



## Managing Social Responsibility in Chinese Agriculture Supply Chains Through the “A Company + Farmers” Model

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### Abstract:

**Purpose** – Corporate social responsibility (CSR) has received a large amount of attention in research and in practice. As a response to the growing awareness of and concern about social and environmental issues, an increasing number of companies are integrating their supply chains and building an alliance of “a company + farmers”. The overall research question of this study is derived from the literature and is aimed at identifying factors that influence the integration of the agriculture supply chain and at exploring the relationship between these factors and quality performance.

**Design/methodology/approach** – The analysis is based on questionnaire survey data collected from 462 Chinese farmers under the organization pattern of “a company + farmers”. A structural equation model is applied in the empirical analysis of the relations among trust, relationship commitments of different types (normative and instrumental), supply chain integration and quality performance.

**Findings** – An understanding of the various influences on supply chain integration and quality performance is important in relation to CSR in Chinese agriculture. The results show that supply chain integration has positive effects on quality performance. Moreover, farmers' normative relationship commitment to the company is positively related to supply chain integration. However, farmers' instrumental relationship commitment to the company does not significantly affect the degree of integration between farmers and companies. Furthermore, trust has positive influences on the two types of relationship commitment and on supply chain integration.

**Research limitations/implications** – The findings provide a theoretical basis and practice guidelines for agricultural enterprises to manage CSR under the pattern of “a company + farmers”. The results help enterprises to acquire detailed information about the entire process of agricultural production, improve the quality and safety of primary agricultural products, and enhance the competitiveness of Chinese agricultural products in the market.

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**Originality/value** – The paper shows that enterprises working within Chinese agriculture supply chains have a long tradition of working with CSR and supports cooperation between the European Union and China on food and agriculture.

**Keywords:** A company + farmers; supply chain integration; corporate social responsibility; quality performance; Chinese agriculture

## 1.0 INTRODUCTION

Over the last few decades, corporate social responsibility (CSR) has received a large amount of attention in research and in practice (Kilian and Hennigs, 2014; Eriksson et al., 2013b; Eriksson and Svensson, 2014; Bai et al., 2015). As an example, financial misrepresentation at leading companies such as Enron (Prentice, 2003) and WorldCom (Hitzig, 2004) led to extensive loss of investor savings, prompting passage in the United States of the Sarbanes-Oxley Act to improve the accuracy of corporate financial reporting (Bernardi and LaCross, 2005). CSR continues to evolve in practice, and its reach now often extends to supply chain partners, including suppliers, customers and logistics providers (Eriksson and Svensson, 2015). For instance, consumers and non-government organizations (NGOs) criticized clothing company NIKE regarding sweatshop labour issues at its overseas suppliers. NIKE initially denied it had any responsibility for its supply chain partners but later shifted its stance under increased public pressure (Zadek, 2004). The entire clothing industry now takes a more diligent approach to supply chain CSR, including extensive codes of practice in relation to supplier labour (Emmelhainz and Adams, 1999; Andersen and Skjoett-Larsen, 2009).

The Chinese agriculture industry represents a good example. In order to facilitate sustainable agriculture and to enhance CSR, the Chinese government has introduced the "vegetable baskets" project, which aims to ease pressures and to improve the quality and safety of production in the supply of vegetables and other foodstuffs (Wong and Huang, 2012). In addition, the government has implemented many policies, invested considerable labour, material, and financial resources, and made alliances with enterprises, organizations, associations and consumers for joint supervision of the quality and safety of agricultural

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3 products (Hu et al., 2004; Bai et al., 2015; Zhan et al., 2016). In this way, the quality and  
4 safety of these products have indeed been improved, albeit at high costs in terms of  
5 regulatory compliance. However, agriculture has particular limitations, including: the  
6 relatively slow evolution of the division of labour and the acceptance of individual  
7 responsibility; the specific growth cycles of farm products; vulnerability to seasons and  
8 environmental impacts; and the scope for opportunistic behaviour (e.g., excessive use of  
9 pesticides, herbicides and fertilizers) (Chao et al., 2006). The characteristics of small-scale,  
10 decentralized farming have not yet changed in China (Fu et al., 2013) and the cooperative  
11 enterprises set up by and for small-scale farmers may fail to put farm production under their  
12 full supervision and direct management. Speculation and a desire for quick profit on the part  
13 of farmers may result in their producing food that does not meet the requisite standards. In  
14 these terms, agricultural production is often considered a supply chain with a relatively high  
15 frequency of quality and safety incidents. Therefore, an emergent issue in need of  
16 investigation is how the agriculture industry can produce safe and high-quality products at  
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33 Integration creates value in the supply chain and is necessary for its management (Horvath,  
34 2001). Most empirical studies show that supply chain integration not only improves  
35 operational and financial performance (Frohlich and Westbrook, 2001; Koufteros et al., 2005;  
36 Flynn et al., 2010; Wong et al., 2011; Huo, 2012), as well as quality performance (Huo et al.,  
37 2014), but also has a positive influence on CSR, via customer satisfaction, social reputation,  
38 the development of new markets and opportunities, and the greening of the supply chain  
39 (Andersen and Skjoett-Larsen, 2009). In China, “a company + farmers” is a leading supply  
40 chain integration pattern. It allows farmers to increase their incomes in the process of China's  
41 agricultural industrialization, and is also a model to improve supply chain quality and safety  
42 (Fu et al., 2013). However, some scholars have suggested that supply chain integration can  
43 have a negative effect on enterprise performance. For example, Swink et al. (2007) found that  
44 integration with suppliers negatively affected product quality, whereas integration with  
45 customers did not significantly affect quality. Therefore, for the “a company + farmers”  
46 pattern, it is necessary to investigate whether integration of the supply chain – with individual  
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3 farmers (people in a weak position in the supply chain) as suppliers to the company (legal  
4 entities, which are in a strong position) – can improve food quality. The factors that affect  
5 such supply chain integration should also be examined.  
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11 Given the importance of the agriculture industry and the maturing subject of supply chain  
12 integration, there is a need for research to provide a clear model to guide farmers to produce  
13 high-quality and safe food at reasonable cost. In China, well known for its collective culture,  
14 companies and individuals attach great importance to informal relations (Tan et al., 2014).  
15 Relationship management (the effects of trust and relationship commitments) in agriculture  
16 therefore needs to be taken into account in investigating supply chain integration and quality  
17 performance in the Chinese context. To this end, the present study develops a model: (a) to  
18 explore how trust and relationship commitments influence supply chain integration in relation  
19 to “a company + farmers”; and (b) to investigate how supply chain integration for “a  
20 company + farmers” can affect food quality. By investigating these questions, CSR can be  
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33 The paper is structured as follows. A review of the literature establishing the hypotheses and  
34 presenting the research model follows. The methodology section then describes the sample  
35 and the research method. Section 4 presents the research findings and suggests implications  
36 for research and practice. Section 5 concludes the paper by summarizing the issues, pointing  
37 out the limitations of the study, and outlining areas for future research.  
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## 45 **2.0 THEORETICAL BACKGROUND**

46 Corporate social responsibility (CSR) can be defined as companies’ voluntary integration of  
47 social and environmental concerns in their business processes and in their relationships with  
48 other companies and stakeholders (Galbreath, 2009; Lopez and Fornes, 2015). As companies  
49 adopt social and environmental practices, they can achieve economic benefits by reducing  
50 costs, increasing productivity and profits, and enhancing corporate image and reputation  
51 (Eriksson and Svensson, 2016). However, for supply chains to be successful in terms of CSR,  
52 companies, including all suppliers and manufacturers in the chain, need to increase their own  
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3 awareness and act in a socially and environmentally responsible manner. They are anyway  
4 obliged to comply with environmental laws and regulations, and to meet national and  
5 international standards, and this obligation can be seen as an aspect of CSR. The applications  
6 of CSR to the supply chain have emerged in the last 15 years. Poist (1989) provided early  
7 consideration of social responsibility in the supply chain, suggesting a 'total responsibility'  
8 approach that adds societal issues to traditional economic drivers. Murphy and Poist (2002)  
9 contended that although supply chains have been slow to adopt CSR, it has been increasing in  
10 importance. Carter and Jennings (2004) established the importance of CSR in supply chain  
11 decision-making with case study and survey research.  
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22 Supply chain integration is an area of increasing strategic importance due to global  
23 competition, outsourcing of non-core activities to developing countries, short product life  
24 cycles, and time compression in all aspects of the supply chain (Andersen and Skjoett-Larsen,  
25 2009; Bhattacharyya, 2010). Management attention has moved from competition between  
26 firms to competition between supply chains (Eriksson et al, 2013a). The ability to establish  
27 close and long-term relationships with suppliers and other strategic partners has become a  
28 crucial factor in creating competitive advantage. At the same time, various stakeholders,  
29 including consumers, shareholders, non-governmental organizations (NGOs), public  
30 authorities, trade unions and international organizations, are showing an increasing interest in  
31 environmental and social issues related to international business. Therefore, CSR in supply  
32 chain integration (Pedersen and Andersen, 2006; Maloni and Brown, 2006) is receiving  
33 growing attention in the media, academia and the corporate world.  
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47 An increasing number of Chinese companies, especially large agricultural corporations, have  
48 implemented "a company + farmers" alliance in their supply chain integration to facilitate  
49 CSR. This alliance provides the parties' rights and obligations in the production process in the  
50 form of orders or contracts between the company and farmers; the ties between the company  
51 and the farmers are seen as benefits. Farmers provide produce for the company, which is  
52 engaged in transporting, distributing and/or processing, and which is responsible for sales (Fu  
53 et al., 2013). Compared with the farmers, the company has much greater strength in relation  
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3 to capital, technology, process, storage, transportation, sales and so on. However, the  
4 company cannot fully expand the scale of farming or planting by itself; instead, it can  
5 maximize profit by making alliances with farmers. One aspect of such an alliance is the  
6 minimization of risk for the farmers, whereby the company guarantees a certain price for the  
7 produce. Thus, the relations between the company and farmers in the pattern may be  
8 considered a supply chain: farmers (upstream), as the suppliers to a dominant company,  
9 provide products or resources; the company (downstream), as the purchaser, receives such  
10 products or resources from farmers at the price negotiated.  
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20 The remainder of this section will focus on the key areas that will be investigated in the  
21 empirical study, including factors related to the “a company + farmers” pattern, supply chain  
22 integration and quality performance.  
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## 28 **2.1 Research propositions and modelling**

29 Studies indicate that CSR can be improved via supply chain integration activities (Hsueh and  
30 Chang, 2008; Andersen and Skjoett-Larsen, 2009). These activities show consideration for  
31 the consumers, minority groups, employees, charities, the environment and so on. The key  
32 factor for the success of supply chain integration is cooperative relations between different  
33 partners in the supply chain, in particular, trust and relationship commitment (Handfield and  
34 Bechtel, 2002; Beth et al., 2003; Kwon and Suh, 2005). The literature on trust has identified  
35 many antecedents, such as a firm’s ability, honesty and goodwill. According to Pivato et al.  
36 (2008) trust plays a significant role in improving social responsibility in the agriculture  
37 industry through sales of organic food, in which brand loyalty is very evident. Relationship  
38 commitment is fundamental to business (Zhao et al., 2008). Brammer et al. (2007) investigate  
39 the impact of relationship commitment of suppliers on CSR and suggest that external CSR is  
40 positively related to supplier relationship commitment.  
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53 The influence of trust on collaboration between supply chain partners primarily relates to  
54 opportunism (Ganesan, 1994). That is, trust means that even in a changing situation, neither  
55 party will engage in any activity harmful to the other party in seeking a short-term gain. Thus,  
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3 trust refers to one party's confidence in the other party's sincerity, good intentions and good  
4 faith (Mayer et al., 1995). It is the core of relationship commitments (Zhao et al., 2008).  
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7 'Relationship commitment' denotes the wish of one party to invest resources to maintain a  
8 trading or business relationship (Morgan and Hunt, 1994). Both trust and relationship  
9 commitment are based on common rules and a common recognition of value (Brown et al.,  
10 1995). The motive for a company to commit to a relationship can be seen as perceptual or  
11 rational; thus, relationship commitments are usually categorized as either normative or  
12 instrumental (Brown et al., 1995; Zhao et al., 2011). Normative relationship commitment can  
13 be defined as the wish of one party to maintain a relationship because of the appeal of the  
14 other party's goals and values (Morgan and Hunt, 1994). Social exchange theory indicates  
15 that normative relationship commitment can achieve lasting and stable cooperation.  
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17 Instrumental relationship commitment refers to one member's commitment to the other  
18 because of extrinsic reward or punishment (Brown et al., 1995), and commitments of this  
19 kind are prone to speculation. Therefore, instrumental relationship commitment is often  
20 temporary (Zhao et al., 2008).  
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33 In the supply chain field, scholars have verified the differing effects of trust on relationship  
34 commitment and supply chain integration. Zhao et al. (2011) found that manufacturers'  
35 relationship commitments to suppliers can have positive effects on integration with suppliers.  
36 Zhao et al. (2008) concluded that normative relationship commitment can promote  
37 integration with customers whereas instrumental relationship commitment may have no effect  
38 on integration with customers. Fu et al. (2013) and Fu and Lin (2014) verified from the  
39 perspectives of the company and farmers that trust and relationship commitment may  
40 promote information sharing. Zhang and Huo (2013) collected data from 617 Chinese  
41 manufacturers, empirical studies have shown that manufacturers' trust in suppliers can foster  
42 supply chain integration.  
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52 Based on the above analysis, this study proposes the following hypotheses:  
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56 *H1a: Farmers' trust in the company promotes farmers' normative relationship*  
57 *commitment to the company*  
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3 *H1b: Farmers' trust in the company positively affects farmers' instrumental relationship*  
4 *commitment to the company*

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7 *H2a: Farmers' normative relationship commitment to the company positively affects*  
8 *farmers' integration with the company*

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11 *H2b: Farmers' instrumental relationship commitment to the company positively affects*  
12 *farmers' integration with the company*

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15 *H2c: Farmers' trust in the company positively affects farmers' integration with the*  
16 *company*

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21 Supply chain integration in the "a company + farmers" model refers to the practice in which  
22 farmers and the purchaser (the company) integrate their strategies, processes, practices and  
23 behaviours. Cooperation yields synchronized and consistent activities in order to meet  
24 end-customers' needs (Zhao et al., 2008; Flynn et al., 2010); it is an important part of supply  
25 chain integration. The main practical activities involved in this integration are exchanging  
26 and sharing information between the company and farmers, and farm product design. In an  
27 integrated supply chain, a solid strategic partnership with the company can help farmers  
28 understand and meet the company's needs and therefore to adapt to the company's changing  
29 requirements more quickly and accurately, thus ensuring farmers' high performance and  
30 on-time delivery (Flynn et al., 2010; Petersen et al., 2005). With 291 manufacturers sampled  
31 from 10 countries, Huo et al. (2014) found that internal integration, in particular, may  
32 increase quality performance and that integration with suppliers and with customers can  
33 positively affect cost performance. Furthermore, quality performance is also an important  
34 aspect of CSR, as consumers are demanding that companies produce high-quality, safe  
35 products with manufacturing processes that are less harmful to the environment and to  
36 communities (Tate et al., 2009). The present study therefore puts forward the following  
37 additional hypothesis:  
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54 *H3: Farmers' integration with the company positively affects farmers' quality*  
55 *performance.*  
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Based on the above analysis, the theoretical hypotheses and modelling in this study are shown as Fig. 1.

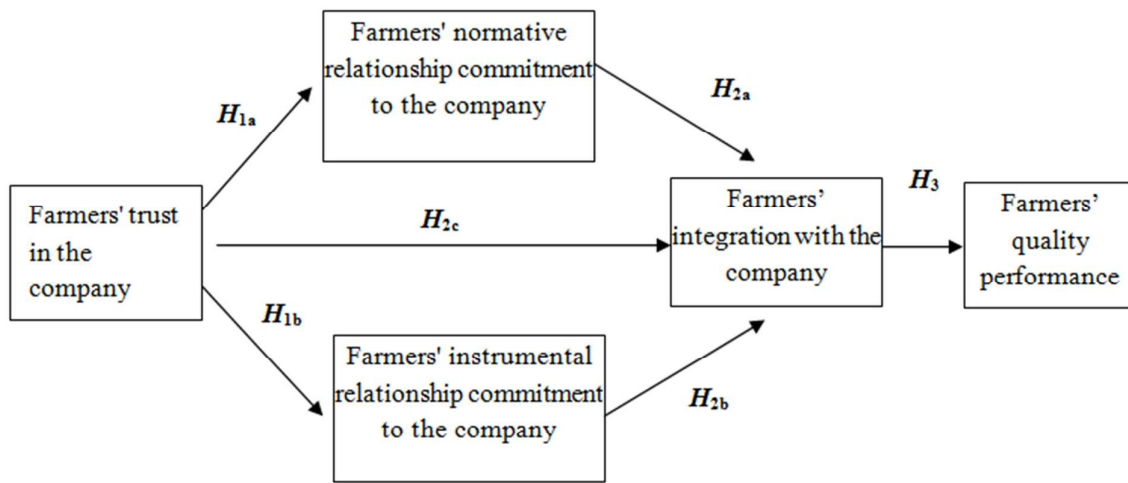


Fig.1 Theoretical Hypotheses and Modelling

### 3.0 METHODOLOGY

#### 3.1 Questionnaire design and measurement of variables

To embody the context of the Chinese agricultural alliance, most of the questions in the questionnaire were derived from rating scales produced by domestic and foreign scholars. The questionnaire was, though, modified several times, and questions for each variable tested and confirmed repeatedly. Therefore, this study has high content validity.

The answers to the questions relevant to this research were on a seven-point scale, from "1", extremely disagree or very poor, to "7", totally agree or very good. According to Ganesan (1994) trust can be measured by three items, as shown in the Appendix. Relationship commitments cover two dimensions, namely, instrumental and normative commitment. In light of the studies by Zhao et al. (2008) and Brown et al. (1995), four questions were designed to measure normative relationship commitment, and two questions to measure instrumental relationship commitment. By consulting the findings of Narasimhan and Kim (2002), Stanley and Wisner (2001) and Huo et al. (2014) four questions were designed to

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3 measure supply chain integration in terms of process quality. Furthermore, five questions  
4 were taken to measure performance quality, by reference to the studies by Huo et al. (2014).  
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9 To ensure the reliability and validity of the survey instrument, it was pilot tested with 20  
10 respondents from Guangdong and Hainan Provinces before the general data collection, and  
11 the questionnaire was modified according to the feedback until all questions were readily  
12 comprehensible for interviewees. Finally, a scale comprising 18 items was formed, as shown  
13 in the Appendix.  
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20 The questionnaire was pilot tested on a group of farmers attending a seminar. Their feedback  
21 was then used to improve the questionnaire. Some of the questions were reworded to make  
22 them easier to understand and to allow for more precise answers to be given.  
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### 28 **3.2 Data collection and statistical analysis**

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30 The sample was collected from Guangdong and Hainan Provinces of southern China, a  
31 subtropical area that is well suited to agriculture. In these areas, the “a company + farmers”  
32 model is well established. Respondents in this study were farmers acting through a  
33 cooperative in their relations with the company.  
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39 Questionnaires were distributed in three ways. (1) Trained undergraduates were sent to  
40 interview relevant Chinese farmers, and to ask questions individually, and the questionnaires  
41 were completed on the spot. Over the course of four months, 190 questionnaires were  
42 distributed by this means and 185 were collected, of which 182 were complete and valid. (2)  
43 A relevant company distributed questionnaires to farmers through its training and lecture  
44 activities. Again, designated trained undergraduates interacted with the farmers, and collected  
45 all completed questionnaires from the respondents in person. In this way, 110 questionnaires  
46 were distributed and 105 complete and valid sets of responses were collected. (3) Select  
47 employees of the company, such as technicians, interviewed farmers at their homes, asking  
48 questions individually, and received all completed questionnaires by post. Of the 200  
49 questionnaires administered in this way, a total of 180 complete and valid sets of responses  
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were received. Although the data were collected in these three different ways, in a statistical sense (i.e. in the ANOVA conducted) there was no variation between the three sets of data.

Table 1 shows the basic features of the sample of farmers. As shown in Table 1, the respondents were from 141 households in Guangdong and 321 households in Hainan. Of the respondents, 62.4% were aged 30–50, 79.2% were male, and 79% had received training or education at junior high school and above. Our respondents were thus relatively well educated, which suggests that they were able to understand and fill in the questionnaires objectively and accurately.

Most farmer cooperatives (74.4%) last for no more than five years. Cooperatives primarily deal in vegetables, poultry and livestock, respectively accounting for 29.2%, 25.8% and 19.3%. Farmers primarily join cooperatives to gain technologies and services (62.4%), to mitigate production and market risks (43.0%) and to earn more income (41.8%). Of farmers, 14.4% believe that cooperative performance is not yet stable, 54.8% believe that the mutual cooperative has already reached a certain level, 23.9% consider that a sustained and long-term relationship has been already established, 2.4% begin to complain about the cooperative, and 4.5% begin their negotiations about how to terminate the cooperative.

Table 1 Sample Statistics

variable	value	total collected 462 questionnaires		
		frequency	percentage	Accounts for valid sample
region	Guangdong	141	30.5	30.5
	Hainan	321	69.5	69.5
	missing	0	0.0	
age	(0, 30)	43	9.3	10.2
	[30, 40)	107	23.2	25.3
	[40, 50)	157	34.0	37.1
	older than 50	116	25.1	27.4
	missing	39	8.4	
gender	female	87	18.8	20.8
	male	331	71.6	79.2

		missing	44	9.5	
		lower than primary school	10	2.2	2.5
		primary school	73	15.8	18.5
	education	junior high school	213	46.1	53.9
		senior high school	88	19.0	22.3
		higher than high school	11	2.4	2.8
		missing	67	14.5	
		(0, 1]	91	19.7	24.7
		(1, 3]	95	20.6	25.8
	cooperation length	(3, 5]	88	19.0	23.9
		longer than 5 years	94	20.3	25.5
		missing	94	20.3	
		crops	24	5.2	6.8
		vegetables	103	22.3	29.2
		fruits	21	4.5	5.9
		poultry	91	19.7	25.8
	Cooperation agricultural product	livestock	68	14.7	19.3
		aquatic product	2	0.4	0.6
		trees	44	9.5	12.5
		tobacco	19	4.1	5.4
		missing	109	23.6	
		to earn more income	179	38.7	41.8
		to mitigate production and market risks	184	39.8	43.0
	cooperating purpose	to gain technologies and services	267	57.8	62.4

### 3.3 Data analysis

In this study, SPSS 16 software is used to calculate Cronbach's alpha coefficient to measure the reliability of each variable (Flynn et al., 1990). As recommended, a coefficient above 0.6 is acceptable (Flynn et al., 1990). Table 2 provides the Cronbach's alpha coefficients of all variables, which are all above 0.6; the combined reliability (CR) is greater than 0.7, indicating that variables have good measured reliability. That is, all variables have high consistency and stability. In terms of validity, except for the load factor of QP1 in the quality performance being slightly less than 0.5, those of the others are greater than 0.5, with

significant validity when their load factors are 0.001, which indicates the relatively high convergent validity of the questionnaire.

To test discriminant validity, the square root of the average variance extracted (AVE) of each variable is calculated, and is compared with the corresponding correlation coefficient. Table 3 provides the mean value, standard deviation and correlation coefficient of each variable and the square roots of the AVEs of the corresponding variables on the diagonal lines. The square roots of the AVEs of all variables are greater than the corresponding correlation coefficients, indicating good discriminant validity among variables (Fornell and Larcker, 1981).

The present study uses PLS 3.0 software to test hypotheses. Table 4 provides the significant path standardization coefficient for the structural equation model (at the significance level of 0.05) and the test results of all hypotheses.

Table 2 Reliability and Convergent Validity Analysis

Constructs	Items	Factor loading	T-value	P-value	AVE	CR	Cronbach's alpha
Trust (TR)	TR1	0.8394	48.9008	***	0.719	0.885	0.803
	TR2	0.8799	58.8101	***			
	TR3	0.8235	38.1989	***			
Normative relationship commitment (NRC)	NRC1	0.7032	16.8874	***	0.562	0.837	0.676
	NRC2	0.8012	33.7198	***			
	NRC3	0.7726	31.6698	***			
	NRC4	0.7177	21.1553	***			
Instrumental relationship commitment (IRC)	IRC1	0.7151	5.3651	***	0.658	0.791	
	IRC2	0.8966	15.9596	***			
Supply chain integration (SI)	SI1	0.8472	58.8537	***	0.611	0.860	0.767
	SI2	0.8495	42.2223	***			
	SI3	0.8285	41.0145	***			
	SI4	0.5656	11.6354	***			
Quality performance	QP1	0.4459	7.1110	***	0.483	0.819	0.702
	QP2	0.7465	22.5679	***			

(QP)	QP3	0.7416	22.2641	***
	QP4	0.7972	37.3281	***
	QP5	0.6872	17.4313	***

Note: "\*\*\*\*" p<0.001

Table 3 Analysis of Discriminant Validity

	Mean	Standard deviation	1	2	3	4	5
1. Trust (TR)	5.160	1.2644	0.8479				
2. Normative relationship commitment (NRC)	5.210	1.0557	0.501	0.7497			
3. Instrumental relationship commitment (IRC)	4.762	1.3545	0.191	0.240	0.8112		
4. Supply chain integration (SI)	5.138	1.0940	0.534	0.474	0.198	0.7817	
5. Quality Performance (QP)	5.297	0.9314	0.610	0.544	0.252	0.510	0.6950

Note: Figures at the lower left of the diagonal line are the correlation coefficients between variables, whereas those on the diagonal line are the square roots of variables' AVE.

Table 4 Results of Hypotheses Testing

Path	Relations	Standard path coefficient	T-value	P-value	Results
H1a Farmers' trust in a company→Farmers' normative relationship commitments to the company	+	0.5010	11.0037	***	Supported
H1b Farmers' trust in a company→Farmers' instrumental relationship commitments to the company	+	0.1910	3.2288	**	Supported
H2a Farmers' normative relationship commitments to a	+	0.2640	5.0580	***	Supported

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3	company→Farmers' integration					
4	with the company					
5	H2b Farmers' instrumental	+	0.0610	1.3400		Not
6	relationship commitments to a					supported
7	company→Farmers' integration					
8	with the company					
9	H2c Farmers' trust in a	+	0.3900	6.8481	***	Supported
10	company→Farmers' integration					
11	with the company					
12	H3 Farmers' integration with a	+	0.5100	10.0816	***	Supported
13	company→Farmers' quality					
14	performance					
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Note: \*\*\* p<0.001, \*\* p<0.01, \* p < 0. 05

## 4.0 DISCUSSION

### 4.1 Hypothesis testing

Farmers' integration with a company has significantly positive effects on quality performance ( $\beta=0.510$ ,  $p<0.001$ ), and hypothesis H3 is supported. This result is consistent with the empirical results of Huo et al. (2014) and Wong et al. (2011), but different from the finding of Swink et al. (2007), who reported that integration with suppliers negatively affected quality performance. Therefore, in the field of agriculture, if agricultural enterprises want to improve the quality of farm produce, they should integrate their processes with farmers. In fact, such integration supports the monitoring of farm production, thereby enhancing both CSR and the competitiveness of agricultural enterprises in the market.

Farmers' normative relationship commitment to a company significantly positively affects farmers' integration with a company ( $\beta=0.2640$ ,  $p<0.001$ ). That is, normative relationship commitment can promote cooperation between the company and farmers. Thus, hypothesis H2a is supported. With their recognition of the values and norms of the company, farmers are more willing to meet its requirements of social responsibility. In other words, supply chain partners with similar values and norms can cooperate with each other better, thus improving social responsibility and the level of integration between them. In contrast, though, farmers'



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3 instrumental relationship commitment to a company does not significantly positively affect  
4 integration ( $\beta=0.0610$ ,  $p>0.05$ ). Therefore, hypothesis H2b is not supported. The results are  
5 consistent with the empirical results of Zhao et al. (2008). The reason for this result may be  
6 that, in the supply chain, farmers are in a weaker position than the company, and the  
7 company has more opportunities to select farmers. Thus, even when farmers make an  
8 instrumental relationship commitment to a company, the company may not be willing to  
9 continue its cooperation with the farmers. Moreover, because the company is stronger than  
10 farmers, its conversion costs are much lower than those of the farmers. Thus, when facing  
11 farmers' instrumental relationship commitment, the company often chooses not to integrate  
12 with them. Therefore, to improve social responsibility through the integration of the company  
13 and farmers in the long term, farmers should make normative relationship commitments as  
14 much as possible, to increase the level of cooperation and to lessen conflict.  
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28 The empirical results show that trust has significant positive effects on supply chain  
29 integration ( $\beta=0.3900$ ,  $p<0.001$ ), and hypothesis H2c is supported. The results are also  
30 consistent with the finding of Pivato et al. (2008) that trust is an important factor to improve  
31 CSR. Compared with normative and instrumental relationship commitment, trust has a  
32 greater effect on integration, which indicates that in the supply chain integration of "a  
33 company + farmers", trust – as a relationship input and also the driving force and source of  
34 cooperation – can compensate for any deficiencies in formal contracts. Thus, trust is the most  
35 effective factor in promoting CSR. In the process of cooperation between the company and  
36 farmers, farmers' trust in the company can mitigate the risks of opportunism that farmers can  
37 perceive (Kwon and Suh, 2005). Thus, trust can avoid the company's supervision of farm  
38 production, lowering both parties' costs, and increasing social responsibility. Farmers also  
39 become more willing to deepen cooperation by integration with their partners.  
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52 Trust has significantly positive effects on both types of relationship commitment, normative  
53 ( $\beta=0.5010$ ,  $p<0.001$ ) and instrumental ( $\beta=0.1910$ ,  $p<0.01$ ). Hypotheses H1a and H1b are  
54 supported. However, trust has a larger effect on normative than on instrumental relationship  
55 commitment. This further indicates that trust is a prerequisite for relationship commitment.  
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3 The results show that building trust is very important because trust in itself facilitates  
4 relationship commitment but is also able to improve CSR as well as the supply chain  
5 integration of "a company + farmers" over the effects of relationship commitment.  
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#### 9 10 11 **4.2 Implications for research and practice**

12 The Chinese agriculture industry faces many safety and health challenges, several of which  
13 have involved the supply chain. Agriculture contributes 11.8% of Chinese GDP, and it  
14 employs 266 million people (35% of the total labour force) (Cheng, 2007). China is the  
15 world's largest producer of cotton, rice and pork, plus fruits, vegetables and nuts. However,  
16 China has to feed nearly three times the number of people per unit area of land as the rest of  
17 the world. There is growing middle-class demand for more health and safety in food supply,  
18 and this in itself is a challenge. Therefore, health and safety represent an increasingly  
19 important supply chain CSR issue in Chinese agriculture. In order to overcome the challenge,  
20 more and more Chinese firms are integrating their supply chain by building alliances in the "a  
21 company + farmers" pattern, where the company and farmers seek to cooperate and pool their  
22 complementary resources. However, in practice companies and farmers have largely failed to  
23 improve the quality of primary agricultural products. Thus, studies are continuing on how to  
24 improve CSR and quality performance of the products. To fill this gap, this study explores  
25 the effects on quality performance of supply chain integration between farmers (the weak  
26 side of the alliance) and the company (the strong side). The findings show that the model  
27 proposed can improve quality performance so as to promote CSR in the agriculture industry.  
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45 The empirical results reported here provide agricultural enterprise managers with guidance on  
46 how to improve integration with farmers and thereby improve quality performance and CSR.  
47 Further, they have important practical significance for the development of "contract farming".  
48 Specifically, agricultural companies should:  
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- 52 • Attach importance to their supply chain integration with farmers (it is better for the  
53 company to monitor the entire production process for primary agricultural products in  
54 real time, thereby improving food quality and safety to the greatest extent);  
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- Build trust with farmers, especially in relation to process integration, which is a key factor in supply chain integration, and make a normative relationship commitment to farmers (in addition to being a reliable partner, the company should take the initiative to solve problems from the farmers' standpoint, to build trust and promote the normative relationship commitment, and thereby optimize the benefits of supply chain integration);
- Guide farmers to avoid making instrumental relationship commitments to the company, because these can be detrimental to supply chain integration between the company and farmers, and therefore detrimental to quality performance.

In 2013, the EU and China launched the first EU–China flagship initiative for research and innovation to cooperate on food, agriculture and biotechnology. This study is the first study of Chinese organizations carried out in the areas of supply chain integration in the alliance of “a company + farmers” pattern. It supports EU–China cooperation by providing a better understanding of the key influences on Chinese agriculture supply chains. It also encourages concrete, substantial and balanced research and cooperation on selected priorities of common interest.

## 5.0 CONCLUSION

Experience indicates that food and agriculture in China are prime issues for public concern over perceived supply chain CSR deficiencies. This paper explores empirically the effects of supply chain integration on food quality and the interrelations among farmers' trust in the company, farmers' different types of relationship commitments to the company and supply chain integration, where individual farmers in the organizational pattern of "a company + farmers" are being integrated with the company. The theoretical model for "trust–relationship commitments–supply chain integration–quality performance" is established. A total of 462 sets of survey responses were collected, and empirical analysis on the relations between all variables of "a company + farmers" was conducted using the structural equation model. The findings provide a theoretical basis and practice guidelines for agricultural enterprises' management of supply chain integration under the pattern of “a company + farmers”. In

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3 particular, supply chain integration has positive influences on quality, and trust has greater  
4 effects on integration than does normative relationship commitment. The conclusions provide  
5 the company with theoretical and practical guidelines to improve the quality of its primary  
6 agricultural products, and thereby enhance the competitive advantages of Chinese  
7 agribusiness.  
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### 10 11 12 13 14 15 **5.1 Limitations and future research**

16 It is important to recognize the limitations of this study. First of all, with samples collected  
17 from Guangdong and Hainan, the conclusions of this study have certain limitations in their  
18 geographical generalization. The question of whether more adopters from different parts of  
19 China would generate similar results needs to be investigated. Secondly, the scope of  
20 research could be expanded. For example, differences in the effects on supply chain  
21 integration and quality performance of trust, normative relationship commitment and  
22 instrumental relationship commitment between companies of different natures and sizes  
23 could be explored in future studies. Thirdly, this study was conducted from the perspective of  
24 farmers; data could also be collected from the perspective of the company, or from both  
25 parties. Other worthwhile research would be to compare bilateral and unilateral data, to  
26 produce more conclusive findings. Fourthly, this study focuses only on the effects of trust and  
27 relationship commitments on supply chain integration. However, other constructs may be  
28 relevant, such as environmental uncertainty, asset-specific investment, dependence and power.  
29 Therefore, how these factors affect supply chain integration could be investigated in future  
30 research.  
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46 Given these limitations, the results of this research should be treated more as a general  
47 indication than firm evidence. However, as the main part of the empirical study supports  
48 findings reported in the literature, it is likely that the findings can be broadly applied. Clearly,  
49 the field has ample space to grow in terms of practice and research. We believe that this  
50 research contributes, in general, to the dialogue on managing Chinese agriculture supply  
51 chains, and to motivating a renewed research emphasis, including theory development, on  
52 supply chain integration and CSR.  
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## 6.0 APPENDIX

### Trust (Adapted from Ganesan (1994))

TR1 In the transaction process, farmers can trust in the company's frankness and honesty

TR2 Farmers believe that the company will pay special attention to their interests

TR3 Farmers believe the company will consider all possible effects on them while making major decisions

### Normative relationship commitment (Adapted from Zhao et al. (2008), Brown et al. (1995))

NRC1 Farmers are very proud of being suppliers of the company

NRC2 Farmers agree with the company's management methods

NRC3 Farmers will take the initiative to renew their agreements with the company

NRC4 Farmers will never stop cooperating with the company

### Instrumental relationship commitment (Adapted from Zhao et al. (2008), Brown et al. (1995))

IRC1 Farmers' work for the company is directly related to how much farmers can get

IRC2 In farmers' transactions with the company, bargaining is necessary

### Supply chain integration (Adapted from Narasimhan and Kim (2002), Stanley and Wisner (2001), Huo et al. (2014))

SI1 The company and farmers jointly monitor the production process

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3 SI2 The company and farmers jointly build and maintain a performance assessment system

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5 SI3 The company and farmers jointly improve the production process, to better meet the  
6  
7 needs of both parties

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9 SI4 To ensure the quality of farm products, farmers have spent a lot of time on technical  
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11 training organized by the company

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14 **Quality performance (Adapted from Huo et al. (2014))**

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16 QP1 The rejection rates of farmers' products are very low

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18 QP2 Cooperation with the company improves farmers' productivity

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20 QP3 Cooperation with the company stabilizes profits

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22 QP4 Cooperation with the company improves product quality

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24 QP5 Cooperation with the company lowers production costs

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