rely on trust in risky and uncertain economic conditions [162]. The more the exchange partners trust each other, the more they feel assured that their cooperation partners will cooperate in good faith, rather than behave opportunistically [36]. Trust is therefore considered an essential characteristic of relational governance mechanisms of cooperations in emerging economies [162].

In social exchange theory, the notion of relational embeddedness is strongly shared by scholars in the areas of strategic management, organizational theory and organizational economics [72, 137, 139, 140]. It defines the degree to which social attachment and interpersonal ties drive economic relationships [52]. Through the repeated face-to-face interactions among exchange partners, interpersonal ties can develop and exploitation of exchange partners is less likely to occur in the cooperation [57, 137]. Particularly, embeddedness mitigates risks inherent in exchange situations under environmental uncertainty, by developing safeguards such as the exchange of information between cooperating firms [163]. Embeddedness therefore acts as a relational governance mechanism in horizontal cooperations in emerging economies.

A further relational governance mechanism is the commitment between cooperation partners. Commitment can be defined as ''an implicit or explicit pledge of relational continuity between exchange partners'' [35, p. 19], and acts as an intrinsic motivation for partnering firms to be dedicated to their cooperation by establishing lasting, reciprocal responsibilities [91]. Consequently, the commitment between partners in cooperative relationships acts as an important governance mechanism to deter opportunism.

Horizontal cooperations usually display lower levels of dependence than vertical cooperations. This suggests that individual norms such as trust alone might not overcome the fear of opportunism [153]. Consequently, individual aspects of relational mechanisms in horizontal LSP cooperation must be supported by further governance mechanisms. In fact, studies by McEvily and Marcus [93] have shown that the individual aspects of relational mechanisms are highly interrelated and often mutually reinforcing rather than independent. Trust between cooperation partners, for example, nurtures the commitment between them, which in turn encourages partners to strive for a continuation of their cooperation [51]. Therefore, and in accordance with the unified construct of relational mechanisms the next hypothesis is:

H3a. Relational governance mechanisms are positively related to the performance of horizontal LSP cooperations.

The high uncertainty characteristics of emerging economies are likely to reinforce the role of social relationships as a governance mechanism. People in emerging economies traditionally rely on personal contacts and networks rather than on formal mechanisms to coordinate horizontal exchange relationships [89]. When firms encounter increased environmental uncertainty, they tend to count on personal relationships to gain cooperation partners and work through the unforeseen contingencies. Social relationships let LSPs develop *commitment*, *embeddedness* and *trust* with other LSPs, which reduces the costs for monitoring the relationships as partner firms will find each other more trustworthy in conducting business transactions, and thus become more cooperative [79]. These costs are particularly high if the environmental conditions are uncertain as regular changes and volatility in commodities such as fuel provide ample opportunities for opportunism in horizontal cooperations. Social relationships are hence an essential component to govern horizontal exchange, particularly when it is too costly for the partner firms to account for all unforeseen contingencies in the cooperation [148].

In addition to reducing the costs related to monitoring the behavior of cooperation partners, social relationships increase the transparency across the cooperation so that individual LSPs can plan and justify their decisions under environmental uncertainty [146]. These relational mechanisms provide cooperation partners with the flexibility to cope with environmental uncertainties that arise in emerging economies. According to social exchange theory perspective, social relationships can improve partner cooperation due to the reciprocal interest by collaborating firms to build beneficial relationships. This interest is more obvious under environmental uncertainty when firms are obliged to return favors to partners to assist in difficult conditions [148]. If strong social relationships exist, LSPs facing highly volatile market conditions are more willing to adapt to their partners' needs and make concessions towards other LSPs in order to counterbalance the volatility. This flexibility helps LSPs to mitigate exchange hazards under uncertainty and strengthens the performance of cooperations [87]. Consequently, it can be assumed that in emerging economies relational mechanisms are more effective to prevent opportunism than in stable economic conditions. The corresponding hypothesis is:

H3b. The relationship between relational governance and cooperation performance is moderated by environmental uncertainty, such that the impact of the relational governance mechanisms is positive and stronger the higher the environmental uncertainty is.

3.4 Interaction effect of transactional and relational mechanisms

In practice it appears that many effective cooperations use multiple governance mechanisms simultaneously rather than relying only on transactional or relational mechanisms [37]. Although it is commonly agreed that transactional and relational governance mechanisms interact with each other it is subject of controversy whether they are substitutes [37, 156] or complements [87, 111, 146]. Some scholars like Wuyts and Geyskens [156] argue that transactional and relational mechanisms may be less effective when used together than when used separately to govern cooperations as transactional mechanisms in combination with relational mechanisms can result in a vicious circle of distrust and retribution. However, other researchers claim that transactional and relational aspects of governance may be complements, as they do not suffice to hinder opportunism when applied individually [87, 163].

As such transactional governance mechanisms generally provide a tangible framework by making transaction-specific investments within which intangible relational mechanisms can perform and compensate the legal and institutional hazards in emerging economies [86]. This is acknowledged by previous research, which has well documented the beneficial effects on business performance if cooperations are not solely governed by one form of governance, but by multiple mechanisms jointly [86, 126, 143, 146, 162].

Due to the indistinct interaction effect between a transactional and a relational mechanism, it is considered as a control variable for the performance impact in horizontal cooperations.

4 RESEARCH DESIGN

4.1 Questionnaire development

Prior to data collection, content and face validity of the questionnaire were tested in four sequential steps [132]. First, an item-sorting process was used in which five Ph.D. scholars correctly matched the individual measurement items with their intended constructs at a rate exceeding 90%. This is deemed acceptable to offer evidence for content validity [97, 106]. Second, in personal interviews lasting between thirty minutes and two hours, eight scholars in the field of management and logistics who were familiar with the constructs tested the survey instrument for structure, completeness, clarity, and appropriateness in an academic setting. Third, a panel of five CEOs of LSPs from South Africa, Kenya, Botswana, Oman and the UAE reviewed the survey instrument. These interviews in particular served to check the overall validity of questions in varying economic environments [94]. In the fourth step, a pre-test for the survey instrument was carried out on a random sample taken from the original database to assess the construct variances captured by the measurement items. Based upon the received feedback from the three steps modifications were made at each step. This procedure ensured the survey instrument had substantive validity to be understandable and relevant to LSP practices in Africa and Middle Eastern countries.

4.2 Data collection

There are two reasons that led to the decision to focus on data from LSPs operating in multiple African and Middle Eastern countries. First, these countries represent emerging economies that usually display higher levels of environmental uncertainty. Second, few empirical studies have focused on countries within these two regions. For example, Hoskisson et al. [60] and Acquaah [1] state that there is a lack of research dealing with the African and Middle Eastern region. Furthermore, among emerging economies the regions of Africa and the Middle East are of special interest due to their steadily increasing economic importance. Besides diversification of the trading partners in geographical aspects, investments in infrastructure and changes towards a more open policy between countries strengthen the overall economy in general and the logistics service sector specifically [2]. For 2017, the inflows of foreign direct investments to African countries are expected to increase by about 10%. Several trade agreements and partnerships, both inter- and intraregional, underpin the efforts of the countries towards stronger integration in global trade [136]. Drivers of this positive development are increased demand stemming from the domestic market as well as improvements in the area of business environment. Opportunities for growth are attributed to improvement and utilization of business clusters [2], which in turn are strongly related to horizontal cooperations [81].

Besides the general economic situation of the region, there are considerations to be taken into account that base on a firms' perspective. Several large European LSPs do not have own subsidiaries in countries on the African continent or in the Middle East. The reason is the relatively low transport volume compared to the western market. Instead of investing in own assets in these regions they make intense use of small LSPs to be able to offer logistics services to their customers in the western market whenever needed. Although the logistics market in Africa and the Middle East is a niche market, the European firms need to offer this service for their regular customers in order to gain

customer retention. The organization of the whole transport independent from the route is part of their pledge of service.

The specification of a multi-country in contrast to a single-country study allows consideration of data from not only one specific country but a diverse set of countries and thus a comparison between them. The number of countries considered in a multi-country study in recent literature across disciplines varies between two [40] and 44 [70] or even up to 70 in case of the World Health Survey by the WHO. For example, Görg et al. [50] perform their study in supply chain context in 19 countries of Sub-Saharan Africa. This multi-country approach was supported by the fact that the sample was based on the participant list of an annual meeting of LSPs. As largest event of its kind in the African and Middle Eastern Region, it attracts numerous market participants and a representative sample of LSPs across multiple countries of the African continent as well as the Middle Eastern Region. Further, by employing a multi-country study, a high grade of generalizability as well as transferability of the results is reached, which might not be possible when conducting a single-country study [59, 68]. Consequently, the true state of businesses across regions is described more accurately [116] in a multi-country study.

The sample frame consists of 2454 LSPs covered under the International Standard of Industrial Classification of All Economic Activities (ISIC) Revision 4 class codes 4923, 5012, 5120 and 5210. After excluding 336 entries for missing or wrong addresses, the survey was sent to a total of 2118 firms. Senior managers (CEOs and general managers) were invited via a personalized email to complete an online survey, as they usually tend to be the most knowledgeable people when it comes to horizontal cooperations [144]. The questionnaire was translated into English and back again by another person. There were two main reasons for this approach. First, Africa and the Middle East host numerous different languages and dialects that could impossibly be realized in a questionnaire at reasonable expense. Furthermore, the study aims to question international active firms. By setting up the questionnaire in English, the local firms whose employees are not capable of English are excluded from the study. After setting up the questionnaire in this way, the questionnaire was emailed to the sample frame in June 2013.

Three weeks after the initial mailing, personalized reminder e-mails were sent to all potential participants. Those who did not respond within six to eight weeks after the initial mailing received a reminder telephone call to improve the response rate [43]. The number of 181 firms from the target regions that sent complete and usable responses constitutes a response rate of 8.4 percent. This level is not uncommon for emerging markets [60] and in line with previous research papers in the emerging environment context [34]. To grant balance of the sample regarding firm size, the demographics (firm size) of the sample was checked following Wallenburg and Raue [144]. The distribution of respondents is depicted in attachment A of this paper.

4.3 Measures

All constructs introduced in Section 3 and displayed in Figure 1 constitute latent variables that require indirect measurement [24]. The constructs were all measured using a multi-item seven-point Likert scale. As the constructs of the study are management practices which reflect their indicators [31] they were drafted with the exemption of the performance construct as reflective measures. For the measurement of assets as part of the transaction mechanisms, scales from Buvik and John [16] were employed, while the ICT construct was measured with scales from Prajogo et al. [114] and Tallon and Pinsonneault [131].

The relational governance mechanisms made up by *embeddedness*, *trust* and *commitment* were measured with scales used by Heide and Miner [57], Lawson et al. [80] and Liu et al. [86]. The measurement of *trust* made use of items from Nyaga et al. [102] and Morgan and Hunt [98]. For *commitment*, scales used by Morgan and Hunt [98]; Benton and Maloni [12]; Goo et al. [49]; and Lavie et al. [79] went into action. Environmental uncertainty was measured with the scale of Tseng and Lee [135]. All measures were slightly adapted in wording to fit the research context.

The measurement of performance in cooperations has gained much attention from researchers [4, 85, 122]. A single performance measurement cannot sufficiently describe the positive effects of cooperations. Therefore, researchers distinguish between several performance measures to examine cooperation success. The approach used in this paper draws on the work done by Schmoltzi and Wallenburg [123], who list financial performance measures based on accounting measures [17] and cost reductions [77], operational measures such as logistics efficiency [44], and organizational effectiveness measures [12, 67]. Based on the extended literature research, these dimensions provide support for reasonable comprehensiveness of the construct. For the performance construct measurement, a proven approach was chosen. It specifies to rely on executives' perceptions of their firms' performance [e.g. 67, 84]. Consequently, utilizing a Type II MIMIC-model [31], the performance construct was measured as a second order formative construct that is represented by the lead items of financial, cost, operational and perceptual performance dimensions. The model is represented in Figure 2.

Since only one respondent from all the contacted companies provided the data for the study, concerns of common method variance may be raised. Therefore, Harman's single-factor test was applied in order to examine the possibility of common method variance [109]. Significant common method bias would result

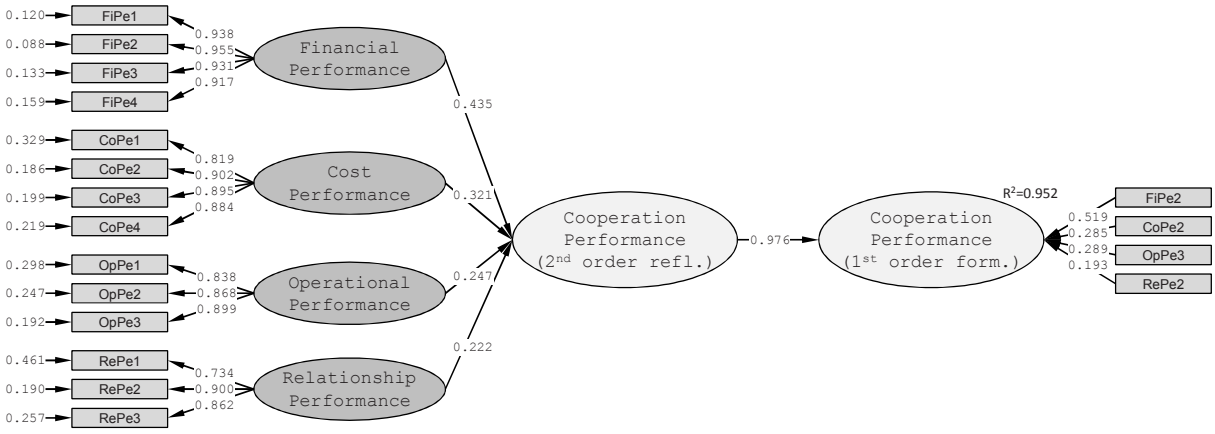

Fig. 2: Results for the formative performance model

in one general factor accounting for the majority of covariance in the variables. A factor analysis showed that there is no such general factor that accounted for the majority of the variance in the tested variables. Less than 39% variance was extracted by a single factor with half of the items revealing factor loadings well below .5. This result indicates that the dataset does not suffer from a common method variance problem [109]. To further confirm the representativeness of the sample, a chi-square test was conducted. The examination of difference between the late and the early bird of respondents across number of cooperation partners ($\chi^2 = .186$; $p = .714$), duration of cooperations ($\chi^2 = .383$; $p = .814$), and firm size ($\chi^2 = .434$; $p = .858$) suggests that the taken sample is not noticeably different on certain characteristics than nonresponding firms, as non-response bias is not evident in the sample [132].

Convergence of the measurement model and differentiation of the latent exogenous constructs were tested via a multitrait multimethod (MTMM) matrix [8]. The latent exogenous constructs were measured using items from at least two different authors for *trust*, *commitment*, *embeddedness*, *ICT* and *environment*. The MTMM matrix as displayed in Table 1 indicates that the individual measurements per construct are higher correlated among each other than they are correlated with other constructs. As such, it is reasonable that the measurement model is convergent and the individual constructs do measure different traits of the measurement model [8].

	Trust		**Commitment**			**Embeddedness**		**ICT**		**Environment**			
	Nyaga 2010	Morgan 1994	Lavie 2011	Morgan 1994	Wallenburg 2011	Heide 1992	Lawson 2008	Prajago 2011	Tallon 2011	Tseng 2010	Tang 2011	Wong 2011	Swamidass 1987
Nyaga 2010	**1**												
Morgan 1994	**-.700****	**1**											
Lavie 2011	-.204**	.321**	**1**										
Morgan 1994	-.305**	.425**	**.794****	**1**									
Wallenburg 2011	-.292**	.336**	**.859****	**.692****	**1**								
Heide 1992	-.508**	.716**	.521**	.544**	.547**	**1**							
Lawson 2008	-.484**	.671**	.386**	.478**	.388**	**.841****	**1**						
Prajago 2011	-.221**	.315**	.056	.131	.095	.222**	.249**	**1**					
Tallon 2011	-.286**	.368**	.205**	.254**	.283**	.304**	.512**	**.531****	**1**				
Tseng 2010	-.158	.067	.015	-.068	.109	-.042	-.077	.167*	.106	**1**			
Tang 2011	-.291**	.203*	.082	.013	.176*	.056	.009	.201*	.161	**.985****	**1**		
Wong 2011	-.158	.067	.015	-.068	.109	-.042	-.077	.167*	.106	**1.000****	**.985****	**1**	
Swamidass 1987	-.259**	.147	-.007	-.086	.111	.028	-.037	.194*	.140	**.931****	**.930****	**.931****	**1**

Notes: Correlations between /among dimensions of the same construct in bold print

Table 1: Multi Trait Multi Method measurement

As the assessment criteria for reflective and formative constructs differ, the two construct types need to be assessed separately. An analysis of the individual item reliabilities, the convergent validity and the discriminant validity allows to assess the acceptability of the reflective constructs [105]. A bootstrapping procedure with 250, 500 and 1000 resamples taken from the original sample ascertains the significance of the parameter estimates of the research model. The results are consistent across all bootstrap samples. As shown in Table 2, all estimates of the outer loadings exhibit sufficient t-values and exceed the recommended threshold for item loadings of .7, indicating that more than one-half of the item's variance can be attributed to the construct [58].

To assess construct reliability, Cronbach's alpha value (α) was determined [9]. The α-value for all constructs was well above the suggested cut-off value of .7, indicating sufficient reliability [26]. Similarly, the composite reliability (CR) for all constructs was

Overview of indicators and measures of reliability and validity.

Constructs and Indicators		outer loadings		95% confidence intervall	
		point estimation	t-value	Upper bound	Lower bound
Embeddedness (α= .79, AVE= .72,CR= .88)					
EMB01	In this relationship, the parties work together to solve problems.	.777	19.072	.774	.786
EMB02	The responsibility for making sure the relationship works for both of us an this supplier is shared jointly.	.917	49.778	.912	.918
EMB03	In most aspects of this relationship the parties are jointly responsible for getting things done.	.838	19.584	.829	.842
Trust (α= .73, AVE= .65,CR= .85)					
TRU01	This supplier/buyer considers our welfare as well as its own.	.805	22.509	.801	.812
TRU02	In our relationship, my cooperation partners (major supplier) can be counted on to do what is right.	.858	38.042	.856	.862
TRU03	We trust this supplier keeps our best interests in mind.	.752	13.417	.743	.759
Committment (α= .73, AVE= .65,CR= .84)					
COM01	The relationship that my firm has with our cooperation partners deserves our firm's maxim efforts to maintain.	.817	11.070	.788	.809
COM02	We are committed to preserve good relationshisp with our cooperation partners	.840	16.609	.821	.836
COM03	The relationship we have with our cooperation partners is something we intend to maintain indefinately	.762	16.593	.760	.773
Asset Alignment (α= .87, AVE= .67,CR= .91)					
AA01	My company has upgraded its logistical facilities (storage, transportation or information systems, and the like) in order to deal efficiently with partners	.828	21.079	.819	.830
AA02	My company has committed time and resources to conform to our partner's requirements regarding logistical performance	.806	19.962	.798	.809
AA03	My company has committed time and resources to develop an acceptable quality assurance program in this partnership	.771	16.266	.762	.776
AA04	My company has made investments to restructure and integrate our logistical facilities with our partner's logistical facilities	.838	33.653	.835	.842
AA05	We have made a substantial investments in shipping and storage (distribution) facilities tailored for our partners	.835	29.747	.832	.840
Information and Communication Technology Integration (α= .87, AVE= .71,CR= .91)					
ICT01	Inter-organizational coordination is achieved using electronic links	.796	15.034	.785	.800
ICT02	We have electronic mailing capabilities with our cooperation partners	.872	24.991	.862	.873
ICT03	We use electronic transfer of purchase orders, invoices, and/or funds with cooperation partners	.866	32.600	.860	.868
ICT04	We use advanced information systems to track and/or expedite shipments	.844	28.756	.840	.849
Environmental Uncertainty (α= .88, AVE= .67,CR= .91)					
ENU02	Laws to regulate international businesses is predictable	.843	4.422	.767	.823
ENU03	Laws to regulate local businesses is predictable	.911	4.806	.845	.901
ENU04	Import tariffs are predictable	.850	4.321	.767	.825
ENU05	Enforcement of existing laws is predictable	.830	4.430	.740	.795

α – Cronbach's alpha; AVE – average variance explained; CR – composite reliability

Table 2: Overview of construct and indicator reliability and validity

assessed. All of the observed CR values were greater than .8, and as such above the suggested cut-off value of .6 [9, 58]. Average variance extracted (AVE) was used to test for convergent validity in the data set. All AVE values were found above the cut-off value of .5, as recommended by Henseler et al. [61] and Fornell and Larcker [42]. Table 2 shows the results for the assessed α, CR and AVE values.

In order to evaluate discriminant validity, AVE was used. As Table 3 indicates, the square root of the AVE of each construct is higher than its correlations with all other constructs. In consequence, it can be concluded that none of the constructs shares more variance with another construct than with its own indicators and the model thus exhibits sufficient levels of discriminant validity [58]. Finally, by ensuring a comprehensive foundation of the research model in the relevant literature and the review of the survey with industry experts and academic scholars as pointed out in Section 4.1, content validity is covered.

Construct	ASS	COM	EMB	ENV	ICT	TRU
Asset	**.816**					
Committment	.316	**.807**				
Embeddedness	.394	.473	**.846**			
Environment	.141	.049	-.019	**.859**		
ICT	.407	.232	.489	.066	**.845**	
Trust	.451	.446	.617	.110	.367	**.806**

Square root of AVE on diagonal in bold face

Table 3: Correlation Matrix of the Latent Variables

To assess reliability and validity of the second-order formative performance constructs, the item weights, multicolinearity between items, and the nomological validity of the formative construct was examined [105]. The magnitude of all item weights are greater than .10 and the sign of the item weight is consistent with the underlying theory [105]. The Variance Inflation Factor (VIF) shows all item values are less than 3.3 [30].This indicates that multi-collinearity does not seem to pose a problem. Further, all four items are significant at the .001 level. Correlation of the formative items with other constructs of the model according to the hypothesized causal model served as test for nomological validity [31]. The results indicate positive and highly significant relationships between cooperation performance and transactional and relational governance mechanisms, signaling the validity of the cooperation performance construct. The results of the formative items are shown in Table 4.

Measurement property of formative construct					
			95% confidence interval		
Construct	Item Weight	T-stat	Lower Bound	Upper Bound	VIF
Performance					
[CoPe3]	.285	7.990	.283	.299	1.883
[FiPe2]	.519	13.068	.509	.521	1.630
[OpPe4]	.289	8.325	.285	.298	1.372
[RePe3]	.193	5.260	.182	.197	1.206

Table 4: Measurement property of formative construct

4.4 Data Analysis

For the dataset and model specification at hand partial least squares (PLS) has been used as the appropriate an appropriate algorithm for testing the hypotheses of the research model. It is a variance-based structural equation modeling (SEM) approach that increasingly gains traction in the business literature as an alternative means to traditional covariance-based SEM techniques [105]. While some publications like Rönkkö and Evermann [120] question the relevance of PLS as a statistical measurement tool because of the lack of a test of the overall model fit, it nevertheless provides a better methodological fit concerning the measurement model for the sample.

PLS avoids the problems inherent in small sample sizes below the threshold of 250 observations that is recommended for covariance-based SEM techniques [48]. Further, compared with covariance-based SEM techniques, PLS provides more conservative estimates of the individual path coefficients and does not require normally distributed data [20]. In addition, moderating effects and higher order factors as specified in the current research model require a larger number of parameter estimates in covariance-based SEM models compared to PLS-SEM techniques, as covariance-based SEM techniques may lead to identification and convergence issues [105].

PLS also has an advantage over covariance-based SEM techniques when formative constructs are part of the research model, as covariance-based SEM techniques may lead to unidentified models [65]. Therefore, the variance-based PLS approach seems more suitable, as small sample sizes, moderating effects, and higher order formative constructs are present [105]. For the calculations, the software tool SmartPLS, version 2.0 [119] was used. The results of the estimation for the structural model are displayed in Figure 3.

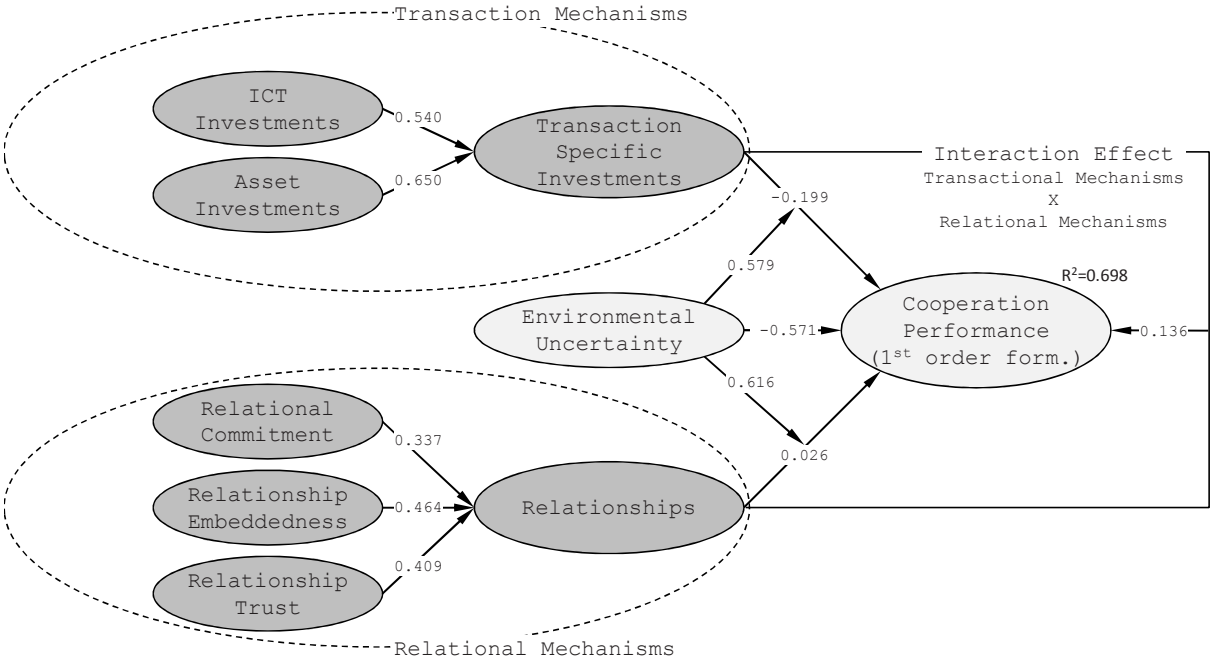

Fig. 3: Results of the empirical model

The R^2 value of the endogenous latent variable performance (R^2 =.698) must be considered substantial [20] as the performance of horizontal exchange relationships is impacted by many other aspects besides transactional and relational governance. While Cruijssen et al. [28] specifically examine horizontal LSP cooperations and identify, among others, *joint purchases, process alignment* and *service extension* as drivers for cooperation performance, other researchers name *knowledge development* [61], *information sharing* [128] or *information processing capabilities* [13] as success factors in cooperations.

Cohen's f^2 was used to further evaluate the effect sizes, and the predictive relevance using the Stone-Geisser Criteria Q^2 for the latent variables of the structural model [45, 130]. The effect size f^2 describes the increase in R^2 relative to the proportion of variance of the endogenous construct that remains unexplained [25]. As can be seen in Table 5 for the endogenous variable performance, the f^2 of the transaction-based governance construct is close to medium. The f^2 of relational based governance signifies large effects; while the f^2 of environmental uncertainty exhibits only small effects [25].

To evaluate the prediction relevance of the structural model, a blindfolding procedure with an omission distance of 5 was applied [58]. The resulting Q^2 values for the endogenous constructs are all larger

				latent variable scores			
Construct	Q^2	f^2				95% confidence interval	
		PER		Mean	STDV	lower	upper
AAS	0.666			2.00	1.04	0.85	2.19
ICT	0.714			1.90	1.26	1.03	2.14
COM	0.651			1.56	0.70	0.57	1.69
EMB	0.715			1.69	0.80	0.65	1.84
TRU	0.650			2.06	0.97	0.79	2.24
TRA	0.484	0.119		1.97	0.95	0.77	2.14
SOC	0.455	0.927		1.74	0.66	0.54	1.87
ENV	0.731	0.073		3.47	1.66	1.35	3.77

Table 5: Effect size, prediction relevance and latent variable scores

than zero, indicating sufficient predictive relevance of the structural model [41]. Table 5 also reports the latent variable scores and respective 95% confidence intervals.

5 DISCUSSION OF RESULTS

The results of this research provide empirical evidence that environmental uncertainty has a strong negative effect on the performance of horizontal cooperations, and positively moderates the effect of transactional and relational governance mechanisms.

5.1 Environmental uncertainty and performance

Hypothesis H1, proposing a direct negative impact of environmental uncertainty on cooperating performance, is supported. The economic environment firms are operating in naturally has a significant effect on the performance. When uncertainties in institutional settings exist, the performance of cooperations is significantly negatively impacted. This is confirmed by the given structural equation model that identifies a strong negative effect (b = -.571). As the study focuses on Africa and the Middle East as representing regions for emerging economies, there are certain peculiarities to be taken into account. In comparison to other emerging economies, there is also the influence of the recent economic growth to be considered. Increase in geographic diversity as well as improvement of infrastructural and political issues lead to new opportunities but at the same time pose challenges for the firms. This is due to the enhanced momentum in the market and the corresponding volatility. For the validation of the findings, personal interviews with key informants from three companies represented in the sample were conducted. The first interview partner from the sample was the president of a LSP (company A), responsible for managing a network of LSP partners that cover the African continent. The second interview partner was the managing director (MD) of a LSP (company B) based in Oman that cooperates with several LSP's in other Middle Eastern countries as well as one LSP in Africa and two in Europe. A third interview was conducted with a board member of a globally operating LSP (company C) that has extensive relationships with local LSPs in both Africa and the Middle East. That interview partner was also part of the expert panel that reviewed the survey instrument. The three interview partners were confronted with the specific findings of the analysis and were asked to comment on these, based on their personal experience. All three interview partners agreed that unstable institutions make it little attractive for LSPs to operate in these countries. In particular, they mentioned that the contingency costs for the constant monitoring of the uncertainties increase in exchange relationships in emerging countries.

Notwithstanding, there is evidence for an increase of the relationships quality's effect on performance the more environmental uncertainty increases, as former research shows [23]. This implies that maintaining a close interorganizational relationship can be beneficial in uncertain environments despite the rising costs. A casedependent treatment of the cost-benefit ratio is suggested.

5.2 Transactional governance and the moderating effect of uncertainty

A further finding in the sample of companies is that transactional governance by itself has a detrimental effect on the cooperation performance (b = -.199). Therefore, Hypothesis 2a must be rejected. This is surprising, given the fact that most prior research on transactional mechanisms found them to be beneficial to the performance of cooperations [e.g. 78, 82, 125]. A possible explanation is the nature of these exchanges. As previous research found horizontal relationships to be more conflicting in nature than vertical relationships [117]. In cases of environmental stability, contracts may be required to govern these exchanges. The interview partners generally agreed that investments into relationship-specific assets, particularly ICT, are cost and time intensive and frequently subject to conflict between cooperation partners. Hence, instead of a positive effect on the performance, transactional mechanisms can actually display damaging effects. Further, LSPs are driven by process specific know-how. Hence, interpersonal ties rather than transactional mechanisms usually govern the exchanges between them.

Supporting Hypothesis 2b, the empirical results show that economic uncertainty significantly moderates the effectiveness of transactional governance (b = .579) on the cooperation performance. Only when the environment is uncertain, transactional governance mechanisms do create strong positive effects on the performance of horizontal cooperations. This can be explained by the nature of the two examined dimensions of transactional-based governance. They permit operational flexibility and faster information exchange between partners, thus ensuring a constant adaption to the changing environment. The fast exchange of information powered by aligned ICT systems provides cooperation partners the flexibility to swiftly adapt to changing economic conditions. Further, joint ICT and asset investments enable LSP partnerships to optimize and streamline the processes. This is in line with findings by Wong et al. [154], who found that mechanisms such as simplification of procedures and processes are an effective tool to mitigate uncertainties in unpredictable environments.

So can, according to the interview partners, harmonized transport schedules or allocated warehouse

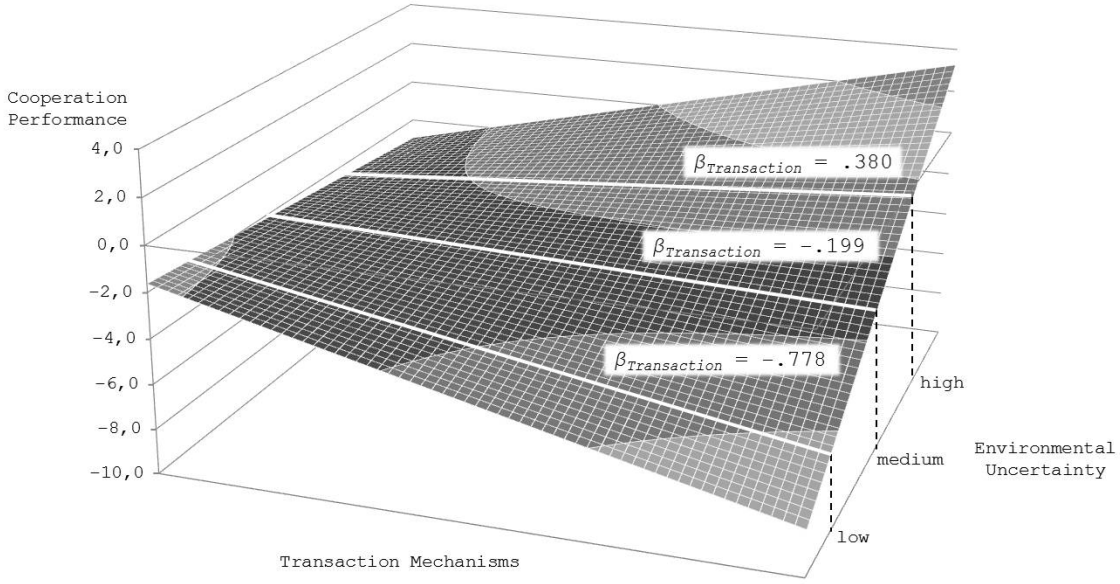

Fig. 4: Transaction mechanisms impact

space ensure a high level of service quality, even if external conditions vary. For a single LSP, warehouse space is an inflexible asset as it is difficult to reallocate to other locations if the economic settings change or transport demand diminishes in a region. However, with cooperation partners a LSP does not need to lease an entire warehouse but can lease space in a warehouse operated by one of its cooperation partners. This provides the individual LSP with operational flexibility and an incentive to maintain cooperative ties to other LSPs. As mentioned before, LSP in the African and Middle Eastern region are often used by large European LSPs not owning subsidiaries in the respective region. This comes along with opportunities for the small LSPs as well as the dependency from their European contracting authority. In the following high flexibility as can be gained by transaction-based governance is advantageous.

The results are in line with these statements as well as findings of Wong et al. [154], who state that, due to the collaborative relationships amongst them, LSPs can maintain an operational flexibility in varying economic conditions. The strong moderating effect of environmental uncertainty was reaffirmed by the interview partners, as all three agreed that transactional governance mechanisms are beneficial and referred to them as an "anchor" that stabilizes the exchange relationships in a constantly changing environment.

The relationship between transaction-specific investments and environmental uncertainty is also shown in Figure 4, which highlights the slopes for low (β = -.778), medium (β = -.199) and high (β = .380) levels of the moderating effects of environmental uncertainty on the transactional governance. In case of low environmental uncertainty (one standard deviation below the mean factor score), transaction-specific investments display a strong negative effect on the performance. Even when the environmental uncertainty is moderate (mean factor score), it negatively affects the effectiveness of transaction-specific investments. Only when uncertainty is high (one standard deviation above the mean factor score), the negative impacts tilts over and transaction-specific investments show a positive effect on the performance of horizontal cooperations.

Joint investments into assets (b = .650) present a slightly higher impact on the transactional governance mechanisms than investments in ICT (b =.540). The interviewee from company A explained this fact with the relative ease of implementation compared to ICT investments. Joint investments into assets can mean to simply share an employee, a truck or some warehouse space with other LSPs, while investments into joint ICT are more complex as they require common systems and EDI interfaces. Company B shared a similar view, as they had initially only little ICT interfaces to cooperation partners. However, over time and due to increased customer demand, common EDI interfaces with other LSPs were established. The interview partner from company C, in contrast, indicated that his company builds up extensive ICT links in the form of EDI connections and interfaces to the transportation system of cooperation partners. According to the interviewee, this is mostly due to the global network of that LSP and the resulting requirements for data transparency.

This is supported by a current study by Krishnan et al. [73] investigating the interrelation of environmental and behavioral uncertainty with different governance mechanisms. It shows the high

efficiency of transactional governance mechanisms under high environmental uncertainty. Therefore, according mechanisms can be of major help for firms under uncertain conditions in responding to the environmental impacts they are facing. As a supplementary measure, Raue and Wieland [115] found that different transactional mechanisms can act as substitutes when firms aim at accessing tangible resources through cooperation. In case of intangible resources being the subject of interest, the investigated transactional mechanisms are merely complements. In both cases, transactional mechanisms support the firms' cooperative relation.

5.3 Relational governance and the moderating effect of uncertainty

Relational-based governance mechanisms exhibit little to no effect on competitive success. (b = .026). Therefore, Hypothesis 3a must be rejected. The insignificant effectiveness of relational governance might be for the characteristics of the LSP industry, where the process know-how is easy to absorb and imitate by cooperation partners. This reduces the effectiveness of relational governance to hinder opportunism and drive cooperation performance. The interviewee from company A confirmed this, by citing that his company employs multiple governance forms, ranging from transactional to relational. Based on his experience relational mechanisms alone are not adequate to deter opportunism.

As the unified relational construct contains three elements, they might act as substitutes, thus reducing the initial positive effect of relational governance. The interview partner from company C pointed out that *commitment* may also have detrimental effects, as it might attach his company to an inferior cooperation partner. However, if the external conditions are uncertain, relational governance becomes much more important. This is due to the fact that legal contracts as governance method cannot cover all aspects that might arise in uncertain conditions [21].

This is in line with Hypothesis 3b, which states that environmental uncertainty positively moderates the effectiveness of relational governance mechanisms on the cooperation performance (b = .616). Social ties such as *trust* become main control mechanisms in uncertain conditions that arise in emerging economies, as they support cooperation partners to manage unforeseeable situations [37]. The interviews confirm this strong moderating effect, since it was explicitly stated by the interview partners that in their experience uncertain conditions necessitate personal contacts to manage and govern relationships. According to company B, relational ties form immaterial assets that hold their partnerships together and are much more flexible than contracts or material assets. Differences in the strategy of the cooperation or operational changes can be solved by personal dialogue rather than time-consuming renegotiations of contracts. The interview partner from company C further mentioned that it regularly hosts conferences with all its cooperation partners to exchange required information and strengthen the relational ties among all cooperating LSPs.

The effects are also displayed in Figure 5, which shows the relationship of relational governance and different levels of environmental uncertainty similar to Figure 4. At low levels of environmental uncertainty (one standard deviation below the mean factor score) relational governance has a detrimental effect on the performance (β = .590), while at medium levels of uncertainty (mean factor score) relational governance shows no significant effect (β = .026). Similar to the results displayed in Figure 4, only at high levels of uncertainty (one standard deviation above the mean

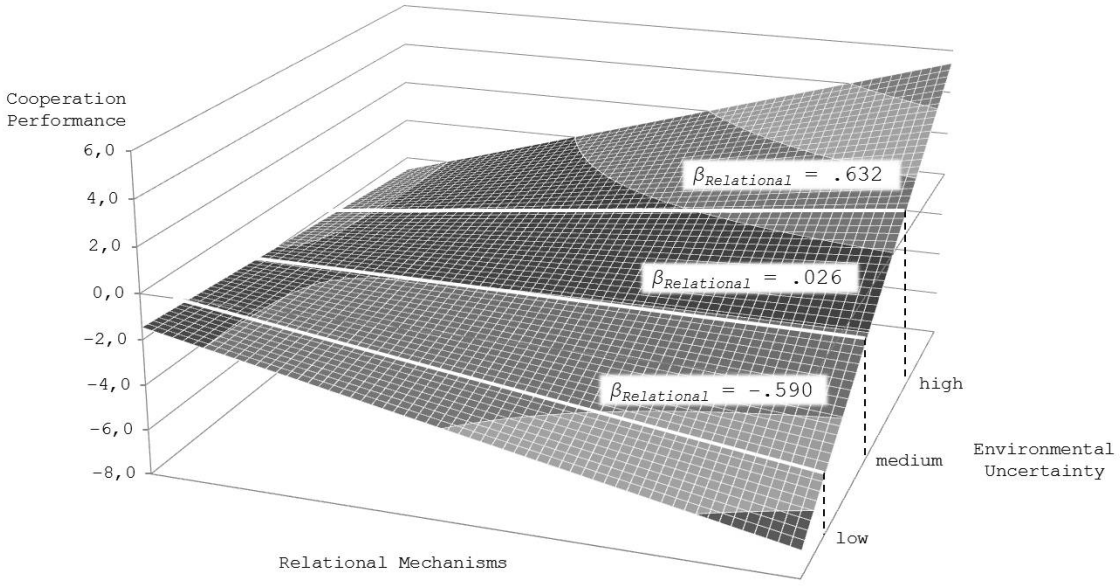

Fig. 5: Relational mechanisms impact

factor score) relational governance shows a strong positive impact (β = .632) on the performance of LSPs in horizontal cooperations.

All three dimensions of relational governance included in the model exhibit strong positive effects (*commitment* (b = .337), *embeddedness* (b = .464), *trust* (b = .409)) on the aggregated relational mechanisms construct. All three interview partners could support this finding. Particularly the interview partners from company A and B stressed the fact that *embeddedness* and *trust* can act as substitutes for more formal governance methods or even can make legal contracts obsolete. While the interview partner from company C put forward compliances requirements that make further governance methods mandatory, he confirmed that as logistics services are mainly people driven, *embeddedness* and *trust* play a vital role in exchange relationships. The commitment to partners was seen as an important fact by all three interview partners, yet to a lesser extent than the other two aspects of relational governance. The unified relational mechanisms construct has no significant impact on the performance, thus the second hypothesis must be rejected.

Opposing to these findings derived from the captured data former research found evidence that environmental uncertainty hinders firms to make use of trust-based governance mechanisms [73]. As the study at hand focused mainly on the interplay of behavioral and environmental uncertainty, it might have happened, that relational mechanisms are relatively ineffective under high environmental uncertainty compared to transactional mechanisms. Still they can constitute a viable alternative solution. Another study, which focuses on new business ventures in a transition economy, namely China, concludes that the ability to benefit from business relations moderates the negative effects of environmental uncertainty and thus supports firms to grow by enhancing their performance [127].

In regards to the control variable, there was a slight positive impact on the performance by the joint usage of relational and transactional mechanisms. Previous studies examining the interaction of these two governance mechanisms came to opposing conclusions, with some studies finding a support for them acting as complements [86] while other results found them acting as substitutes [156]. If transactional mechanisms are reinforced by relational mechanisms such as *trust* and close personal ties, they are usually more effective, as they are designed with the continuation of the cooperation in mind. These findings are however not surprising, given the fact that transactional mechanisms are made up by the construct's relationship-specific investments into assets and ICT, which usually require *trust* and *commitment* by individual partners towards the cooperation.

In the experience of the interview partner from company B and consistent with his assertions on the observed effects for transactional governance mechanisms, horizontal LSP cooperations initially do not require heavy investments at the beginning of a cooperation, while at later stages the need for transactional based governance increases. Over time, as the number of cooperation fields is extended the number of contact partners grows and contacts become more impersonal. Accordingly, the need for transactional-based governance increases. Consequently, and in line with the interview partners' opinion, the joint practice of transactional and relational governance is most effective, as an individual LSP operates cooperations at different maturity stages with various cooperation partners. This applies especially in the case of African and Middle Eastern LSP, as the economy is in a transition phase, including market volatility, growth and changes in the market environment. This development is a driver for joint usage of transactional and relational governance mechanisms as aforementioned.

6 CONCLUSION AND FURTHER RESEARCH

The empirical results of the presented study indicate that environmental uncertainty has a strong negative effect on performance for cooperations between LSPs. In particular, the findings suggest that due to the characteristics of horizontal cooperations, relational and transactional mechanisms show no, or even a detrimental effect at low levels of uncertainty. This effect tilts over at high level of uncertainty, where environmental uncertainty would suppress high performance of individual LSPs. This finding is in stark contrast to previous studies on vertical cooperations, which do not find such a strong dependence of governance instruments on the economic environment.

The theoretical and practical contribution of the study at hands is based in its explorative character and focus on a topic of increasing importance. As the spreading of production sites all over the world along with globally distributed customers for reasons of cost or quality control is gaining more and more weight in the future, the sector of logistics comes under pressure to fulfill increased demands. To meet these demands cooperations are a key success factor. Especially under the conditions typical for emerging markets, firms can profit from the synergies realized through cooperations. As outlined before, research on vertical cooperations is at a satisfactory level. In contrast, there are hardly scientific results to be found on horizontal cooperation, which is particularly important to strengthen a certain segment of the industry namely competing firms operating at the same level in the market. Looking at the theoretical impact, the paper

represents an extension of the existing knowledge as it widens the understanding of firms' performance changes due to individual management decisions as well as their combined effects. Especially the latter is of major interest under consideration of the inconclusive findings of previous research in regard of interaction effects between relational and transactional governance mechanisms.

6.1 Managerial & theoretical implications

As the flow of commodities spreads to new markets and LSPs from emerging economies extend their service range, horizontal relationships with other LSPs become increasingly critical to a firm's success in these economies. Subsequently small-sized LSPs, which are typically found in emerging economies, are more likely to bundle their resources and tender on larger contracts that can normally only be tendered for by larger sized LSPs [142]. The results suggest that executives of LSPs in emerging economies should consider environmental contingencies when making decisions about using transactional and relational governance mechanisms to manage collaborations. In particular, as the perceived external risks are manifold, executives should emphatically use *trust*, *commitment* and *embeddedness* to open up communication and ensure the joint development of inter-personal and inter-firm ties among participants.

Since relational mechanisms and contracts can be viewed as substitutes [146], executives are unlikely to rely upon contracts in highly uncertain environments. At the same time, joint investments can act as a substitute for written agreements, as they increase the break up cost in case of opportunistic behavior. Executives should thus invest into the connectivity of their respective ICT systems. In addition, the joint utilization of assets like truck capacity or warehouse space signals a dedication to the relationship and acts as cohesive factor for horizontal relationships. However, if the economic conditions surrounding the horizontal cooperation are stable, executives should consider other governance mechanisms like written agreements and contracts, as transaction-specific investments and relational forms are not sufficient to suppress opportunism in this context.

Another lesson learned from this study is that the differentiation between the two examined governance mechanisms does not significantly affect the success of these relationships. As LSPs aim to decrease opportunism and improve cooperation performance, the executives should consider using relational mechanisms alongside transactional mechanisms. However, as most LSPs operating in emerging economies are small in size and cash restricted, executives might not have the financial means or manpower for far-reaching alignment of their ICT systems or assets. Consequently, relational governance aspects seem more viable under such circumstances. However, as the economies and institutions progress and become more stable, other means of governance might become more applicable. As many LSPs operating in emerging economies rapidly extend their business relationships to more industrialized countries, they might move towards a more legal-based way of governance instead of utilizing relational and transactional governance mechanisms.

When focusing less on direct application of the results in form of managerial implications but more on implications for theory, namely transaction cost theory and social exchange theory, some light is shed on the complex relation between diverse governance mechanisms and firms' performance under the influence of environmental uncertainty. As the results of the study show, transactional governance mechanisms as well as relational mechanisms do not show positive effects under low environmental uncertainty concerning firm performance. This is in line with transaction cost theory, which assumes a rise in dependence between firms when high transaction-specific costs occur. Hereby, the incentive for opportunistic behavior would also rise. As the aim of economically motivated organizations like firms is the restraint of opportunism, transactions with high specificity are avoided as a rule. Only under the assumption of high environmental uncertainty, which in transaction cost theory induces stronger endeavor for integration activities, an according reaction among the sample was observed. As the integration in the form of transaction comes with the detriment of losing flexibility and binding capital, the degree to which transactional governance is employed is kept low as long as possible. Thus, the study provides empirically substantiated proof for the influencing character of environmental uncertainty when it comes to the application of transactional governance mechanisms. Similar results could be observed for relational mechanisms, belonging to the field of social exchange theory. This implies that such governance mechanisms are also used to a higher degree mainly due to the pressure originating from the environmental uncertainty. As former research showed the effectivity of relational governance in principal, the study at hand extends this knowledge and shows the increase in performance under uncertainty when applying relational governance mechanisms. Even though, an interaction effect of transactional and relational mechanisms could not be determined, it becomes clear, that effectivity of both individually is increased under environmental uncertainty. These findings could be the first step to support the explanation approach in social exchange theory, stating that relational governance develops only slowly over a period. Thus, for relatively young horizontal cooperations the transactional mechanisms are the preferred instrument as governance mechanism while in older relationships more trust is placed in relational mechanisms.

6.2 Limitations and future research

The results of this study have some limitations that may be worthwhile to explore in future research. In particular, only five different governance constructs were investigated, of which two can be allocated to transactional mechanisms and three to relational mechanisms. This leaves space for future research to explore the influence of other governance constructs that are either related to transaction cost theory or social exchange theory such as contracts or previous business relations. In addition, governance mechanisms based on other theories might be worthwhile to explore. A limitation of the research study is that the data collection was restricted to an emerging economies setting and is therefore a limiting factor for the generalization of the findings. For example, the impact of the different governance mechanisms on the performance of horizontal LSP cooperations might differ between emerging economies and more industrialized and mature economies. Future research thus may extend this study to more industrialized regions, to ensure the generalizability of the results and to detect potential effects specific for emerging economies.

Although a broad aspect of emerging economies was covered, this approach has the limitation that relational governance mechanisms may depend on the specific culture inherent to the persons involved, or the specific institutional setting these persons are acting in. For example, different participants from the sample operate in different institutional settings and hence build a heterogeneous group. Same applies for the issue with differences in response behavior due to cultural differences among the participants of the study. Institutional setting and culture, both might lead to a bias but this is one of the limitations characteristic for a multi-country study, which often is a cross-cultural study at the same time. To remedy this an avenue for future research may be to examine whether the empirical results for the governance mechanisms identified in this paper are generally applicable by examining differences between two or more country-by-country samples in Africa and the Middle East. Additionally, it would be interesting to examine if the respective impact of relational and transactional governance mechanisms on the performance differ between horizontal LSP cooperations and horizontal cooperations in other industries.

Other starting points for future research might be in-depth case studies. Those, for example, would help to further understand how specific facets of environmental uncertainty affect the different governance mechanisms. Such a more narrow research design would also allow for specific practical recommendations applicable for firms showing sufficient match to the surveyed firms for example in regards to size or managerial structures. Further research using longitudinal data would also be a worthwhile approach to examine the impact of environmental uncertainty on the different governance mechanisms over time. In particular, for the relational aspects of governance this approach could provide promising insights.

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APPENDIX A: OVERVIEW OF STUDY PARTICIPANTS

No	Country	Region	Company
1	ALGERIA	Africa	AMT Groupe NCT Necotrans
2	ALGERIA	Africa	Bongiorno Algerie Sarl
3	ANGOLA	Africa	Erne-Mix Lda
4	ANGOLA	Africa	GETMA Tramp Angola
5	ANGOLA	Africa	Goshmelo Shipping & Trading Ltd
6	BURKINA FASO	Africa	Express Handling Services
7	BURKINA FASO	Africa	Freight & Customer Service (FCS)
8	CAMEROON	Africa	Continental Freight Forwarders
9	CAMEROON	Africa	Express Cargo Sarl
10	DEMOCRATIC REPUBLIC OF THE CONGO	Africa	Express Line Shipping and Tourism Congo Sarl
11	DEMOCRATIC REPUBLIC OF THE CONGO	Africa	Swift Freight International
12	DJIBOUTI	Africa	Transit Marill
13	EGYPT	Africa	Cairo Star Group Ltd
14	EGYPT	Africa	Cargo International for Shipping & Trading SAE
15	EGYPT	Africa	Core Freight Logistics
16	EGYPT	Africa	Egypt Freight for Cargo Services
17	EGYPT	Africa	Egyptian Express Co
18	EGYPT	Africa	Egyptian Global Logistics SAE (EGL)
19	EGYPT	Africa	Eurofreight Global Logistics
20	EGYPT	Africa	First Global Logistics
21	EGYPT	Africa	Freight Jit - Egypt
22	EGYPT	Africa	Green Line International Ltd
23	EGYPT	Africa	KML (Khedivial Marine Logistics SAE)
24	EGYPT	Africa	Kuehne + Nagel Ltd
25	EGYPT	Africa	Master International
26	EGYPT	Africa	Perfect Air Services
27	EGYPT	Africa	Schenker
28	EGYPT	Africa	Trimar Forwarding
29	ETHIOPIA	Africa	KK PLC (KK International Freight Logistics)
30	GHANA	Africa	BJH Logistics Services Limited
31	GHANA	Africa	Conship
32	GHANA	Africa	Consolidated Shipping Agencies
33	GHANA	Africa	Damco
34	GHANA	Africa	ECN Nigeria Ltd
35	GHANA	Africa	Etap Royal Maritime Agency Limited
36	GHANA	Africa	Felixwalters Agencies Ghana Ltd
37	GHANA	Africa	Ginde Island Shipping Limited
38	GHANA	Africa	KW Speed Logistics Ltd
39	GHANA	Africa	Overseas Shipping and Logistics Ghana Limited
40	GHANA	Africa	Platinum Shipping & Logistics Limited (PSL)
41	GHANA	Africa	Trans-World Freight Services Ltd
42	KENYA	Africa	Aerosea Freight Logistics Ltd
43	KENYA	Africa	Benairs Logistics Limited
44	KENYA	Africa	Benato Logistics Limited
45	KENYA	Africa	Chesaka International Company Limited

46	KENYA	Africa	Four Seas Cargo Ltd
47	KENYA	Africa	Freight Forwarders Kenya Ltd
48	KENYA	Africa	Genuine Freight Services Ltd
49	KENYA	Africa	Kenmark Consultants (East Africa) Ltd
50	KENYA	Africa	Kenmont Logistics Limited
51	KENYA	Africa	Mid Africa Services Ltd
52	KENYA	Africa	New Planet Express Limited
53	KENYA	Africa	Northwest (K) Ltd
54	KENYA	Africa	Northwest (K) Ltd
55	KENYA	Africa	Ocean Pacific International Lines Ltd
56	KENYA	Africa	Pinnacle Group (Kenya) Ltd
57	KENYA	Africa	Rescue Tech Enterprises Ltd
58	KENYA	Africa	Schenker
59	KENYA	Africa	Seashore Shipping Services Ltd
60	KENYA	Africa	Siginon Freight Ltd
61	KENYA	Africa	Valdorama Logistics Company
62	LIBERIA	Africa	Platinum Shipping & Logistics Limited
63	MALAWI	Africa	KAS Freight Ltd
64	MAURITIUS	Africa	Cargoways Services Ltd
65	MOROCCO	Africa	Benyahia Transport Morocco Sarl
66	MOROCCO	Africa	Fast Global Logistics
67	MOZAMBIQUE	Africa	CEI
68	MOZAMBIQUE	Africa	Manica Freight Services (Mozambique) SA
69	NAMIBIA	Africa	Desert Logistics
70	NAMIBIA	Africa	Manica Group Namibia (Pty) Ltd
71	NAMIBIA	Africa	Transwide Freight CC
72	NIGERIA	Africa	Admiralty Logistics & Purchasing Ltd
73	NIGERIA	Africa	ATC Globalwide
74	NIGERIA	Africa	Broadline Services Limited
75	NIGERIA	Africa	Candid Logistics Nigeria Ltd
76	NIGERIA	Africa	Freedom Freight & Global Shipping Limited
77	NIGERIA	Africa	Goodday Logistics Services Nig. Limited
78	NIGERIA	Africa	KSP Shipping & Logistics Ltd
79	NIGERIA	Africa	Mahilcargo Services Intl Ltd
80	NIGERIA	Africa	Talod Oceanair Freight Ltd
81	NIGERIA	Africa	Ukih International Nigeria Limited
82	REPUBLIC OF TOGO	Africa	Marine Assistance
83	REUNION	Africa	Ariva Logistics Reunion Sarl
84	RWANDA	Africa	Savino Del Bene Rwanda (Frameg Cargo Services (R) Ltd)
85	SOUTH AFRICA	Africa	CasCade Clearing & Forwarding
86	SOUTH AFRICA	Africa	FT Global Logistics
87	SOUTH AFRICA	Africa	Multi Freight Services
88	SOUTH AFRICA	Africa	PA Cargo CC
89	SOUTH AFRICA	Africa	Rohlig-Grindrod (Pty) Ltd
90	SOUTH AFRICA	Africa	Schenker
91	SOUTH AFRICA	Africa	Shumani Logistics (Pty) Ltd
92	SOUTH AFRICA	Africa	Zebra Freight

93	SOUTH SUDAN	Africa	Interfreight East Africa Ltd
94	SUDAN	Africa	Atlantic Shipping Co Ltd
95	SUDAN	Africa	Fadex Cargo Services Co Ltd
96	SUDAN	Africa	O Logistics Africa
97	SUDAN	Africa	Paw Freight and Shipping Co Ltd
98	SUDAN	Africa	Wingeeshipping
99	TANZANIA	Africa	Breakthrough Holdings Ltd
100	TANZANIA	Africa	Forwardair Ltd
101	TANZANIA	Africa	Mercator Transport Tanzania Limited
102	TANZANIA	Africa	Millenium Wings Ltd
103	TANZANIA	Africa	Seashore Freight and Logistics (T) Ltd
104	TANZANIA	Africa	Teddy Junior Limited
105	TUNISIA	Africa	Dahmani Transit International
106	TUNISIA	Africa	Delta
107	TUNISIA	Africa	Delta Express Line
108	TUNISIA	Africa	Horizons Maritimes
109	TUNISIA	Africa	Horizons Maritimes
110	TUNISIA	Africa	SCAC Tunisie
111	UGANDA	Africa	Diamond Shipping Services Ltd
112	UGANDA	Africa	Inter-Cargo Agencies
113	UGANDA	Africa	Jofra International Forwarders Ltd
114	UGANDA	Africa	Kenlloyd logistics
115	UGANDA	Africa	Role Express Company Limited
116	ZAMBIA	Africa	Hill & Delamain
117	ZAMBIA	Africa	Rapid Freight International LLC
118	ZIMBABWE	Africa	Aviocean Freight Services Pvt Ltd
119	ZIMBABWE	Africa	Big Business Cargo
120	ZIMBABWE	Africa	Groupair (PVT) Ltd/G A Freight
121	ZIMBABWE	Africa	Infinity Freight Services P/L
122	ZIMBABWE	Africa	Keylogistics
123	BAHRAIN	NME	Bahrain International Cargo Services WLL
124	BAHRAIN	NME	DGI Global Forwarding (Bahrain) WLL
125	BAHRAIN	NME	Turk Logistics and Heavy Transport
126	BAHRAIN	NME	Wilhelmsen
127	IRAN	NME	Amadrah Pishgaman Int‘l Air Freight Services
128	IRAN	NME	Blue Calm Marine Services Co
129	IRAN	NME	Derakhshan Rah Iranian
130	IRAN	NME	Farasoobar Int‘l Forwarders & Transport Co Ltd
131	IRAN	NME	Persian Cargo International Forwarders & Shipping Co Ltd
132	IRAN	NME	Sorat Rasan International Forwarding Company
133	ISRAEL	NME	Classic Forwarding Grp: Saban Intl Ltd
134	ISRAEL	NME	Compass Cargo Ltd
135	ISRAEL	NME	Eyal Sela International Logistics Ltd
136	ISRAEL	NME	Plascow Logistics Ltd
137	JORDAN	NME	Al Karmel Travel, Tourism, Trading Co
138	JORDAN	NME	Eagle Transport Services Company
139	JORDAN	NME	Jordanian Coast Cargo Services

140	JORDAN	NME	Leen Cargo
141	JORDAN	NME	Maltrans Shipping Agencies Co
142	JORDAN	NME	Wilhelmsen Ships Service
143	JORDAN	NME	ZWA Aviation International Forwarders
144	KINGDOM OF SAUDI ARABIA	NME	Best Express
145	KINGDOM OF SAUDI ARABIA	NME	Integrated Logistics Services
146	KINGDOM OF SAUDI ARABIA	NME	Pace Logistics
147	KINGDOM OF SAUDI ARABIA	NME	Platinum shipping Services Co Ltd
148	KINGDOM OF SAUDI ARABIA	NME	Universal Shipping & Forwarding Co
149	KINGDOM OF SAUDI ARABIA	NME	Worldwide Logistics Systems
150	KUWAIT	NME	Alghanim Group of Shippping
151	KUWAIT	NME	Bluestar Worldwide Logistics
152	LEBANON	NME	Beirut International Movers S.A.R.L BIM
153	LEBANON	NME	Destinators Sarl
154	LEBANON	NME	Navigators Sarl
155	LEBANON	NME	Sabra Freight Services
156	LIBYAN SOC PEOPLES‘ ARAB JAMAHIRIYA	NME	Almina International Transportation & Logistic
157	LIBYAN SOC PEOPLES‘ ARAB JAMAHIRIYA	NME	M&M Libya
158	OMAN	NME	Kimjhii Ramdas
159	REPUBLIC OF YEMEN	NME	Al Alimi Shipping & Logistics Co Ltd
160	REPUBLIC OF YEMEN	NME	Arwa Shipping & Logistics
161	REPUBLIC OF YEMEN	NME	Gas Aviation Services
162	STATE OF QATAR	NME	Bin Yousef Cargo Express WLL
163	STATE OF QATAR	NME	Gulf Agency Qatar
164	STATE OF QATAR	NME	Integrated Logistics Trading & Contracting WLL
165	STATE OF QATAR	NME	Overseas Cargo
166	STATE OF QATAR	NME	Paragon Shipping & Logistics WLL
167	SYRIA	NME	Arabian Cargo Group Syria
168	SYRIA	NME	Cargo Line International
169	UNITED ARAB EMIRATES	NME	Access Cargo LLC
170	UNITED ARAB EMIRATES	NME	AOL Logistics LLC
171	UNITED ARAB EMIRATES	NME	Blue Axis Shipping & Freight LLC
172	UNITED ARAB EMIRATES	NME	Expolanka Freight LLC
173	UNITED ARAB EMIRATES	NME	Gulf Agency Company Ltd
174	UNITED ARAB EMIRATES	NME	Heavy Load Freight Services LLC
175	UNITED ARAB EMIRATES	NME	Jenae Logistics LLC
176	UNITED ARAB EMIRATES	NME	Linkage International Shipping and Forwarding LLC
177	UNITED ARAB EMIRATES	NME	Midway Logistics LLC
178	UNITED ARAB EMIRATES	NME	Motherlines Shipping LLC
179	UNITED ARAB EMIRATES	NME	Phoenix Shipping LLC
180	UNITED ARAB EMIRATES	NME	SNTTA Cargo
181	UNITED ARAB EMIRATES	NME	Westport Shipping Services LLC

APPENDIX B: RELATION BETWEEN GOVERNANCE MECHANISMS AND PERFORMANCE OF HORIZONTAL LSP COOPERATIONS

Source	Mechanism	Statement
Artz, Brush 2000	relational	relational mechanisms positively influence performance
Dyer, Chu 2003	relational	'trust' as high performance relational mechanism
Dyer, Singh 1998	relational	relational mechanisms reduce transaction costs
Lavie, Haunschild, Khanna 2012	relational	'trust', 'embeddedness' and 'commitment' are mutually reinforcing relational mechanisms
Lee, Cavusgil 2006	relational	relational mechanisms have significant positive influence on alliance performance
Liu, Yadong, Ting 2009	relational	relational mechanisms positively influence performance
Macaulay 1963	relational	non-contractual relations bear certain advantages to contract-based relations
Poppo, Zhou, Zenger 2008	relational	relational mechanisms positively influence performance
Rowley, Behrens, Krackhardt 2000	relational	equivocal results on relational mechanisms' effect on performance
Schmoltzi, Wallenburg 2011	relational	relational mechanisms positively influence performance
Uzzi 1997	relational	relational mechanisms positively influence performance
Zhou, Poppo 2010	relational	effectiveness of 'trust' is dependent of environmental uncertainty
Lee, Cavusgil 2006	transactional	transactional mechanisms partially have a positive influence on performance
Li, Poppo, Zhou 2010	transactional	transactional mechanisms positively influence performance
Liu, Yadong, Ting 2009	transactional	transactional mechanisms positively influence performance; transactional mechanisms are prerequisites to implementation of relational mechanisms
Raue, Wieland 2011	transactional	transactional mechanisms positively influence performance
Srinivasen, Brush 2006	transactional	'contracts' positively influence performance
Vivek, Banwet, Shankar 2008	transactional	transactional mechanisms increase the dependence of partners
Zhou, Poppo 2010	transactional	effectiveness of 'contracts' is dependent of environmental uncertainty
Bradach, Eccles 1989	interaction	best performance in cooperations is achieved when combining relational and transactional mechanisms
Das, Teng 1998	interaction	relational and transactional mechanisms work as complements
Dyer, Singh 1998	interaction	often relational and transactional mechanisms are employed in parallel in effective cooperations in the industry; relational and transactional mechanisms work as substitutes
Ferguson, Paulin, Bergeron 2005	interaction	continuum between purely relational to purely transactional mechanisms
Hoetker, Mellewigt 2004	interaction	relational and transactional mechanisms work as complements
Lee, Cavusgil 2006	interaction	transactional mechanisms may hinder relational mechanisms
Liu, Yadong, Ting 2009	interaction	relational and transactional mechanisms work as complements; relational mechanisms are stronger than transactional mechanisms
Poppo, Zenger 2002	interaction	relational and transactional mechanisms work as complements
Ring, Van de Ven 1994	interaction	relational mechanisms are prerequisites to implementation of transactional mechanisms
Vivek, Banwet, Shankar 2008	interaction	relational and transactional mechanisms work as complements
Wallenburg, Raue 2011	interaction	relational and transactional mechanisms work as complements; relational mechanisms are stronger than transactional mechanisms