



Performance perceptions among supply chain members: A triadic assessment of the influence of supply chain relationship quality on supply chain performance

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3 **Performance perceptions among supply chain members: A triadic assessment of the**
4 **influence of supply chain relationship quality on supply chain performance**
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8 **Abstract**

9 **Purpose:** A good supply chain relationship quality (RQ) is a crucial precursor for any stable
10 exchange relationship which ensures relationship continuity. Although empirical research
11 suggests that strengthening RQ improves supply chain performance (SCP), most studies have
12 focused on dyadic business relationships. To fully understand the relational behaviour of a
13 firm embedded in a supply chain, we need to look beyond the dyad into triads. This paper
14 investigates how SCP is influenced by RQ in a triadic agribusiness supply chain.
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18 **Design/methodology/approach:** Evidence is drawn from a quantitative survey of 150
19 agribusiness firms in the maize supply chain in Uganda. Data was collected in triadic context
20 from 50 direct supply chains each composing of a supplier, focal firm and customer. Multi-
21 group structural equations modelling (SEM) was used to assess the differences in perception
22 on the influence of RQ on SCP amongst the supply chain members.
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26 **Findings:** Results provides empirical support for the positive influence of RQ on SCP. SEM
27 reveals differences in perception between the upstream and downstream and amongst the
28 supply chains members. While focal firms considered conflict, coercive power, commitment
29 and trust to be important; suppliers considered trust, dependency and non-coercive power; and
30 customers considered trust, dependency and coercive power to be important RQ factors
31 affecting supply chain performance.
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35 **Practical implications:** For agribusiness managers to enhance business performance there is
36 need to cultivate strong and mutual relationship with supply chain members. It is also
37 important to know how to handle conflicts and use of power so as to realise the benefits of
38 supply chain relationships.
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42 **Originality/value:** Our paper is novel in that it assesses SCP in a triadic context in an
43 agribusiness sector from a developing country context. We used novel approaches including
44 analysis of a triad, and multiple groups SEM to assess perceptions of each supply chain
45 member's.
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49 **Keyword:** Supply chain performance, Supply chain relationship quality, Structural equation
50 modelling, Agribusiness, Multi-group analysis
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54 **Paper type:** Research paper
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1.0 Introduction

The general agreement from previous studies in supply chain management (SCM) is that analysis of practices underpinning supply chain relationships have shifted from dyadic perspectives, where relationships are seen as isolated phenomena to a relationship perspective which emphasizes interdependence, connectedness and intimate relations (Gellynck & Molnár, 2009; Mentzer et al., 2001; Molnár, Gellynck, & Weaver, 2010). Therefore, a good supply chain relationship quality (RQ) is a crucial precursor for any stable exchange relationship that ensures relationship continuity. Although several studies have analysed the influence of RQ on supply chain performance (SCP) (e.g. Chang, Cheng, & Wu, 2012; B. Fynes, de Búrca, & Mangan, 2008; Molnár et al., 2010; Nyaga, Whipple, & Lynch, 2010); there still remains some critical gaps in SCM literature that deserve critical attention.

Firstly, most previous studies have focused on business-to-business (b2b) or business-to-consumer (b2c) relationships in dyadic settings (Athanasopoulou, 2009; Choi & Wu, 2009; Molnár et al., 2010; Nyaga et al., 2010). Analysing the supply chain at a dyadic level does not bring out the underlying dimensions of a supply chain (Kühne, Gellynck, & Weaver, 2013; Mentzer et al., 2001; Molnár et al., 2010; Rungtusanatham, Salvador, Forza, & Choi, 2003; Wu, Choi, & Rungtusanatham, 2010).

Secondly, most studies used data derived using a focal firm approach. This approach is not devoid of the possibility of inflated empirical relationships, a situation which limits the applicability of the findings at supply chain level (B. Fynes et al., 2008; Molnár et al., 2010; Narasimhan & Jayaram, 1998; Rungtusanatham, Choi, Hollingworth, Wu, & Forza, 2003; Whipple, Lynch, & Nyaga, 2010; Wu et al., 2010). Measuring supply chain level performance is important because: i) it assists in gauging supply chain member's contribution to SCP; ii) it helps to rationalize the continuation of participation of supply chain members; and iii) it forms the basis for understanding the sharing of joint net benefits among supply chain members. Therefore, to fully understand the relational behaviour of a firm embedded in a supply chain, we need to look beyond the dyad and into the triads for answers (Choi & Wu, 2009; Wu et al., 2010).

Thirdly, even though results from classical supply chain management studies suggest that strengthening RQ improves SCP, empirical evidence from the agribusiness sector is generally lacking (Boniface, 2012). It is against this background that this paper, making use of maize supply chain, focuses on supply chain members' perception of how their supply chain partners contribute to their individual performance as well as to supply chain level performance. We do this by examining a triadic supply chain (consisting of a supplier, a focal

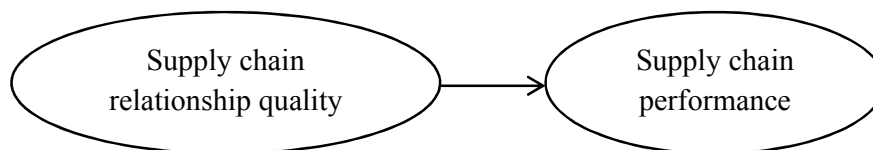
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3 firm and a customer) using a matched triad approach. Specifically, we assessed (i) SCP
4 implications of RQ, and (ii) how the SCP implication of RQ varies amongst the supply chains
5 members.
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8 The rest of this paper is structured as follows: the next section presents the theoretical
9 perspectives and the constructs, this is followed by a description of the methods used,
10 analysis, and presentation of the results, discussions and conclusions. Finally, the limitations
11 are discussed and directions for future research are given.
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14 15 **2.0 Theoretical perspectives and hypothesis**

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17 This paper explores the influence of RQ on SCP. To facilitate our understanding of
18 this relationship in a triadic context, we apply the social network theory(SNT). Social network
19 theory suggests that firms strive for closer relationships with other supply chain members
20 when mutual benefits can be achieved. These benefits can be derived from inter-dependencies
21 or complementarities, or when access to knowledge, resources, markets or technology is
22 sought (Wynstra, Spring, & Schoenherr, 2015). Since the 1990s, social capital theory has
23 become an important branch within the social network theory (Holma, 2012; Trienekens,
24 2011). Social capital increases the efficiency of an action and, in the form of high levels of
25 trust, social capital reduces opportunism and costly monitoring processes.
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28 The SNT therefore posits supply chain relationships as a resource that provides
29 mutual performance benefits to supply chain members. Our research proposition suggests that
30 good relationship amongst supply chain members have performance benefits to individual
31 supply chain members as well as the performance of the whole supply chain (Figure 1). The
32 SNT is therefore relevant to this paper and has been successfully applied in previous triadic
33 supply chain studies (Holma, 2012; Peng, Lin, Martinez, & Yu, 2010; Trienekens, 2011;
34 Wuyts, Stremersch, Van den Bulte, & Franses, 2004). Hence, the application of the social
35 network theory will be useful in advancing conceptual and practical understanding of the
36 performance implications of RQ in a triadic context.
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Figure 1: *Conceptual framework*

2.1 Supply chain performance (SCP)

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3 Extant literature suggests that supply chain relationships create opportunities for firms
4 to experience improved performance (B. Fynes et al., 2008; Molnár et al., 2010; Wu et al.,
5 2010). We define SCP as the operational measure that improves for each supply chain
6 member, as well as for the whole supply chain, as a result of their participation in a supply
7 chain relationship (Gagalyuk, Hanf, & Hingley, 2013; Molnár et al., 2010; Nyaga, Lynch,
8 Marshall, & Ambrose, 2013; Whipple et al., 2010). The perceived contribution of a supply
9 chain member to SCP was measured using four constructs of efficiency, responsiveness,
10 quality and supply chain balance.
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16 Efficiency is a measure of how well resources are utilized, and include logistic costs
17 and profits (Aramyan, Lansink, Van Der Vorst, & Van Kooten, 2007; Neely, Gregory, &
18 Platts, 1995). Logistic cost refers to the operating and opportunity cost items that can be
19 influenced by logistic decisions and integration of management practices and activities
20 throughout the supply chain. Profits refer to the net positive gains from investments or
21 business undertaking.
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26 Responsiveness is a measure of speed/rate of providing the requested products.
27 Responsiveness is measured in terms of lead time and customer complaints (Aramyan et al.,
28 2007; Molnár et al., 2010). Lead time is the total amount of time which elapses between
29 sending/getting request and delivery/receiving of goods or services (Gunasekaran, Patel, &
30 Tirtiroglu, 2001). Customer complaints are registered complaints from customers about
31 products or services.
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36 Quality consists of product and process quality. Product quality consists of safety and
37 attractiveness while process quality is measured by environmental friendliness (Aramyan et
38 al., 2007; Chen & Paulraj, 2004; Neely et al., 1995).
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42 Supply chain balance is defined as the distribution of risks and benefits as well as
43 supply chain understanding. Risks and benefits distribution refers to the extent to which
44 business risks and compensations are shared amongst supply chain members. Supply chain
45 understanding refers to the extent to which supply chain members understand each other's
46 products and process, roles and responsibilities (Molnár et al., 2010).
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51 **2.2 Supply chain relationship quality (RQ)**

52 RQ is the overall assessment of the strength of a relationship and the degree to which the
53 needs and desires of the supply chain members are satisfied, as well as the depth and the
54 atmosphere of an exchange relationship (Crosby, Evans, & Cowles, 1990; Dwyer, Schurr, &
55 Oh, 1987; Johnson, 1999; Naudé & Buttle, 2000; Srinivasan, Mukherjee, & Gaur, 2011; Woo
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3 & Ennew, 2004). RQ was measured using seven constructs of trust, commitment, information
4 sharing, coercive and non-coercive power, dependency and conflict.

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6 Trust between supply chain members has been widely suggested as an important
7 indicator of RQ (Gellynck, Vermeire, & Viaene, 2007; Kühne et al., 2013; Lu, Feng,
8 Trienekens, & Omta, 2008; Molnár et al., 2010). Trust is the supply chain member's belief
9 that another chain member will perform actions that will result in positive outcomes for the
10 supply chain member, as well as not take unexpected actions that would result in negative
11 outcomes for the supply chain member (Anderson & Narus, 1990). Micheels and Gow (2011)
12 argue that trust is often not present in many agricultural supply chains, due to the adversarial
13 nature and short-term orientation of spot-market transactions. Trust has been shown to
14 positively influence supply chain performance (Fynes, Voss, & de Burca, 2005; Terpend &
15 Ashenbaum, 2012). We therefore hypothesise that:

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23 H1: Trust positively influences supply chain performance

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25 Supply chain management literature defines commitment as an implicit or explicit
26 pledge of relational continuity between supply chain members (Dwyer et al., 1987). It is the
27 willingness of supply chain members to exert efforts on behalf of the relationship. Committed
28 supply chain members are less likely to exit the relationship than the less committed
29 members and consequently commitment reduces the transaction costs (TC) of doing business
30 amongst supply chain members (Cechin, Bijman, Pascucci, & Omta, 2013). Commitment
31 therefore functions to ensure that future orientation of supply chain members enables them to
32 build relationships that can stand un-foreseen problems (Mohr & Spekman, 1994; Monczka,
33 Petersen, Handfield, & Ragatz, 1998). As an important dimension of RQ, Hennig-Thurau,
34 Gwinner, and Gremler (2002) consider commitment as a critical indicator of successful
35 relationship among supply chain members. Previous studies (Jap & Ganesan, 2000; Krause,
36 Handfield, & Tyler, 2007; Prahinski & Benton, 2004) have shown that commitment results
37 into improved supply chain performance.

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45 We therefore hypothesise that:

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48 H2: Commitment positively influences supply chain performance

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50 Information sharing refers to the extent to which critical, often proprietary formal and
51 informal information is shared between supply chain members (Anderson & Narus, 1990;
52 Mohr & Spekman, 1994). Kwon and Suh (2004) argue that information sharing is essential in
53 a trust building process. This is because sharing of critical information enables firms to
54 develop an understanding of each other's routines and develop mechanisms of conflict
55 resolution, which signals that a supply chain member can be trusted. Frequent and timely
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3 information helps to resolve disputes and align expectations and perceptions along the supply
4 chain (Morgan & Hunt, 1994) Consequently, information sharing is critical in ensuring that
5 partners realise the benefits of a collaboration (Min et al., 2005). Previous studies (Baihaqi &
6 Sohal, 2013) have suggested that information sharing positively influences supply chain
7 performance.
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11 We therefore hypothesise that:

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13 H3: Information sharing positively influences supply chain performance

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15 The use of power has been identified as one of the most important antecedent of SCP
16 (Geyskens, Steenkamp, & Kumar, 1999). The bases of power can be classified into coercive
17 and non-coercive. Coercive power represents power struggle driven by force. It occurs when
18 a supply chain member's power enables the supply chain member to affect another supply
19 chain member's share of the benefits of collaboration for its own benefits. Non-coercive
20 power increases the value of the relationship through team support and common interests as
21 well as promoting collective goals (Jonsson & Zineldin, 2003). The use of non-coercive
22 power involves rewards and assistances, while the use of coercive power involves
23 punishments (Geyskens & Steenkamp, 2000). As the power hold of a supply chain member
24 over another supply chain member increases, the dependency of the weaker supply chain
25 member increases (Batt, 2004). It is postulated that the use of non-coercive power by a supply
26 chain member should increase SCP. On the other hand, the use of coercive power by a supply
27 chain member should decrease SCP (Zhao, Huo, Flynn, & Yeung, 2008).
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36 We therefore hypothesise that:

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38 H4a: Coercive power negatively influences supply chain performance

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40 H4b: Non-coercive power positively influences supply chain performance

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42 Dependency is an indicator of the extent to which a supply chain actor depends on
43 his/her supply chain partner (Jonsson & Zineldin, 2003). The dependency as well as the
44 interaction between the supply chain actors is influenced by the atmosphere of the specific
45 environment in which they operate and co-operate. Terpend and Krause (2015) argue that
46 high levels of dependency results in improved supply chain performance. Consequently, we
47 hypothesise that:
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52 H5: Dependency positively influences supply chain performance

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54 Conflict represents the overall level of disagreement in a supply chain relationship. As
55 such conflict is determined by the frequency, intensity and duration of disagreements.
56 Conflict in goals, interests, and sharing of benefits can compromise SCP (Weaver, 2009).
57 Conflict has been postulated as an important determinant of supply chain performance(Gailey
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3 & Young, 2012; Pearson & Monoky, 1976). Conflict has been postulated to negatively
4 influence supply chain performance(Gailey & Young, 2012). We therefore hypothesis that:

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6 H6: Conflict negatively influences supply chain performance
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9 10 **3.0 Methods**

11 **3.1 Data collection**

12 Data for this study was collected from the maize supply chain in Uganda between April 2014
13 and February 2015. A combination of judgmental and snowball sampling techniques was used
14 to identify survey respondents. The inclusion criteria were that the firm is a micro-small-and-
15 medium-enterprise (MSME) dealing in maize or maize product(s). Focal firms were
16 purposively identified based on their involvement in the maize supply chain as either a
17 processor or a wholesaler; and their willingness to participate in the study was sought before
18 the interviews were conducted. We interviewed business owners or their appointed
19 representatives at their business premises and took between 30-40minutes. During the
20 interviews, each focal firm was asked to identify one of their suppliers and customers. To
21 complete the supply chain, the supplier and the customer nominated by the focal firm were
22 followed up and asked to answer the same questions regarding the focal firm that nominated
23 them.
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33 In this way, a total of 150 valid questionnaires were realized, representing 50 maize
34 supply chains i.e. 50 suppliers, 50 focal firms, and 50 customers. Due to the nature of our
35 sampling method (matched triad approach), and the focus of our study on one supply chain, it
36 is possible that our sample could not represent the entire MSMEs population in Uganda.
37 Therefore our sample size was not selected to represent the underlying MSMEs population.
38 Consequently, generalization to the entire MSMEs population is not feasible. Similar studies
39 (Kühne, Gellynck, & Weaver, 2015; Wu et al., 2010) has shown the difficulties in achieving
40 representativeness using a matched triad approach.
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46 Most (73%) of the responding firms were small enterprises, which have been in
47 business operation for more than five years. These firms were involved in the production,
48 processing and marketing of maize in form of flour, feeds, seeds and grains. However,
49 majority (59%) were involved in marketing of maize as flour. Table 1 summarizes the
50 characteristics of the firms interviewed.
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Table 1: Respondent profile (%)

Categorization	Supplier	Focal firm	Customer
Business age			
≤ 5 years	10	12	10
6-10 years	22	24	32
11-20 years	62	50	46
>20 years	6	14	12
Business size*			
Micro	32	16	22
Small	68	78	77
Medium	-	6	4
Product type			
Flour	14	82	82
Feeds	50	4	2
Seeds	-	14	12
Grains	36	-	4

- *1-4=micro, 5-50=small, >50=medium sized enterprises
- *Classification based on number of employees (MTIC, 2014)

3.2 Measurements and scaling

The survey questionnaire was structured in three sections. The first section examined the supply chain member characteristics. The second section examined the RQ perception of the supply chain members using 22 statements representing seven RQ constructs (trust, commitment, information sharing, coercive power, non-coercive power, dependence and conflict). The third section assessed the SCP perception of the supply chain members using 11 statements depicting the four SCP constructs (efficiency, quality, responsiveness and chain balance). All items were measured on a 5-point Likert scale (1-strongly disagree, 2-disagree, 3-neutral, 4-agree, 5-strongly agree).

A matched triad approach was used to collect data. The framework applied was that each supply chain considered had a triplet of supply chain members (supplier, focal firm, and customer). For each item considered, each supply chain member was asked to provide a subjective assessment of other supply chain members. Therefore, each focal firm provided item scores on the nominated individual supplier (F_S) and customer (F_C). Similarly, each nominated supplier provided item score on the focal firm (S_F); and each nominated customer provided item scores on the focal firm (C_F). These perspectives are summarized in Figure 2 below.

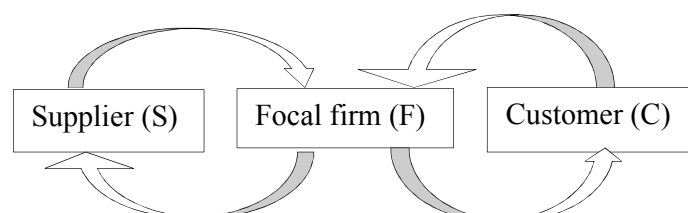


Figure 2: Relationship directions considered in data collection and analysis

4.0 Analyses

Content validity of the constructs used to measure SCP and RQ was supported by previous literature and pre-tests. After data collection, a number of tests were again performed to assess the validity and reliability of the constructs.

4.1 Exploratory factor analysis

Because the constructs were being used in a different context from which they have been developed and tested, we first conducted an exploratory factor analysis (EFA) with principal component analysis (PCA) to assess the unidimensionality of the constructs (Narasimhan & Jayaram, 1998; Zhao et al., 2008). The EFA was done without specifying the number of factors. Varimax rotation with Kaiser normalization was used to clarify on the factors (Janssens, Wijnen, De Pelsmacker, & Van Kenhove, 2008). Some measurement items were dropped either due to cross loadings or low factor loadings on the different components in an iterative process. Cronbach alpha was then calculated for each factor extracted so as to assess the internal consistency of the extracted components.

For RQ, six factors were extracted with Eigenvalues greater than 1.0, explaining 64.89% variations in RQ (Table 2). Because of low Cronbach alpha value, suggesting poor internal consistency amongst items, we adopted a one-item solution for non-coercive power (Table 2). The new RQ constructs generally maintained the original construction except for factor one(trust), which combined the original trust and information sharing items plus one commitment item.

Table 2: Summary of factor analysis for RQ

Construct	Factor loading	Eigenvalues	Cronbach's alpha
TR		2.83	0.76
TR1	0.71		
TR2	0.74		
TR3	0.53		
CM4	0.62		
IS1	0.55		
IS2	0.49		
IS4	0.61		
CM		1.94	0.68
CM1	0.77		
CM2	0.80		
CM3	0.65		
DEP		1.15	
DEP2	0.92		
NCP		1.29	0.28
NCP1	0.67		
NCP2	0.86		
CP		2.08	0.91

CPI	0.91	
CP2	0.90	
CON		1.1
CON2	0.81	

KMO=0.77; Bartlett's tests of sphericity: $X^2=826.95$; $p=0.000$

For SCP, EFA yielded a four factor solutions with eigenvalues greater than 1, explaining 60.17% variation in observed SCP construct. Some items were also dropped due to low factor loadings. As was the case for RQ, low Cronbach alpha values were also observed for SCP, suggesting poor internal consistency amongst items. Thus, we adopted a one-factor solution for responsiveness and chain balance. The new SCP constructs generally maintained their original dimensions (Table 3).

Table 3: Summary of factor analysis for SCP

Construct	Factor loading	Eigenvalues	Cronbach's alpha
Efficiency		1.79	0.58
EFF1	0.81		
EFF2	0.49		
EFF3	0.76		
Quality		1.58	0.52
RES2	0.53		
QUA1	0.75		
QUA2	0.72		
Responsiveness		1.45	0.45
RES1	0.68		
RES3	0.78		
Chain balance		1.19	0.24
BAL1	0.76		
BAL2	0.70		

KMO=0.67; Bartlett's tests of sphericity: $X^2=219.11$; $p=0.000$

4.2 Structural equation modelling (SEM)

Based on the results of EFA, we computed summative scores for each of the SCP constructs (efficiency, Quality, responsiveness, supply chain balance) and for each of the RQ constructs (trust, commitment, coercive power, non-coercive power, dependency, and conflict). The summative scores were calculated as the means of total item scores for each construct. This was done so as to assess how each RQ construct (trust, commitment, non-coercive power, coercive power, dependency and conflict) contributes to the performance (efficiency, quality, responsiveness, and supply chain balance). To test our overall hypothesis, three operations were successively performed. First, the summative scores of trust, commitment, non-coercive power, coercive power, dependency and conflict were aggregated. This was followed by dividing the aggregate figure by six to generate the aggregate for RQ.

Finally, the aggregate of the summative scores of efficiency, quality, responsiveness and chain balance was divided by four to generate the aggregate scores for SCP.

The second stage of analyses was to generate the standardized path estimates of the structural models. We did this by analysing data from five perspectives (pooled, F-S, F-C, C-F, S-F) using multi-group structural equation modelling (SEM) in AMOS 22. The multi-group SEM was used to ascertain whether the specified paths in the causal structure were equivalent across the different chain members as well as on the upstream and downstream of the supply chain, hence allowing for group comparison (Deng & Yuan, 2015). A structural model was built based on the modified measurement constructs using the maximum likelihood method (MLE). The goodness of fit indices for the structural model indicated that the model was acceptable, with $X^2=24.03$, $d.f=10$, $CFI=0.98$, $RMSEA=0.06$, $SRMR=0.005$, which are within acceptable threshold values.

5. Results

Our results provide empirical support for the general hypothesis that RQ has a positive effect on SCP (Table 4).

Table 4: General performance perception among supply chain members

Parameters	Perspectives				
	Pooled	S_F	F_S	F_C	C_F
Estimates	0.28	0.23	0.14	0.40	0.35
Standard error	0.12	0.29	0.17	0.18	0.23
C.R	4.09***	1.68	0.96	3.10**	2.60**

Specifically, we observed seven significant paths: with trust positively influencing quality and responsiveness; commitment positively influencing responsiveness, coercive power negatively influencing quality; dependency positively influencing efficiency and quality; and conflict negatively influencing responsiveness and positively influencing chain balance (Figure 3). Specifically, our results provide support to hypothesis H1, H2, H4, H5, and H6.

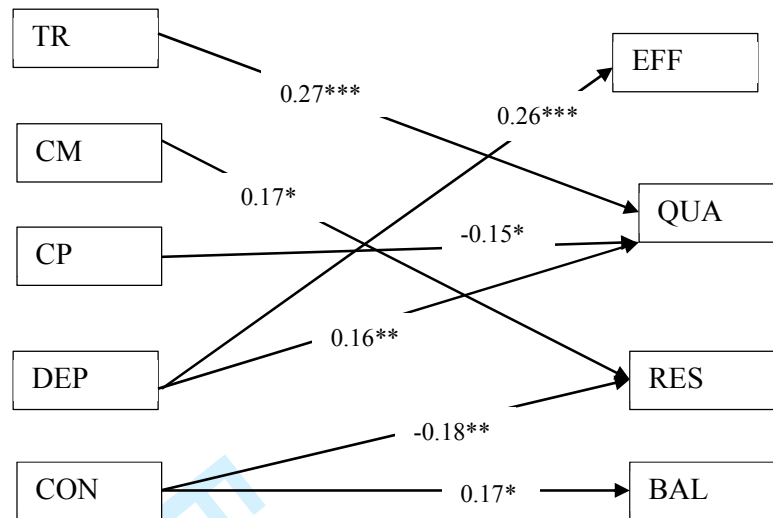


Figure 3: Standardized path estimates for the pooled sample

Note: *, **, ***, indicates significance at 0.05, 0.01 and 0.00 respectively

TR=trust, CM=commitment, CP=coercive power, DEP=dependency, CON=conflict, EFF=efficiency, QUA=quality, RES=responsiveness, and BAL=chain balance

To understand whether these relationship perceptions varies amongst supply chain members, as well as on the upstream and downstream of the supply chain, we conducted a multi-group SEM on specific causal paths. Results revealed that there were significant differences in perception between the upstream and downstream of the supply chain as well as amongst the supply chain members (Table 5).

Table 5: Standardized path estimation for sub-group specific estimates

Paths and perspectives			Estimates	Std.error	C.R.
F_S perspective					
Conflict	→	Quality	-0.29	0.08	-2.21*
Conflict	→	Responsiveness	-0.30	0.14	-2.32*
Conflict	→	Chain balance	0.28	0.17	2.13*
Commitment	→	Responsiveness	0.31	0.36	2.19*
Coercive power	→	Quality	-0.30	0.06	-2.15*
Coercive power	→	chain balance	0.41	0.14	2.88**
S_F perspective					
Trust	→	Quality	0.57	0.15	4.23***
Trust	→	Responsiveness	0.60	0.16	4.13***
Trust	→	Chain balance	0.39	0.22	2.53**
Dependency	→	Efficiency	0.39	0.09	3.44***
Non-coercive power	→	Efficiency	-0.41	0.11	-3.29**
Non-coercive power	→	Chain balance	-0.31	0.02	-2.36*
F_C perspective					
Trust	→	Quality	0.29	0.12	2.5*
Conflict	→	Chain balance	0.29	0.12	2.24*
C_F perspective					
Trust	→	Quality	0.59	0.11	4.88***
dependency	→	Quality	0.38	0.06	3.03**

Coercive power	→	Responsiveness	-0.40	0.08	-2.79**
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*, **, *** indicates significance at 0.05, 0.01 and 0.00 respectively

On the upstream, while focal firms considered conflict, commitment and coercive power as important factors that influence their performance with respect to their suppliers, suppliers considered trust, dependency and non-coercive power as important factors that influence their performance with respect to focal firm. On the downstream, focal firms considered trust and conflict as important factors determining their performance, while customers considered trust, dependency and coercive power as important in determining their performance. It is clear from these results that there are perceptual differences amongst supply chain members regarding what influences SCP.

5.0 Discussions

Measurement of supply chain level performance has recently attracted a lot of interest within supply chain management literature. This paper contributes to this discussion by looking at the supply chain members' perception of how their relationships with supply chain partners contribute to their individual performance as well as the performance of the whole chain. We used data from 50 direct supply chains, each composing of a supplier, a focal firm and a customer. This conceptualization goes beyond the scope of most previous studies that predominantly collected and analysed data from a single supply chain member's perspective using a dyadic approach. The shift in analysis from dyad to triad as well as multiple group SEM, looking at individual supply chain member's perspectives, further add a new dimension to supply chain management literature. Additional contribution of this paper lies in the fact that it provides insights into SCP from an agribusiness supply chain operating in a developing country context.

As far as measurement of SCP and RQ is concerned, our results provide support to the existing measurement construction approaches. However, we find evidence that the construct for measuring trust includes information sharing. This suggests that sharing of accurate and timely information amongst supply chain members is an indication of trust amongst supply chain members. This result finds support from literature on trust within the agribusiness domain which suggest that trust allows supply chain members to be confident in their interpretation of market information from other supply chain members (e.g. Micheels & Gow, 2011).

Our results from pooled sample analysis show that RQ had a positive and significant effect on SCP. This is in consonant with findings from previous studies (Kühne et al., 2013;

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3 Molnár et al., 2010; Schiefer, Fritz, Ziggers, & Henseler, 2009). This suggests that by
4 developing and engaging in good relationships, supply chain members can improve SCP.
5 Therefore while previous studies identified empirical support for the performance
6 implications of RQ using a dyadic framework (Nyaga et al., 2013) our findings extend this
7 fact to agribusiness supply chains in a developing country context using a triadic approach.
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11 As shown in Table 5. Our results suggest that relationships were perceived to be better
12 on the downstream (between the focal firm and customer) than on the upstream (between the
13 supplier and the focal firm). This finding is in contrast with the work of Reynolds, Fischer,
14 and Hartmann (2009) which showed that relationship was felt better at the farmer-processor
15 level than the processor-retailer level in the German milk supply chain. This can be explained
16 by the fact in the Ugandan context, the downstream is dominated by formal business, while
17 the upstream is composed mainly of informal businesses as compared to the upstream.
18 Consequently, supply chain members would prefer to do business with well-known and
19 registered supply chain members, hence better business relationships.
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26 Looking at the upstream; trust, commitment, coercive power, non-coercive power,
27 dependency and conflict were the most important RQ attributes that influenced SCP (Table
28 5). While the directions of the path estimates were generally as expected, the influence of
29 conflict and non-coercive power on chain balance was counter intuitive.. Focal firms
30 perceived conflict to have a positive effect on chain balance,. While SCM literature reduces
31 SCP, this seems not to be the case in agri-business chains. This results finds support in the
32 work of (Molnár et al., 2010) who argue that looking for solutions to critical issues (conflict),
33 should into a r balanced distribution of risks and benefits (chain balance), hence improve
34 performance.
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41 Similarly, focal firms perceived the use of coercive power to positively influence
42 chain balance. The use of coercive power has been generally hypothesized to have a negative
43 effect on SCP (Nyaga et al., 2013; Zhao et al., 2008). However, our results suggest that in
44 agribusiness supply chain set-ups where there are minimal or no formal governance
45 mechanisms (as it is in the maize supply chain) , the use of coercive power will result into a
46 balanced distribution of risk and benefits. Though it finds no support in literature, this
47 suggests that powerful supply chain members can coerce the other supply chain members to
48 conform to required standards and hence improve performance.
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54 From the suppliers' perspectives, trust was the main factor that contributed to improve
55 SCP. This is in line with the results of previous studies which suggest that trust positively
56 influences SCP (e.g. B. Fynes et al., 2008). On the other hand, the negative influence of non-
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3 coercive power on SCP as observed in this study is counter intuitive. Whereas some previous
4 studies such as those of Terpend and Ashenbaum (2012) and Arend and Wisner (2005)
5 suggest that the use of non-coercive power leads to better networking hence improved SCP,
6 others performed by Kühne et al. (2013) show that the use of non-coercive power was
7 associated with decreased SCP in the European traditional food chains. Considering that all
8 these studies used different supply chain types, it becomes very apparent that the use of
9 rewards as a means of ensuring conformance to expectations amongst supply chain members
10 would depend on the nature and type of supply chain. Our results therefor provide support to
11 arguments by (Kühne et al., 2013) that the use of non-coercive power tend to have negative
12 influence on SCP.
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20 On the downstream there is clear evidence that trust positively influences SCP,
21 particularly in terms of quality (Table 5). This is not surprising because previous empirical
22 research in agribusiness supply chains have shown that trust is very important in ensuring
23 quality of the products (Kühne et al., 2013; Lindgreen, Hingley, Trienekens, Kottila, & Rönni,
24 2008; Molnár et al., 2010). Similar to the upstream, focal firms perceived the presence of
25 conflict with their customers to result into improve chain balance. For customer's , trust,
26 dependency and coercive power were the significant RQ attributes that influenced SCP. Of
27 particular interest is the positive and significant influence of dependency to the performance
28 of suppliers and customers. This suggests the exercise of power-dependence between focal
29 firms and their customers. A higher dependence is equivalent to being promised an increased
30 reward, as such this will increase the motivation to perform well so as to receive the reward
31 and secure the motivation in the long run(Terpend & Krause, 2015).
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40 **6. Conclusions**

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42 With evidence from an agribusiness supply chain in a developing country, our study
43 provides evidence that relationships are bi-directional in nature. Our results underscore the
44 importance of RQ in SCP by showing that better RQ leads to improved SCP. Consequently,
45 the paper therefore contributes to knowledge by providing empirical evidence on the role of
46 RQ in influencing SCP in agribusiness SMEs from a developing country context. The paper
47 also provides empirical insights into SCP perception differences amongst supply chain
48 members. For instance, while focal firms perceived the existence of conflict and coercive
49 power to significantly influence their individual performance with respect to the supplier,
50 suppliers perceive that trust and non-coercive power are important when dealing with their
51 focal firms. We also show that these perception differences are not only amongst supply
52 chain actors, but also vary between the upstream and downstream of the chain.
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3 Methodologically, our results offer support to the use of a triadic approach and multi
4 group SEM procedure in supply chain analysis in the agribusiness sector. Our methodology
5 incorporates novel approaches such analysis of a triad, and multiple group SEM to assess
6 perceptions of each supply chain member's perspectives.
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10 The main managerial implication arising from this paper is that managers of
11 agribusiness need to cultivate strong and mutual relationship with supply chain members in
12 order to enhance SCP. In particular, managers should have in place innovative mechanisms
13 to amicably handle conflicts with supply chain members. This is especially so in in situations
14 where formal governing mechanisms are absent as observed in this study. The influence of
15 dependency supply chain performance suggests that powerful chain members should use
16 their power effectively so as to leverage benefits to themselves as well as to the other supply
17 chain members.
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24 **Limitations and future research**

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26 This study focused on only one agribusiness supply chain in one country-Uganda.
27 Therefore, the findings can only be taken as a first indicator of the SCP in the Ugandan
28 context. Consequently, generalisation of these results to the entire MSMEs population should
29 be done cautiously. Future studies should confirm these results using datasets covering more
30 than one agribusiness supply chain. Such studies could compare differences in RQ perception
31 among different supply chains. Additionally, this study did not consider the different
32 typologies of transaction (e.g. contracts, spot market) along the supply chain. This dimension
33 if taken into consideration in future studies could provide some insights into whether the
34 nature of relationships among supply chain members varies depending on the nature of
35 transaction. Whereas our results highlight the significant role RQ on improving SCP, our
36 sample size was small. Consequently, these results deserve further considerations in similar
37 contexts using a larger sample size.
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55 **Acknowledgement**

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For Review Only

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Response to reviewers comments on: **Performance perceptions amongst supply chain members: a triadic assessment of supply chain relationship quality on supply chain performance**

First of all, we would like to thank you very much for the positive comments and fast review process.

Reviewer: 1

Recommendation: Minor Revision

Comments:

There are some adjustment necessary to the article.

Additional Questions:

1. Originality: Does the paper contain new and significant information adequate to justify publication?: **A new view is provided by considering the triadic relationship assessment. Also, the authors consider a country in which little research exists in this topic.** Other than that the paper does not contain new information.

2. Relationship to Literature: Does the paper demonstrate an adequate understanding of the relevant literature in the field and cite an appropriate range of literature sources? Is any significant work ignored?: **The paper considers the relevant literature in the field. The majority of the literature is prior 2010. It would have been good to consider more current literature.**

We agree with this observation that most of the literature include in the manuscript are prior to 2010. Accordingly, we have included relevant literature, post 2010 so as to give the paper more relevance in the recent literature. The new and recent references included are:

- i. Kühne, B., Gellynck, X., & Weaver, R. D. (2015). Enhancing Innovation Capacity Through Vertical, Horizontal, and Third-Party Networks for Traditional Foods. *Agribusiness*, 31(3), 294-313. doi: 10.1002/agr.21408
- ii. Nyaga, G. N., Lynch, D. F., Marshall, D., & Ambrose, E. (2013). Power asymmetry, adaptation and collaboration in dyadic relationships involving a powerful partner. *Journal of Supply Chain Management*, 49(3), 42-65.
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3. Methodology: Is the paper's argument built on an appropriate base of theory, concepts, or other ideas? Has the research or equivalent intellectual work on which the paper is based been well designed? Are the methods employed appropriate?: **Structural Equation Modelling is a common method to measure relationships. The methodology is well designed.**

However, there have been some advancements in modelling and it would have been good if the authors would have considered the latest advancements.

On the advances in Structural Equations Modelling (SEM), we agree with the reviewer that there are recent advances in SEM. We have taken into account some of these advances by including the Multi-group SEM in our analysis. While this may not be exhaustive of the recent advances in SEM, we believe this was the most relevant to our study.

Regarding data collection:

It is not clearly shown who exactly was interviewed in the businesses, e.g. procurement, managing director. It is clear that most of the businesses are small sized businesses and therefore may only have one decision maker. But it is nowhere indicated.

Regarding who was interviewed, we interviewed the business owners or their appointed representatives. This is because most of the MSMEs are owned by individuals who personally run the daily business operations. We have made mentioned of this on page 7, lines 15-16 in the revised manuscript. "We interviewed business owners or their appointed representatives at their business premises and the interviews took between 30-40minutes".

In addition, table 1 shows the respondent profiles but no indication is given regarding the representativeness towards the total "business" population.

On the representativeness of the sample size, we do appreciate the fact that sample sizes should be as representative as possible to the study population. We have given an explanation for this as: "due to the nature of our sampling method (matched triad approach), and the focus of our study on one supply chain, it is possible that our sample never represented the entire MSMEs population in Uganda. Consequently, our sample size was not selected to represent the underlying MSMEs population; as such, generalisation to the entire population is not feasible. Similar studies (Kühne, Gellynck, & Weaver, 2015; Wu, Choi, & Rungtusanatham, 2010) has shown the difficulties in achieving representativeness using the matched approach", see page 7 line 22-28.

4. Results: Are results presented clearly and analysed appropriately? Do the conclusions adequately tie together the other elements of the paper?: **The results are clearly presented.**

5. Implications for research, practice and/or society: Does the paper identify clearly any implications for research, practice and/or society? Does the paper bridge the gap between theory and practice? How can the research be used in practice (economic and commercial impact), in teaching, to influence public policy, in research (contributing to the body of knowledge)? What is the impact upon society (influencing public attitudes, affecting quality of life)? Are these implications consistent with the findings and conclusions of the paper?: **The weakness, which the paper points out itself, is that the typology or nature of the transactions, eg spot markets, contracts are not considered. Also the study is considering only one country and therefore it is difficult to derive general learnings. The article should express this more clearly in the discussion.**

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4 Regarding the implication of this research for practice/society, we appreciate that you point
5 this issue of transaction cost typology. The scope of this paper is to understand how RQ
6 influence SCP in an agribusiness supply chain. Specially, we wanted to assess whether this
7 relationship is perceived differently amongst the different supply chain members as well as on
8 the downstream and upstream. Therefore we point out transaction typology as a research gap,
9 so as to guide future studies in this field and to advance the state of knowledge.
10

11
12 6. Quality of Communication: Does the paper clearly express its case, measured against the
13 technical language of the field and the expected knowledge of the journal's readership? Has
14 attention been paid to the clarity of expression and readability, such as sentence structure,
15 jargon use, acronyms, etc.: **This needs improvement, e.g. typos still exist in the paper. The**
16 **paper needs quite some proof reading and formatting.**
17

18
19 Regarding the quality of communication, we do agree with the reviewer. Accordingly, we
20 have done comprehensive grammar and spelling checks on the whole document and made the
21 necessary corrections and improved on the readability of the document. Additionally, we have
22 ensured that the entire document is now formatted to UK English.
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Reviewer: 2

Recommendation: Major Revision

Comments:

General comments:

This is an interesting area that warrants such investigation. It is useful for both academic and practitioner. The paper suffers a little from some poor English grammar and presentation. There are some areas of hypothesis, methodology (e.g., sampling, multi-group SEM) and results which need further addressing. It will also help to better understanding of the manuscript if questionnaires are attached. But generally a useful and necessary piece of work, that with amendments to presentation and addressing of aforementioned issues will make a useful contribution.

Detailed comments:

P2. line 28 and 36, reference of Rungtusanatham is not correctly cited.

Response:

We have corrected the reference of Rungtusanatham

P3. line 6, "as follows;" should be "as follows:".

reference of "Trienekens^①, 2011" should be "Trienekens, 2011".

Response:

We have make the corrections as suggested

P5. line 8, reference of "Lu, Feng, & Trienekens, 2008" should be "Lu, Feng, Trienekens, & Omta, 2008".

Response

We corrected the reference which has now been inserted in the document as:

Lu, H., Feng, S., Trienekens, J. H., & Omta, S. W. F. (2008). Performance in vegetable supply chains: the role of Guanxi networks and buyer–seller relationships. *Agribusiness*, 24(2), 253-274. doi: 10.1002/agr.20158

P.6. line 35, "micro small and medium enterprise" should be "micro-small-and-medium-sized enterprise".

line 38, "either a processor of a wholesaler" should be "either a processor or a wholesaler".

line 43, "the focal firm was followed up" should be "the focal firm were followed up".

Response:

Thank you for this observation, we have done the suggested corrections on the document

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3 **P7. Table 1 is not well structured. The number in Table 1 is not clear for percentage or**
4 **number. The information for business size is not clear as well. The number of "1-**
5 **4=Micro" refers to number of employees or turnover of the firm?**
6

7 **Response:**

8 The numbers in the table refers to percentages for each classification. For clarity, we have
9 inserted (%) next to the heading for the table
10 The classification of the MSMEs is based on the numbers of employees and this has been
11 indicated in the notes at the bottom of the table
12

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14 **P8. line 19, please be careful to say words like "the first time".**
15

16 **Response:**

17 Thank you for this observation, we have taken not of this and change the words accordingly
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19
20 **P8. Table 2 shows that the Cronbach's alpha is not well accepted for construct**
21 **dependency of RQ and the most constructs of SCP.**
22

23 **Response:**

24 We adopted a one-factor solution to these constructs whose Cronbach alpha value was low.
25 These are explained on page 9, line 17-18 for RQ "Because of low Cronbach alpha value,
26 suggesting poor internal consistency amongst items, we adopted a one-item solution for non-
27 coercive power";

28 And on page 10, line 5-7 for SCP "As was the case for RQ, low Cronbach alpha values were
29 also observed for SCP, suggesting poor internal consistency amongst items. Thus, we adopted
30 a one-factor solution for responsiveness and chain balance".
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33 **P9. It is not so clear how authors to compute summative scores and aggregate constructs**
34 **to calculate RQ and SCP Section 4.2.**
35

36 **Response:**

37 Thank you for this good observation; we have explained how we computed the summative
38 and aggregate scores.

39 "To test our overall hypothesis, three operations were successively performed. First, the
40 summative scores of trust, commitment, non-coercive power, coercive power, dependency
41 and conflict were aggregated. This was followed by dividing the aggregate figure by six to
42 generate the aggregate for RQ. Finally, the aggregate of the summative scores of efficiency,
43 quality, responsiveness and chain balance was divided by four to generate the aggregate
44 scores for SCP". (page 10, line 19-22; and page 10, line 1-2) in the revised manuscript.
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51 **P10. The presentation of Figure 3 is not readable. Please provide the full name of the**
52 **constructs.**
53

54 **Response:**

55 We have now provided the full names of the constructs in figure 3.

56 TR=trust, CM=commitment, CP=coercive power, DEP=dependency, CON=conflict, EFF=efficiency,
57 QUA=quality, RES=responsiveness, and BAL=chain balance (page 12, line 14-16)
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5 **P11. The discussion section needs pay more attention. (1) it is better to explain your**
6 **results focusing on upstream and downstream relationships. (2) Please clearly indicate**
7 **which part of Table 5 you are discussing. (3) Authors need to explain why for some**
8 **findings are contradicted to previous studies. (4) the difference among different SC**
9 **relationships need more explanation.**
10

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12 *Response*

13 Thank you for this comment. We have restructured the presentation of our results.
14 Accordingly, we have re-written the whole section on results and explained the results
15 following the downstream and upstream divide.
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18 “On the upstream, while focal firms considered conflict, commitment and coercive power as
19 important factors that influence their performance with respect to their suppliers, suppliers
20 considered trust, dependency and non-coercive power as important factors that influence their
21 performance with respect to focal firm. On the downstream, focal firms considered trust and
22 conflict as important factors determining their performance, while customers considered trust,
23 dependency and coercive power as important in determining their performance. It is clear
24 from these results that there are perceptual differences amongst supply chain members
25 regarding what influences SCP” (page 13, line 3-10).
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32 We have also explain contradicting results and given possible explanations for these with
33 relevant supporting literature in the discussion section.

34 As shown in Table 5. our results suggest that relationships were perceived to be better
35 on the downstream (between the focal firm and customer) than on the upstream (between the
36 supplier and the focal firm). This finding is in contrast with the work of Reynolds, Fischer,
37 and Hartmann (2009) which showed that relationship was felt better at the farmer-processor
38 level than the processor-retailer level in the German milk supply chain. This can be explained
39 by the fact in the Ugandan context, the downstream is dominated by formal business, while
40 the upstream is composed mainly of informal businesses as compared to the upstream.
41 Consequently, supply chain members would prefer to do business with well-known and
42 registered supply chain members, hence better business relationships.
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49 Looking at the upstream; trust, commitment, coercive power, non-coercive power,
50 dependency and conflict were the most important RQ attributes that influenced SCP (Table
51 5). While the directions of the path estimates were generally as expected, the influence of
52 conflict and non-coercive power on chain balance were counter intuitive.. Focal firms
53 perceived conflict to have a positive effect on chain balance. While SCM literature reduces
54 SCP, this seems not to be the case in agri-business chains. This results finds support in the
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3 work of (Molnár, Gellynck, & Weaver, 2010) who argue that looking for solutions to critical
4 issues (conflict), should into a r balanced distribution of risks and benefits (chain balance),
5 hence improve performance.
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10 Similarly, focal firms perceived the use of coercive power to positively influence chain
11 balance. The use of coercive power has been generally hypothesized to have a negative effect
12 on SCP (Nyaga, Lynch, Marshall, & Ambrose, 2013; Zhao, Huo, Flynn, & Yeung, 2008).
13 However, our results suggest that in agribusiness supply chain set-ups where there are
14 minimal or no formal governance mechanisms (as it is in the maize supply chain), the use of
15 coercive power will result into a balanced distribution of risk and benefits. Though it finds no
16 support in literature, this suggests that powerful supply chain members can coerce the other
17 supply chain members to conform to required standards and hence improve performance.
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21 From the suppliers' perspectives, trust was the main factor that contributed to improve
22 SCP. This is in line with the results of previous studies which suggest that trust positively
23 influences SCP (e.g. Fynes, de Búrca, & Mangan, 2008). On the other hand, the negative
24 influence of non-coercive power on SCP as observed in this study is counter intuitive.
25 Whereas some previous studies such as those of Terpend and Ashenbaum (2012) and Arend
26 and Wisner (2005) suggest that the use of non-coercive power leads to better networking
27 hence improved SCP, others performed by Kühne, Gellynck, and Weaver (2013) show that
28 the use of non-coercive power was associated with decreased SCP in the European traditional
29 food chains. Considering that all these studies used different supply chain types, it becomes
30 very apparent that the use of rewards as a means of ensuring conformance to expectations
31 amongst supply chain members would depend on the nature and type of supply chain. Our
32 results therefor provide support to arguments by (Kühne et al., 2013) that the use of non-
33 coercive power tend to have negative influence on SCP.
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37 On the downstream there is clear evidence that trust positively influences SCP,
38 particularly in terms of quality (Table 5). This is not surprising because previous empirical
39 research in agribusiness supply chains have shown that trust is very important in ensuring
40 quality of the products (Kühne et al., 2013; Lindgreen, Hingley, Trienekens, Kottila, & Rönni,
41 2008; Molnár et al., 2010). Similar to the upstream, focal firms perceived the presence of
42 conflict with their customers to result into improve chain balance. For customer , trust,
43 dependency and coercive power were the significant RQ attributes that influenced SCP. Of
44 particular interest is the positive and significant influence of dependency to the performance
45 of suppliers and customers. This suggests the exercise of power-dependence between focal
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firms and their customers. A higher dependence is equivalent to being promised an increased reward, as such this will increase the motivation to perform well so as to receive the reward and secure the motivation in the long run (Terpend & Krause, 2015). (page 14, lines 6-34; page 15, lines 1-23)

P13. It is worthwhile to add several lines for managerial implications of the study in Section 6.

Response

Thank you for this observation, we have improved the whole section on managerial implications: “The main managerial implication arising from this paper is that managers of agribusiness need to cultivate strong and mutual relationship with supply chain members in order to enhance SCP. In particular, managers should have in place innovative mechanisms to amicably handle conflicts with supply chain members. This is especially so in situations where formal governing mechanisms are absent as observed in this study. The influence of dependency supply chain performance suggest that powerful chain members should use their power effectively so as to leverage benefits to themselves as well as to the other supply chain members”(page 16, line 7-14) on the revised manuscript.

Additional Questions:

1. Originality: Does the paper contain new and significant information adequate to justify publication?: **Assessing agribusiness SCP of developing countries in a triadic context contributes to SCM literature.**

2. Relationship to Literature: Does the paper demonstrate an adequate understanding of the relevant literature in the field and cite an appropriate range of literature sources? Is any significant work ignored?: **It is well structured based on literatures of SCP and RQ. However, recent literatures (2013-2015) are mostly missing.**

We agree that most of the literature include in the manuscript are prior to 2010. Accordingly, we have included relevant literature, post 2010 so as to give the paper more relevance in the recent literature. The new and recent references included are:

- a. Kühne, B., Gellynck, X., & Weaver, R. D. (2015). Enhancing Innovation Capacity Through Vertical, Horizontal, and Third-Party Networks for Traditional Foods. *Agribusiness*, 31(3), 294-313. doi: 10.1002/agr.21408
- b. Nyaga, G. N., Lynch, D. F., Marshall, D., & Ambrose, E. (2013). Power asymmetry, adaptation and collaboration in dyadic relationships involving a powerful partner. *Journal of Supply Chain Management*, 49(3), 42-65.
- c. Deng, L., & Yuan, K.-H. (2015). Multiple-Group Analysis for Structural Equation Modeling With Dependent Samples. *Structural equation modeling: a multidisciplinary journal*(ahead-of-print), 1-16.
- d. Terpend, R., & Krause, D. R. (2015). Competition or Cooperation? Promoting Supplier Performance with Incentives Under Varying Conditions of Dependence. *Journal of Supply Chain Management*, n/a-n/a. doi: 10.1111/jscm.12080

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3 e. Terpend, R., & Ashenbaum, B. (2012). The intersection of power, trust and supplier
4 network size: Implications for supplier performance. *Journal of Supply Chain*
5 *Management*, 48(3), 52-77.
6 f. MTIC. (2014). *Uganda Micro, Small and Medium Enterprise (MSME) Policy*.
7 Kampala.
8 g. Gailey, E. D., & Young, J. A. (2012). An examination of marketing channel conflict
9 and cooperation in the motorsports industry. *Journal of Marketing Channels*, 19(3),
10 212-228.
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12
13 3. Methodology: Is the paper's argument built on an appropriate base of theory, concepts, or
14 other ideas? Has the research or equivalent intellectual work on which the paper is based been
15 well designed? Are the methods employed appropriate?: **SEM fits well the analysis purpose**
16 **of the manuscript. Authors however need to explain more about the multi-group SEM**
17 **methodology.**

18 Concerning the methodology, we have included a further explanation of what multi-group
19 SEM is and why it was used in this case. "The multi-group SEM was used to ascertain
20 whether the specified paths in the causal structure are equivalent across the different chain
21 members as well as on the upstream and downstream of the supply chain"(Deng & Yuan,
22 2015), page 11, line 5-8 in the revised manuscript.
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26 4. Results: Are results presented clearly and analysed appropriately? Do the conclusions
27 adequately tie together the other elements of the paper?: **The results needs better**
28 **explanation and comparison for upstream and downstream relationships.**
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31 **Authors need to explain why for some findings are contradicted to previous studies and**
32 **why.**

33 On the presentation of results, we have re-written the whole section on results and
34 explained the results following the downstream and upstream divide.
35 "On the upstream, while focal firms considered conflict, commitment and coercive power as
36 important factors that influence their performance with respect to their suppliers, suppliers
37 considered trust, dependency and non-coercive power as important factors that influence their
38 performance with respect to focal firm. On the downstream, focal firms considered trust and
39 conflict as important factors determining their performance, while customers considered trust,
40 dependency and coercive power as important in determining their performance. It is clear
41 from these results that there are perceptual differences amongst supply chain members
42 regarding what influences SCP"(page 13, line 3-10).
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49 As shown in Table 5. our results suggest that relationships were perceived to be better
50 on the downstream (between the focal firm and customer) than on the upstream (between the
51 supplier and the focal firm). This finding is in contrast with the work of Reynolds et al. (2009)
52 which showed that relationship was felt better at the farmer-processor level than the
53 processor-retailer level in the German milk supply chain. This can be explained by the fact in
54 the Ugandan context, the downstream is dominated by formal business, while the upstream
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3 is composed mainly of informal businesses as compared to the upstream. Consequently,
4 supply chain members would prefer to do business with well-known and registered supply
5 chain members, hence better business relationships.
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8 Looking at the upstream; trust, commitment, coercive power, non-coercive power,
9 dependency and conflict were the most important RQ attributes that influenced SCP (Table
10 5). While the directions of the path estimates were generally as expected, the influence of
11 conflict and non-coercive power on chain balance were counter intuitive.. Focal firms
12 perceived conflict to have a positive effect on chain balance,. While SCM literature reduces
13 SCP, this seems not to be the case in agri-business chains. This results finds support in the
14 work of (Molnár et al., 2010) who argue that looking for solutions to critical issues (conflict),
15 should into a r balanced distribution of risks and benefits (chain balance), hence improve
16 performance.
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19 Similarly, focal firms perceived the use of coercive power to positively influence
20 chain balance. The use of coercive power has been generally hypothesized to have a negative
21 effect on SCP (Nyaga et al., 2013; Zhao et al., 2008). However, our results suggest that in
22 agribusiness supply chain set-ups where there are minimal or no formal governance
23 mechanisms (as it is in the maize supply chain) , the use of coercive power will result into a
24 balanced distribution of risk and benefits. Though it finds no support in literature, this
25 suggests that powerful supply chain members can coerce the other supply chain members to
26 conform to required standards and hence improve performance.
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29 From the suppliers' perspectives, trust was the main factor that contributed to improve
30 SCP. This is in line with the results of previous studies which suggest that trust positively
31 influences SCP (e.g. Fynes et al., 2008). On the other hand, the negative influence of non-
32 coercive power on SCP as observed in this study is counter intuitive. Whereas some previous
33 studies such as those of Terpend and Ashenbaum (2012) and Arend and Wisner (2005)
34 suggest that the use of non-coercive power leads to better networking hence improved SCP,
35 others performed by Kühne et al. (2013) show that the use of non-coercive power was
36 associated with decreased SCP in the European traditional food chains. Considering that all
37 these studies used different supply chain types, it becomes very apparent that the use of
38 rewards as a means of ensuring conformance to expectations amongst supply chain members
39 would depend on the nature and type of supply chain. Our results therefor provide support to
40 arguments by (Kühne et al., 2013) that the use of non-coercive power tend to have negative
41 influence on SCP.
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3 On the downstream there is clear evidence that trust positively influences SCP,
4 particularly in terms of quality (Table 5). This is not surprising because previous empirical
5 research in agribusiness supply chains have shown that trust is very important in ensuring
6 quality of the products (Kühne et al., 2013; Lindgreen et al., 2008; Molnár et al., 2010).
7 Similar to the upstream, focal firms perceived the presence of conflict with their customers to
8 result into improve chain balance. For customer, trust, dependency and coercive power were
9 the significant RQ attributes that influenced SCP. Of particular interest is the positive and
10 significant influence of dependency to the performance of suppliers and customers. This
11 suggests the exercise of power-dependence between focal firms and their customers. A higher
12 dependence is equivalent to being promised an increased reward, as such this will increase the
13 motivation to perform well so as to receive the reward and secure the motivation in the long
14 run (Terpend & Krause, 2015). (page 14, lines 6-34; page 15, lines 1-23)

23
24 5. Implications for research, practice and/or society: Does the paper identify clearly any
25 implications for research, practice and/or society? Does the paper bridge the gap between
26 theory and practice? How can the research be used in practice (economic and commercial
27 impact), in teaching, to influence public policy, in research (contributing to the body of
28 knowledge)? What is the impact upon society (influencing public attitudes, affecting quality
29 of life)? Are these implications consistent with the findings and conclusions of the paper?:
30 **Managerial implications need to be elaborated.**

31
32
33 Thank you for this observation, we have improved the whole section on managerial
34 implications: “The main managerial implication arising from this paper is that managers of
35 agribusiness need to cultivate strong and mutual relationship with supply chain members in
36 order to enhance SCP. In particular, managers should have in place innovative mechanisms
37 to amicably handle conflicts with supply chain members. This is especially so in in situations
38 where formal governing mechanisms are absent as observed in this study. The influence of
39 dependency supply chain performance suggest that powerful chain members should use their
40 power effectively so as to leverage benefits to themselves as well as to the other supply chain
41 members”(page 16, line 7-14) on the revised manuscript.

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49 6. Quality of Communication: Does the paper clearly express its case, measured against the
50 technical language of the field and the expected knowledge of the journal's readership? Has
51 attention been paid to the clarity of expression and readability, such as sentence structure,
52 jargon use, acronyms, etc.: **English needs to be improved. Please asking for professional**
53 **English editing before resubmitting.**

54
55 We have stated the hypotheses for each of the explanatory variable (RQ construct) alongside
56 the overall hypothesis that was stated

57 *H1: Trust positively influences supply chain performance (page 5, line 13)*
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H2: Commitment positively influences supply chain performance (page 5, line 29)

H3: Information sharing positively influences supply chain performance (page 6, line 9)

H4a: Coercive power negatively influences supply chain performance (page 6, line 24)

H4b: Non-coercive power positively influences supply chain performance (page 6 line 25)

H5: Dependency positively influences supply chain performance (page 6, line 32)

H6: Conflict negatively influences supply chain performance (page 7, line 5)

In the presentation of results, we have also indicate which hypothesis were supported

“Specifically, we observed seven significant paths: with trust positively influencing quality and responsiveness; commitment positively influencing responsiveness, coercive power negatively influencing quality; dependency positively influencing efficiency and quality; and conflict negatively influencing responsiveness and positively influencing chain balance (Figure 3). Specifically, our results provide support to hypothesis H1, H2, H4, H5, and H6” (page 11, line 19-23).

(see page 5 line 13, 29; page 6 lines 7, 22, 23, 29; and page 7 line 3 in the revised document).

Regarding the quality of communication, we do agree with the reviewer. We have done comprehensive grammar and spelling checks on the whole document and made the necessary corrections. Additionally, we have ensured that the entire document is now formatted to UK English

In the process of revising the paper, we added ten new references that are relevant to the paper. These new references include:

- 1) Deng, L., & Yuan, K.-H. (2015). Multiple-Group Analysis for Structural Equation Modeling With Dependent Samples. *Structural equation modeling: a multidisciplinary journal*(ahead-of-print), 1-16.
- 2) Jap, S. D., & Ganesan, S. (2000). Control mechanisms and the relationship life cycle: Implications for safeguarding specific investments and developing commitment. *Journal of marketing Research*, 37(2), 227-245.
- 3) Krause, D. R., Handfield, R. B., & Tyler, B. B. (2007). The relationships between supplier development, commitment, social capital accumulation and performance improvement. *Journal of Operations Management*, 25(2), 528-545.
- 4) Kühne, B., Gellynck, X., & Weaver, R. D. (2015). Enhancing Innovation Capacity Through Vertical, Horizontal, and Third-Party Networks for Traditional Foods. *Agribusiness*, 31(3), 294-313. doi: 10.1002/agr.21408
- 5) Terpend, R., & Ashenbaum, B. (2012). The intersection of power, trust and supplier network size: Implications for supplier performance. *Journal of Supply Chain Management*, 48(3), 52-77.

- 6) Terpend, R., & Krause, D. R. (2015). Competition or Cooperation? Promoting Supplier Performance with Incentives Under Varying Conditions of Dependence. *Journal of Supply Chain Management*, n/a-n/a. doi: 10.1111/jscm.12080
- 7) Prahinski, C., & Benton, W. (2004). Supplier evaluations: communication strategies to improve supplier performance. *Journal of Operations Management*, 22(1), 39-62.
- 8) Nyaga, G. N., Lynch, D. F., Marshall, D., & Ambrose, E. (2013). Power asymmetry, adaptation and collaboration in dyadic relationships involving a powerful partner. *Journal of Supply Chain Management*, 49(3), 42-65.
- 9) Min, S., Roath, A. S., Daugherty, P. J., Genchev, S. E., Chen, H., Arndt, A. D., & Richey, R. G. (2005). Supply chain collaboration: what's happening? *International Journal of Logistics Management*, The, 16(2), 237-256.
- 10) Zhao, X., Huo, B., Flynn, B. B., & Yeung, J. H. Y. (2008). The impact of power and relationship commitment on the integration between manufacturers and customers in a supply chain. *Journal of Operations Management*, 26(3), 368-388. doi: <http://dx.doi.org/10.1016/j.jom.2007.08.002>
- 11) Baihaqi, I., & Sohal, A. S. (2013). The impact of information sharing in supply chains on organisational performance: an empirical study. *Production Planning & Control*, 24(8-9), 743-758. doi: 10.1080/09537287.2012.666865
- 12) Morgan, R. M., & Hunt, S. D. (1994). The commitment-trust theory of relationship marketing. *the Journal of Marketing*, 20-38.
- 13) MTIC. (2014). *Uganda Micro, Small and Medium Enterprise (MSME) Policy*. Kampala.
- 14) Gailey, E. D., & Young, J. A. (2012). An examination of marketing channel conflict and cooperation in the motorsports industry. *Journal of Marketing Channels*, 19(3), 212-228.
- 15) Pearson, M., & Monoky, J. F. (1976). *The role of conflict and cooperation in channel performance*. Paper presented at the Proceedings of American Marketing Association.