Factors Influencing Coffee Growers' (agents') Performance on Quality: An Empirical Study of Coffee Growers with Evidence from Tanzania's Coffee Primary Societies/Associations

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Abstract

Significance of this study is centered at making contribution to literature on principal agent relationship by focusing on the relationship between coffee growers (agents) and principals (buying organizations). The study investigates factors that influence quality performance of coffee growers (agents) such as: information sharing, monitoring and negative external influence. The main purpose of this study is to provide an insight on how farmers and buyers relationships can be enhanced in a better way to improve farmers' performance on coffee quality.

Literature review with respect to principal agency theory guides this study. The principal agency theory is used in formulating research hypotheses, which provide foundation for testing developed associations between coffee quality performance and information sharing; as well as monitoring and negative external influence. Data used in this study were collected from one hundred and thirty two (132) primary societies' managers in Tanzania through interviews and questionnaires. Preliminary data analysis through plot box was conducted to remove outliers. Also reliability and validity were tested for purpose of making this study worth. As this study adopted multiple regression analysis, then all assumptions underlying multiple regression such as multicollinearity, homoscedasticity and Collinearity were tested and all portrayed that assumptions were adhered to.

Empirical findings show that information sharing has a significant

positive association with coffee growers' (agents') performance. Monitoring has a significant positive association with coffee growers' (agents') performance on quality. The findings further indicate that there is a significant negative association between negative external influence and coffee growers' (agents') performance on quality. Therefore, to improve performance of coffee growers (agents) there should be high information sharing and monitoring while learning on how to respond positively to negative external influence.

Quality management is the key driving factor of coffee price in the global market. Thus, all coffee supply chain actors should emphasize quality management aspect in all business processes. To ensure quality management among famers, then buying organizations should establish strong information sharing and monitoring systems. Also, farmers should learn how to positively respond to negative external influence in ensuring that coffee quality is not impaired by negative external influence.

Key words: *Coffee Growers (Agents), Coffee Buyers (Principal), Monitoring, Information Sharing and Negative External Influence.*

Introduction

No one in Tanzania particularly people from Kilimanjaro region will ever forget the so called ''coffee grace era'' that lasted from 1970s to late 1990s (Parrish, Luzadis and Bentley, 2005). Coffee production used to be a major economic activity in Kilimanjaro region due to its massive financial impact to farmers and other actors involved in coffee supply chain like transporters, fertilizers sellers, processing companies, pesticides sellers and exporters (Parrish, Luzadis and Bentley, 2005).

Initially, KNCU used to be the sole buyer of coffee in Kilimanjaro region. However, after adoption of free trade policy, other private buyers entered the industry. Nowadays, coffee farmers are complaining on an enormous decline in price and particularly the fact that some other private

buyers like AKSCG are able to pay a substantial higher price than KNCU due to high coffee quality produced/supplied by its farmers (Parrish, Luzadis and Bentley, 2005). For instance, during 2002/03 season, KNCU paid 668 Tshs/Kg while other coffee buyers like AKSCG paid 847 Tshs/Kg which is 27% higher than price paid by KNCU (Parrish, Luzadis and Bentley, 2005).

Tanzania Daima, one of the leading newspapers in Tanzania, reported on the 2nd October 2012 opinions raised by different stakeholders on coffee supply chain concerning decrease in coffee production, quality and price. According to Tanzania Daima, interviewed coffee farmers complained on declining selling price and rising production cost of coffee. They associated the situation to less support on farm implements and finance from primary associations under KNCU or other private coffee buyers. Table 1.1 shows reported figures of production cost and selling price of coffee for two seasons.

Table 1.1: *Overall Average Price Decline and Increase in Cost of Production*

Season	Price per 1 kg of coffee (Tshs)	Cost of production per 1 kg (Tshs)	Profit per 1 kg in Tshs	Loss per 1 kg in Tshs	Remarks
1997/1998	1500	800	700	-	Profitable season to farmers as they made 87.5% profit markup on cost
2002/2003	500	1200	-	700	Unprofitable season to farmers as they ended up with140% loss markup. They could not even breakeven

Source: *Mushi (2012)*

From Table 1.1, price per kilogram has declined by 67% in 2002/2003 season as compared to 1997/1998 while cost of production per kilogram has increased by 50% in 2002/2003 season as compared to 1997/1998.

According to the same newspaper, Chairman of KNCU (main coffee buyer in Kilimanjaro) hinted on decline in coffee quality from farmers as the main reason for them to pay lesser price to its farmers group. Also the chairman added that the main reason for some buyers like AKSCG to be able to pay a higher price to their farmers than KNCU was mainly due to high level of coffee quality from AKSCG farmers compared to KNCU farmers.

During 2002/03 season KNCU paid 668Tshs/kg while other coffee buyers like AKSCG paid 847Tshs/kg which is 27% higher than price paid by KNCU (Parrish, Luzadis, and Bentley 2005). AKSCG was and is able to pay higher price to farmers as its final output fetches higher price in the world market than KNCU solely due to difference in quality. Figure 3.3 illustrates different prices paid by KNCU and AKSCG over eight seasons. Thus, the main challenge facing coffee industry in Tanzania is continuous price decline due to oversupply in the global market and low quality of coffee supplied from some of Tanzania's coffee actors.

Coffee is the second most important commodity in global market after oil. Coffee generates more than 70 million USD yearly in the global market (Brown, 2004). Africa and Asia produce one third of global coffee supply while the rest is supplied by Latin America (Brown, 2004). The main global markets of coffee are found in USA, EU and Japan altogether importing 80% of global coffee supply. Coffee has experienced global price crisis in 2000s' mainly due to oversupply in the global market (from countries like Brazil and Vietnam) and low quality. Many studies that have addressed coffee global crisis have pinpointed that quality improvement is the only feasible solution for farmers to fetch premium price (Rienstra, 2004; Brown, 2004; Hulm, Scholer, and Domeisen, 2007; Parrish et al., 2005; Lin, 2010; and Velmourougane et al., 2011). This differences in price between AKSCG and KNCU somehow can be explanied by their characteristcis as presented in table 1.2 below.

Table 1.2: *Characteristics of the Two Main Buyers (KNCU and AKSCG)*

Factor	AKSCG	KNCU
Information exchange	This buyer has a well-established information sharing and reporting system with its farmers through SMS (phones). It always posts account information like total collections and deliveries, sales from each auction and coffee grades. Farmers are always informed on how and what type fertilizers and pesticides to be used. Farmers are trained on how to perform better these activities: picking, pulping, washing, fermentation, washing, drying and cherry sorting	This buyer rarely provides information feedback and trainings to its farmers. Then, information sharing is expected to have more effect in improving performance of KNCU
Pricing system	This buyer uses performance based pricing system as farmers are paid depending on the level of coffee quality supplied. This is a self-monitoring system as farmers get punished themselves by delivering coffee of lower quality.	All farmers are paid the same price even though coffee quality may differ among themselves. As a result its farmers care more about quantity than quality.
Free-riding problem	Farmers are not tempted to free ride as they are paid depending on the level of coffee quality supplied by them. Also as shown in figure 3.3 AKSCG has been able to pay higher price to its farmers compared to KNCU which reduces possibility of farmers to free ride. With its well established information sharing system then it is easier to detect free-ride in AKSCG than KNCU as a result less monitoring is required in AKSCG.	Farmers are more tempted to free ride due to uniform price paid to them. It is difficult to detect free ride among farmers due to poor reporting system and information sharing. Thus, monitoring supported by sanctions (if deemed necessary) is expected to have more effect on performance of KNCU.

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Factor	AKSCG	KNCU
Monitoring	The use of performance based pricing system acts as self-monitoring system for AKSCG farmers as a result monitoring is not expected to have more effect in improving AKSCG's performance. Also, due to a well-established information sharing system, AKSCG rarely inspects coffee quality though it provides frequent feedback and establishes management level (supervisors) at each association for quality assurance.	Use of a uniform price means that farmers are not punished themselves by delivering coffee of relatively lower quality as a result KNCU highly emphasizes on inspection of fermentation units, transportation facilities water used and of coffee bags to ensure quality of coffee supplied. Hence, monitoring (supported by sanctions if deemed necessary) is expected to have more effect on KNCU performance

Source: *Author's own table based on (Parrish et al., 2005)*

Since quality is the only key driving factor for global price, then we focus on quality management as the only competitive advantage area that can be exploited by Tanzania coffee actors in addressing price decline. In this study we want to investigate factors affecting quality performance of coffee growers particularly in Kilimanjaro region of Tanzania by focusing on relationship between primary societies/associations and farmers in form of principal and agent relationship.

Research Problem

Studies conducted in Brazil, Taiwan and Rwanda on coffee quality management reported the role of information sharing and monitoring in addressing coffee quality management but did not test the significant effect of the named factors on coffee quality performance (Rienstra, 2004; Hulm, et al., 2007; Lin, 2010, Velmourougane, et al., 2011).

Rienstra (2004) highlights efforts undertaken in Brazil, Ethiopia and Rwanda in addressing global coffee crisis through quality improvement.

Introduction of ''cup of excellence program'' in Brazil tailored at quality revolution in Brazil (use of internet auction in selling coffee); Ethiopian coffee quality project (2004-2006) supporting farmers in training and special seeds production and USAID coffee project in Rwanda (from 2000). All are measures to revive quality by establishing central washing centers and fermentation units, training farmers and monitoring farmers when performing key critical coffee quality activities.

Both Lin (2010) in Taiwan and Hulm et al., (2007) in Rwanda revealed key activities that ensure coffee quality such as picking, sorting and cleaning, pulping, washing, fermentation, washing and drying. Of all these activities, fermentation is pointed out as the most important activity that if it is improperly performed then coffee quality would critically be affected. From this ground, farmers should be trained and monitored on how they perform the named activities to ensure quality. Also, to ensure coffee quality then farmers should be aware that any delay in these activities or in any harvesting and processing activities can impair coffee quality (Velmourougane et al., 2011).

As the named factors in the studies were not tested and studies have been conducted in a different setting (Brazil and Taiwan), this study focuses on examining (and testing) factors affecting quality performance between two coffee farmers groups in Tanzania. The differences on quality between KNCU and AKSCG are observed due to differences in price paid to coffee growers (Parrish, et al., 2005). According to current situation, AKSCG has been successful in purchasing coffee of higher quality and paying a relatively higher price to farmers than KNCU consistently in ten seasons (Parrish, et al. 2005). In order to explain factors affecting performance, this study will focus on relationship between primary societies/associations and farmers in form of principal and agent relationship.

Knowing factors affecting performance would help us to identify rooms for improvements in organizing relationship between farmers and primary

societies/associations. With respect to this study performance of the coffee growers is restricted on how each buying organization can influence its farmers to produce coffee of high quality that fetch more attractive price in the global market. Our study will be dedicated to answer the following research question:

What are factors affecting quality performance?
The primary objective of this study is to examine how organization of farmers and primary societies/associations relationship can enhance coffee quality. Specifically, this study is tailored to examine how factors such as monitoring, information exchange and negative external influence can affect agents' (coffee growers') performance in the relationship between farmers and primary societies/associations. The main purpose of this study is to provide an insight on how farmers and buyers relationships can be enhanced in a better way to improve farmers' performance on coffee quality. Therefore, determining effects of information sharing and monitoring would help us to know how these variables should be integrated in farmers-buyers relationships for coffee quality improvement. Also, determining the effect of negative external influence would help us to know how farmers should respond to negative external influence without impairing coffee quality.

Literature Review

As already mentioned, the agency theory is used in this study whereby farmers who are suppliers of coffee are viewed as agents and primary societies/associations who are buyers of coffee are viewed as principals. For better performance of principal-agent relationship strong information sharing system should be established. Also, when information sharing system is not well established then a principal could go for more monitoring in enhancing performance of the relationship. Presence of performance based pricing can highly encourage agents to positively respond to negative external

influence and hence, improve performance. Primary societies operate under KNCU while primary associations operate under AKSCG.

Fig. 1.1: *Principal – Agent Relationship*

Source: *Own source*

Agency Theory

Agency theory attracted people's attention as far back as 1960s. It originated from informational economics and it is related with risk sharing among cooperating parties (Arrow, 1971; Eisenhardt, 1989). Agency theory is suitable in assessing legal and social aspects of the contract signed by principal and agent (Eisenhardt, 1989). This theory tries to come up with solutions for both motivational and measurement problems when both principal and agent face goal conflicts and principal is not in position to validate the performance of his/her agent (Tate, et al., 2010).

Examples of research include studies that have used agency theory on marketing perspective of agricultural products Allen and Lueck (1995); Menard, (1996); Bandiera, (2002). In respect to this study, farmers (coffee supplier) are regarded as agents while primary associations under the two main buyers are considered as principals.

Jensen and Meckling (1976) view the principal-agent relationship as the situation whereby the principal delegates authority to the agent to perform assigned work on his/her behalf. Delegation of authority to agents means

that agents are given power to make decisions on behalf of principals. Several studies point out delegation of authority as the main reason for rise of agency problems like goals conflict and Information asymmetry (Eisenhardt, 1989; Jensen and Meckling, 1976; Barney and Ouchi, 1988).

According to Woodbine (2008), the agency problem is due to adverse selection and moral hazard. Adverse selection occurs as agents have private information which hinders principal from making right selection of agents (Woodbine, 2008). Moral hazard occurs when the principal is unable to observe agent's efforts when performing the assigned task. As a result, the agent is tempted to shrink. Researchers have pointed out three types of risk attitudes in this theory: risk loving; risk neutral and risk averse. These risk attitudes have different degrees of influence on contractual relation between two cooperating parties.

Agency theory provides a better platform for solving agency problems (asymmetric information and goal conflict) through different mechanisms like monitoring and rewarding/incentives systems (Jensen and Meckling, 1976). Further discussion of these mechanisms is presented in the section below.

The theory highlights problems that can arise when human beings are working together. Different human beings have different risk attitudes (some are risk averse, neutral, and loving). The bounded rationality, self-interest and goal conflict are the variables under agency theory that are highly associated with the nature of different human beings (Eisenhardt, 1989). Human beings entrusted with power to make decisions face problems of having limited cognitive capabilities and incomplete information. These two limitations affect cooperating parties from writing and signing a comprehensive contract that takes into account all possible contingencies (Gulbrandsen, 1998). Bounded rationality entails that it is difficult for people either to have complete information or even difficult to process all the information they may have. Although decision makers like managers would

like to make rational decisions, they find themselves unable to do so due to less information and communication inability. In real situations, business environment is very dynamic and it is difficult for contracting parties to include all contingency events that may happen in the future when signing a contact ex ante (Rindfleisch and Heide, 1997). To sum up, bounded rationality implies that people find it hard to process all information even if they have the required information when making decisions. This compromises the ability to make rational decisions when signing a contract for the cooperating parties.

This is the attitude of human beings which implies seeking individual benefit at the expense of another party in the cooperation. In the absence of sanction each partner will strive to work to achieve his/her own interest (Logan, 2000). Performance of any collaboration/partnership is enhanced if all partners have common interest. Presence of asymmetrical information provides room for opportunism for one partner to exploit benefits of cooperation at the expense of another (Parker and Hartley, 2003) .The situation can be resolved through behavior based contractual form.

Some studies relate the problem of self-interest to free riding problem. That is, how free riding among particular value chain members leads to failure to achieve value chain's objectives (Heide and John, 1990). Also in other perspectives like transaction cost theory, self-interest problem is related to opportunism which is mainly caused by bounded rationality, asymmetrical information and uncertainty (Williamson, 1975 and 1985)). According to Williamson (1975 and 1985), opportunism refers to self-interest seeking with guile.

This refers to a situation whereby information is available but not equally shared among the parties (principal and agent). This creates problems to parties engaging in a particular relationship (Douma and Schreuder, 2008). According to Eisenhardt (1989), asymmetric information leads to two main informational problems: Adverse selection and moral hazards.

Adverse Selection

Refers to the ex-ante informational problem whereby one party has more information than the other party when dealing with a certain task (when signing a contract). In Principal-agent perspective, adverse selection is regarded as to when agents misrepresent information on their performance ability or qualification criteria (Arrow, 1985). It is more challenging for a principal to determine the real ability and knowledge of agent ex ante before signing a contract for a specific task. The following examples of this situation: when a job candidate hides some of his / her information during a job interview purposely in order to get the job; When a person going for health insurance gives wrong information about his/her health in order to be charged less insurance premium.

Moral Hazard

Refers to an ex post informational problem that is revealed on actions that take place after the two parties have agreed to perform a certain task. It is difficult for a principal to observe actions / behavior of the agent in performing a contracted task (Holmstrom, 1979). Some agents portray behavior like shirking and free riding whose impacts are to reduce the welfare of principal (Holmstrom, 1979).

Taking into account of both, inability of principal to observe agent's actions and natural self-interest of human behavior (agent), then the principal faces more challenges in ensuring that his/her objectives are achieved in a specific collaboration (Eisenhardt, 1989). Eisenhardt (1989) ascribed this situation to two factors that are explained in the next section: Goal conflict and uncertainty.

Existence of goal conflict is centered on thirsty of one party to attain the highest utility/return while dissatisfying the counterparty (Saam, 2007)**.** Difference in goals of the parties in a contract lead to goal conflict between

them. Generally, many studies reveal that agents strive to maximize their utility at the expense of principals (Barney and Quchi, 1988; Brown and Potoski, 2003) . In absence of goal conflict each party sticks to agreed obligation and benefits one another.

Goal conflict can be obscured in different situations like: when two parties have conflicting rules and practice in governing a relationship (Thompson and Jones 1986; Braun 2003) or having conflicting objectives to be attained in a relationship (Blomberg, 2001; Penska and Thai, 2000). Agency theory provides a number of mechanisms that can be used by principal to solve agency problems. Examples of such mechanisms are: establishing a board of directors, reporting system and monitoring.

Williamson (1975) explained uncertainty as the situation whereby the contracted parties are unable to forecast unforeseen future contingencies that may have impact on their contracted transaction. One party can take advantage of the unforeseen contingency in contractual terms that results into opportunism (Ellram and Billington, 2002). The concept of uncertainty is related to risk aspects in principal agent theory. Performance of the agent depends on two factors: situational factors and weather conditions (external uncertainty) and the effort of the agent (behavioral/internal uncertainty). Both principal and agent make ex ante consideration of the risk from a particular collaboration and their own risk preferences before signing a contract (Bergen, et al., 1992). Uncertainty can be categorized into two streams: internal uncertainty and external uncertainty

Internal Uncertainty

Under principal agent perspective, internal uncertainty is the behavioral uncertainty of the agent whose main causative is asymmetric information. Principal cannot determine ex ante if the agent has the right ability to deliver expected performance and also sometimes the principal cannot observe agent's behavior during execution of the assigned task (Fama and Jensen,

1983). Asymmetric information leads to false information been communicated to principal by the agent (Bergen et al., 1992). With respect to this study, some farmers (agents) can deliver false information to buyers (principals) like:

➢ Pretending to have used the required long drying time while they (farmers) have used shorter drying time;

➢ Using other cheap pesticides and sending reports to buyers showing that they have used the prescribed pesticides; and

➢ Sending reports showing that they have used the required fermentation, warehousing and transportation facilities while in reality they have gone for cheap facilities.

External Uncertainty

This is also refereed to environmental uncertainty whereby performance of the agent is subject to some situational factors and weather conditions (in case of agricultural products-coffee). Factors like changes in demand/marketing situations, changes in technology, changes in weather conditions and changes political factors contribute significantly to external uncertainty (Bergen, et. al., 1992). It is difficult for the principal to evaluate his/her agent's performance due to the surrounding uncertainty and attitudes of human beings like self-interest and bounded rationality (Noordewier, John, and Nevin, 1990). Also presence of external uncertainty leads to more challenges between principal and agent in designing a complete contract (Bergen, et. al., 1992). In this study both, principal and agent face external uncertainty with respect to changing global coffee price and global coffee supply. This makes it more difficult for both parties to forecast the price of coffee.

Mechanism of Agency Theory to Solve Agency Problems

Establishment of clear strategies helps the principal to determine a real behavior of agent and enables him/her to make a decision according to principal's needs. Some studies point out usefulness of observation through tracing back the history of the agent, extensive interview between agent and principal and establishment of centers to be used for assessment even though the costs is upon the principal (Bergen, et al., 1992; Spence, 1974).

Activities done by agent can be monitored through a well-established monitoring system. An effective monitoring system binds agent to perform his/ her duties in accordance to principal interest. Principal needs to monitor agent with respect to behavior and output by using frequent reports, inspection and additional levels of management. It is cost-full to ensure all these mechanisms are in place. Some researchers like Saam (2007) propose that use of incentives compensation systems as a method of monitoring agent performance is better and less costly.

In this mechanism the agent takes an initiative to bind himself to certain obligations and monitoring. The agent makes commitment for sharing certain information with the principal. Farmers could make commitment to timely deliver reports and required information to buyers like drying time, pesticides used and reporting any new insects affecting coffee plants. The agent could sign an agreement stipulating sanctions that will take place in case of commitment violations (Jensen and Meckling, 1976).

Several researchers insist on use of well-designed incentive systems to solve agency problems (Jensen and Meckling, 1976). Incentive systems give a room for both principal and agent to co-align their interest as both get rewarded from their actions. When it is more expensive and challenging to use monitoring, the principal is advised to go for incentive systems. The principal should make tradeoff between agency cost and increase in returns as implementation of incentive system brings some costs to principal and distribute risk to the agent as well (Saam, 2007).

Signaling refers to the situation whereby the agent is doing some activities

in order to convince the principal that he/she is the right type of the agent the principal is looking for (Bergen, et. al., 1992). This helps the principal to know his agent's risk preference and ability to deliver expected performance. Signaling helps the principal to know hidden characteristics of the agent, which determine. The agent's ability to deliver the required performance (Spence, 1974; Grinblatt and Hwang 1989; Saam, 2007). Under Signaling, the agent is one that incurs costs such as paying for training costs in order to acquire required knowledge by principal so as to be considered for selection.

Research Model and Hypotheses

Overview of Research Model

Research model for this study shows how different factors affect performance of coffee growers (agents) as illustrated in Figure 1.2. This research aims at testing effects of the named independent variables on the dependent variable, focusing on how the developed independent variables affect performance of coffee growers. In this study, the dependent variable is agent's quality performance (PERF), which is influenced by the following independent variables: information sharing (INFO). Monitoring (MONT), and negative external influence (EXTI). These variables means tested and results are examined to explain factors affecting performance. For example, we expect a positive association between monitoring and agents' performance.

The research model is formulated to determine effects of the named independent variables on performance of coffee growers. Then, the effects of information sharing, monitoring, and negative external influence on performance of coffee growers are assessed.
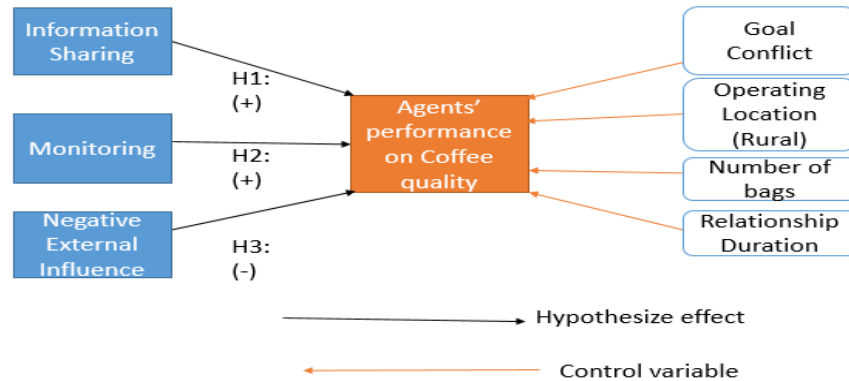
Fig. 1.2: *Research Model*

Source: *Own source*

Definition of constructs
Dependent variable
Agent's performance (PERF)

Performance is the recurring concept that has drawn attention from different disciplines like management, accounting and marketing (Venkatraman and Ramanujam 1986) and (Vorhies and Morgan 2003). Different stakeholders like managers, scholars are so interested in this theme performance. A number of empirical studies have used performance when observing different strategic and process matters in organization (Ginsberg and Venkatraman 1985).

Performance can be measured by using different dimensions like financial indicators based on objective data, operational indicators based on perceptual data or by using both financial and operational indicators. Different indicators are used to measure performance from financial perspective like: changes in revenue, changes in profit, and changes in price/value per share for a specific company, changes in cash flows, and

ROI-return on investment. It is difficult to get access to financial data due to confidentiality (especially in private companies).

When performance is measured from operational perspective, it refers to like quality of product, customer satisfaction, value added in goods/ services, technological improvement and marketing efficacy. It is less difficult to get access to perceptual data as their level of confidentiality and sensitivity is less than financial data (Venkatraman and Ramanujam 1986).

Objective performance data have no bias and that makes them more reliable than perceptual data. However, according to different researchers, perceptual performance data can also reflect degree of objectivity when they are subjected to different statistical validity and reliability tests (Dess and Robinson 1984).

This study is concerned with agent's performance based on operational data. The study is centered on quality of coffee produced by farmers. In this study the agent's performance is a dependent variable influenced by different independent variables like information sharing, monitoring and negative external influence. According to literature review, we expect monitoring and information sharing to have more positive effect in performance of KNCU than in AKSCG, while negative external influence has more negative effect in KNCU than in AKSCG (Jensen and Meckling 1976), (McQuiston 1989), (Eisenhardt 1989) and (Wright 2004). We expect that a better combination and application of these factors will enhance quality performance of farmers. The next section presents discussion of these independent variables.

Independent variables
Information sharing

Information means organized and specific data with meaning for a certain purpose (Glazer 1991). Information is a key tool in proper facilitation of any operation/activity. Information can also be taken as a commodity that

can be exchanged among the parties. To ensure proper exchange of information in a relationship, parties are required to have a well-established communication system among them (Eisenhardt, 1989) and (Chou, Chen, and Pu, 2008). A well-established communication system is required to ensure strong relationship between principal and agent (Glazer, 1991). The more timely and accurate sharing of information among parties, the stronger the relationship and the more possibility for achieving common objectives. According to Glazer (1991), the nature of tasks done by the agent or extent of authority delegated to agent determines the different types of information required to ensure the common goals are achieved. This study emphasizes on timely sharing of information between farmers (coffee suppliers-agents) and buyers (principal) in respect to market information like price, progress of coffee production, time required for drying in every season, required quality of coffee, and cash bonuses. Effective information systems will have positive impact performance of agents in the field.

Monitoring

A number of studies have been conducted based on agency theory on how mechanisms suggested this theory can be used to improve performance (Welbourne 1995). Buvik and Rokkan (2003) shows how monitoring could have different impacts in the performance of voluntary chain members, whereby more monitoring could lead to more alignment of individual members to the collective goal while in the other case, it could lead to more freeriding problem among agents. Buvik and Rokkan (2003) also highlights on behavioral uncertainty among agents and the eventual performance evaluation problem. Holmstrom (1982) also urges that free ridding by agents is caused by moral hazard and principal's inability to observe efforts devoted by the agents in performance due to asymmetric information. As a result many researchers have tried to find out how principal

can solve problems arising from moral hazards and one of most recommended ways is monitoring of agents' actions (Holmstrom, 1982 and Whynes, 1993). Also researchers emphasize on the importance of using monitoring in minimizing agents' opportunistic behavior (free ride) and subsequently improving their performance (Buvik and Rokkan, 2003 and Eisenhardt, 1989).Although monitoring is perceived to have more positive impact in performance in some few case some agents may resists to principal 's monitoring as they see that principal have no trust on them or they don't like to be monitored hence leading to lower performance (Welbourne, 1995; Buvik and Rokkan, 2003; Tosi and Gomez-Mejia, 1994).

Negative External Influence

External influence refers to the situation whereby communication given by one party for consideration deliberately affects the actions of other parties (Mc Quiston 1989). In this concept an organization's decision could be interfered / influenced by actions and decisions of other interested parties (government). Marketing and resource management researches show that relationship between farmers and buyers is always influenced by likes of government and surrounding society (Markelova and Meinzen-Dick 2009).

In this study we focus on negative external influence although external influence can be either positive or negative influence (Chen et al. 2006). Government has a great role in influencing agricultural activities in developing countries through policy making, legal procedures and supporting farmers. Also farmers face some pressure from different local organizations and local politicians in key decisions like which crop should be given priority in a particular period (Lele 1981). For example, during hunger and famine, it is more expected that local politicians will pressurize farmers to grow more food crops than cash crops like coffee. The government, local organizations and local politicians call for like the following use of more

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land for food crops, more emphasis on quantity than quality of coffee, use of water for other activities and less water for cleaning coffee. All of these negatively impact on quality performance of farmers in coffee.

Control Variables

In order to avoid misspecifation in our study we have incorporated the following control variables: relationship duration, number of bags, location of organization and goal conflict. Some variations in the endogenous variables can alternatively be explained by these control variables. We expect a positive association between quality performance and the following control variables: relationship duration, location of organization been close to farmers-rural. We also hypothesize the negative association between quality performance against number of bags and goal conflict.

Relationship Duration

Relationship duration implies the number of years that two parties in a specific relationship have worked together within a certain time frame (Buvik and Halskau, 2001), (Heide and Miner, 1992), (Buvik and John, 2000). The more time partners spend in a relationship the more possibility of developing trust, norms and personal relationships that are expected to enhance the quality of relationship (Macneil 1980; Buvik and Halskau, 2001). One of the reasons for parties (principal and agent) to engage in a relationship for a long period is due to quality satisfaction from each party like: When a farmer delivers high quality of coffee (Agent) or when a buyer delivers required support to farmer on time (principal).

Location of Organization

As many farmers are located in rural areas, we could expect to have a primary society/association close to them for effective monitoring. When

the primary association is located in an urban area while farmers are in rural areas then it is difficult for the buyer (principal) to observe actions of the agents (farmers). Close location between farmers and primary association helps to minimize internal uncertainty faced by principal as he / she can easily evaluate performance of the agents. Then we expect high quality performance for farmers when more primary associations are located in rural areas.

Number of Bags

Many scholars in agricultural literature highlight how farmers can increase quantity of their cash crops at the expense of quality (Olmos and Martínez 2010).There is always a trade-off between quantity and quality in cash crops cultivation. Then we expect existence of a negative association between number of bags and quality performance of farmers

Goal Conflict

Goal conflict refers to the situation whereby two or more cooperating parties have different interests/goals in attaining a certain cooperative objective (Slocum, Cron, and Brown, 2002).This is one of the main causatives of agency problem as reported by many researchers in principal-agent theory (Eisenhardt, 1989). Goal conflict is experienced when principal and agent have different interests and each of the two wants to maximize individual returns (profit) (Saam, 2007). For example, the principal would like to maximize profit by delivering high quality products while the agent could be interested in minimizing costs of production even at the expense of quality impairment. Goal conflict can be reflected in different situations like having conflicting procedures on how to perform a task, conflicting rules and practices, conflicting policy and conflicting objectives (Penska and Thai ,2000) and (Blomberg, 2001). Goal conflict can also be experienced in this study as some of farmers would like to maximize

quantity of coffee at the expense of quality or when farmers want to use cheaper warehousing and transportation facilities, cheaper pesticides and fertilizers at the expense of quality.

Though both principal and agent could agree on rules to be adhered to in performing a task, still the agent could implement the agreed rules in different ways (Schapper, Malta, and Gilbert, 2006). We can also expect a mismatch between agreed rules and implementation between farmers and buyers due to conflicting interests. Therefore, cooperating parties can fail to attain expected performance solely due to goal conflicts among them (Wright, 2004). Research suggests that, goal conflict has negative impact in performance (Slocum, Cron, and Brown, 2002). Therefore, we expect a negative association between goal conflict and performance.

Hypotheses
Information Sharing

The presence of high level of information sharing in AKSCG through training, a well-established reporting system and providing feedback to farmers has helped the organization to easily detect free-ride whose impact is to deteriorate performance. Also timely information sharing between principal and agent would enhance performance of the agent in the assigned task. Training farmers on different aspects plays a key role in ensuring quality on coffee (Parrish, Luzadis, and Bentley, 2005). Then we expect more level of information sharing would enhance performance of coffee growers. From this phenomena the following hypothesis is proposed.

H1: There is a positive association between information sharing and coffee growers' (agents') performance on quality.

Monitoring

Principal needs to establish monitoring mechanisms that can ensure that agents behave in the best interest of principal (Jensen and Meckling, 1976)

and (Eisenhardt, 1989). Principal has to ensure proper observation of agents' actions when performing the agreed task. Buvik and Rokkan (2003) suggest use of monitoring as the way forward of improving performance of members of voluntary chain.

In this study, monitoring of all processes from growing, harvest and further processing is crucial for quality assurance. Buyer organizations should work closely with farmers to ensure that clean water is used in washing coffee beans. Also, buyers should engage in managing fermentation process which is a very important stage in maintaining coffee's quality. Provided that there is higher level of information sharing between AKSCG and its farmers compared to KNCU, thus we expect monitoring to have more effect in KNCU than in AKSCG. Presence of good information sharing system helps AKSCG to easily detect free-ride. Use of performance based pricing system acts as a self-monitoring system because farmers get punished themselves by delivering coffee of low quality. Presence of low information sharing and use of uniform pricing by KNCU make difficult for KNCU to detect free ride. As a result more monitoring would help KNCU to improve its performance. From this perception we propound the following hypothesis.

H2: There is a positive association between monitoring and coffee growers' (agents') performance on quality.

Negative External Influence

Use of performance based pricing system in AKSCG makes farmers to resist negative external influence posed to them by taking some initiatives in finding the best alternatives without impairing coffee quality. For example, in 2009 Kilimanjaro region experienced water shortage. As a result, the water supply organization restricted farmers to use more water for washing coffee. In response to this AKSCG farmers decided to construct their

own water well/dams as alternative water source. Also when other private buyers and stakeholders campaign on farmers to free-ride their original coffee buyer (sell their coffee to other private buyers), AKSCG famers find it more difficult to free-ride due to a well-established information sharing system and performance based pricing system. From this discussion, we propose the following hypothesis:

H3: There is a negative association between negative external influence and coffee growers' (agents') performance on quality.

Research Methodology

Research Design

This study used cross sectional data that employed a pilot study survey of coffee growers in Kilimanjaro region of Tanzania. The advantage of using cross-sectional data is that they are collected at a single point in time and therefore, less expensive than use of longitudinal survey which involves conducting the survey, over different time periods from the same respondents. The rationale for choosing the descriptive research design is because both research question as well as hypotheses are formulated beforehand. Data are then collected by survey and appropriate statistical analyses are then conducted to test the hypothesis. The hypothesis is then supported or refuted. This then adds to theory development by the support of hypothesis which sheds lights on the phenomena the theory seeks to explain.

Empirical Setting and Geographical Location of the Study

The Tanzanian coffee industry is the empirical setting for this study. The study sought to investigate factors that affect coffee growers' (agents performance on quality in buyer seller relationships. The coffee industry of

Tanzania is a very important industry for the country; it serves as a major source of income to the country and provides employment to the thousands of people involved in the various activities entailed in the supply, warehousing, transport, processing and export of the commodity.

The empirical context for this study is the relationship between growers of coffee (suppliers) and LBCs (buyers). The industry is characterized by focusing buyers' (LBC's investment on information sharing, monitoring and handling negative external influence. Focus of the study was on suppliers' performance on coffee quality while the unit of analysis was the relationship between smallholder farmers and buying agents. The geographical location for the study is Kilimanjaro region of Tanzania. The main actors of interest to this study are the small holder farmers, the License Buying Companies (LBC's) and the Tanzania Coffee Board (TCB).

TCB was established through Tanzania coffee industry Act Number 23 of 2001. It is a government organization for regulating production and marketing of coffee. Its main objectives are: To regulate coffee industry, to provide professional advice to government on: Growing, Processing, Marketing of coffee and to provide license for different companies undertaking different activities connected to coffee like processors, buyers and exporters

Primary and Secondary Data

Primary data were collected through a survey from one hundred thirty two (132) respondents mostly, primary societies/association in January, 2012. According to Malhotra and Birks (2006; p.41) primary data are data collected by the researcher to address a specific research question.

Secondary data on the other hand are data not intended for the problem at hand at the time they were collected. It may be information already generated in an organization. They are available in such forms as books, journals, articles, databases and internet sources. The advantage of using

secondary data is that they are economical and saves time. However, they have the disadvantage of not fitting to the problem and they are not fully accurate (Churchill and Brown, 2004). For the purpose of this study secondary data were sourced from the internet web pages of the International Coffee Organization (ICO) and the TCB. Also literature review from books, journal articles on related subject, past theses from the University of Dar es Salaam library, online sources line Science direct, ProQuest and BISSY database were also made use of to gain knowledge about the subject.

Sample size and Sampling Techniques and Procedures

The sample size was 132 primary societies/associations smallholder farmers. A convenience sampling technique was used in the sampling procedure. It involves the selection of respondent who happen to be around at the time the interviewer was visiting. The use of convenience sampling makes it least expensive and less time consuming to obtain because the sampling units are accessible, easy to measure and they are cooperative (Malhotra and Birks, 2006). Although convenience sampling was not recommended for descriptive research due to the problem of selection bias, it was allowed for the pre-testing of questionnaires and for pilot studies (Malhotra and Birks, 2006). Data collection was done through cross sectional data survey. The data were collected by personal questionnaire administration.

According to Churchill (1999) a questionnaire can be administered by mail, telephone or by personal interviews. Face-to-face interviews using a structured questionnaire were done. Face-to-used interviews are very common method of data collection especially in research settings where the administration of questionnaires by mail are likely to result in very low response rate; and where facilities for such means are not well developed. Administrations by means of telephones are also not convenient within the research setting because a long questionnaire with many question items is

likely to result in very low response rate. Secondly, because it was impossible to use the other forms because of the nature of their job, they had no time for such conveniences. The researcher with the assistance of two research assistants visited the individual farmer with a questionnaire to have face-to-face interviews with the respondents. Hence the dataset for this study is based on the original pilot survey conducted by researchers themselves in January 2012.

Measurement

According to Kerlinger (1986), measurement is the assignment of numerals to objects according to rules. Adapted multi–item scales from previous research were used to measure the constructs. This is to ensure the operationalization of each of the constructs in the model. Theory plays a very important role in conceptualization of measurement since most variables in the social sciences are not observable hence the need for theory to help in conceptualizing and operationalizing unobserved constructs (De Vellis, 2003). Poor measurement is said to impose an absolute limit on validity of conclusions that a researcher can draw from his or her studies. For this reason it is advised that it is important for the researcher to get the measurement part of the study to be conducted well from the beginning of the study so as to be able to draw better conclusion of the study (De Vellis, 2003). This study adapted scales which have been used in other studies such that the validity and reliability of such scales have been unquestionable.

Two types of measurement model were used in inter-organizational studies to find the relationship between a set of latent constructs. These are the principal factor model also known as reflective model and the composite latent variable model which is also known as formative scales. These models involve the use of multiple indicators in measuring a phenomenon, which is unobservable (Jarvis, et. al, 2003).

The Principal factor model involves reflective scales and shows the direction of causality from the construct to measure. The measures of the reflective scales are expected to have internal consistency to ensure reliability. The meaning of the construct is not altered when an indicator is removed from the model and this type of model takes into account measurement error at the item level. This is in contrast to the composite variable model where the direction of causality is from the measure to the construct, and it does not require internal consistency but rather requires criterion reliability and it takes into account error at the construct level (Jarvis, et. al. 2003). However, there are also similarities in both models in that both scale scores do not adequately represent the construct which leads to inconsistency in the reflective model and biased estimates in composite variable model (Jarvis, et. al. 2003). In this study, all constructs are operationalized as latent variables and all variables were measured using reflective scale.

Measurement of the Variables

The guidelines proposed by De Vellis (2003) in developing measures for the latent constructs were followed in this study. De Vellis (2003) defines a scale as a measurement instrument which is joined together into a score, with the intention of revealing the level which are not easily observable but exist in theory. He proposed a guideline in scale development following eight steps similar to those proposed by Churchill (1979).

This guideline is consistent with those used in previous works by (Burki, 2009; Mia and Mentzer, 2004). The most important step is validity of the construct which is determined by the following steps: Specification of constructs; Item selection; Purification and Scale validation (Burki, 2009; Churchill 1979). In order to determine what was to be measured, an extensive literature search was conducted regarding performance, information sharing, monitoring, negative external influence and goal conflict to get a pool of items for each construct.

Measurement Process

In this section various question items that make up the variables are listed. In this study there is only one dependent variable; performance (PERF) and three independent variables: information sharing (INFO), monitoring and negative external influence (EXTI). Also, four control variables namely relationship duration (REDURA), location of buying organization (Dummy variable: 1=RURAL, 0=TOWN), number of bags (BAGS) and goal conflict (GOAL).

The Dependent Variable

In this study performance (PERF) is used as the dependent variable. To measure coffee growers' performance on coffee produced, the approach used in studies by Glavee-Geo (2012) were employed as a guide. The construct consist of eight items and are positively worded and anchored from 1 strongly disagree to 7 strongly agree and these are listed as follows: This farmer always delivers coffee to us on time (PERF 1) , We are always very satisfied with the quality of the coffee we receive from this farmer (PERF 2), This farmer always responds quickly to required production volume (PERF 3) , This farmer regularly responds quickly to our requirements on production process (PERF 4), This farmer always uses very good storage facilities (PERF 5), This farmer rarely free ride on us (PERF 6), This farmer always uses the required fermentation units (PERF 7), This farmer usually uses very good transportation facilities (PERF 8).

The Independent Variable
Information Sharing (INFO)
Information sharing (INFO) was measured by using a 7 point Likert scale where 1 represents strongly disagree and 7 represent strongly agree, and was operationalized by the following eight items as adapted from Glavee-Geo (2012) and are listed as follows: We regularly communicate market information like new prices to this farmer (INFO 1), We always get reports

from this farmer on progress of coffee production during the season (INFO 2), We frequently get reports from this farmer on time period lasted for drying coffee (INFO 3), We always communicate our expectation on coffee quality to this farmer (INFO 4) We regularly provide information on cash bonuses to this farmer (INFO 5), We always get reports on any insects/disease affecting coffee production from this farmer (INFO 6), We frequently inform this farmer about what was taking place in auction floor (INFO 7), We usually inform this farmer about fertilizers and pesticides to be used in coffee production (INFO 8).

Monitoring (MONIT)

Monitoring (MONIT) is measured by using a 7 point Likert scale where 1 represents strongly disagree and 7 represent strongly agree, and is operationalized by the following seven items as adapted from Glavee-Geo (2012) and are listed as follows: We regularly make personnel visits to this farmer's plantations to improve performance (MONIT 1), We are regularly informed by this farmer on any new insects/disease affecting coffee during the season (MONIT 2), We frequently receive report from this farmer on time used to dry coffee after harvesting (MONIT 3), We frequently have physical inspection of water used by this farmer on washing coffee after harvesting (MONIT 4), We frequently control the time period used by this farmer for drying coffee after harvesting (MONIT 5), We frequently inspect fermentation units used by this farmer (MONIT 6), We frequently inspect transportation facilities used by this farmer (MONIT 7).

Negative External Influence (EXTI)

Negative external influence (EXTI) is measured by using a 7 point Likert scale where 1 represents strongly agree and 7 represent strongly disagree, and is operationalized by the following seven items as adapted from Glavee-Geo (2012) and are listed as follows: Local food crops organizations frequently campaign for more use of land for food crops than coffee to this

farmer which reduces available land for coffee production (EXTI 1), Local banana growers organization frequently campaigns more use of land for banana than coffee to this farmer which reduces available land for coffee production (EXTI 2), Local trade organization campaigns more use of fertilizer than manure which reduces quality of coffee (EXTI 3), Local government authority regularly campaigns to this farmer to practice intercropping which reduces quality of coffee (EXTI 4), Local water supply organization always orders this farmer to use less water for washing coffee which affects negatively quality of coffee (EXTI 5), Other local coffee buyers who emphasize more on quantity always interfere negatively on quality of coffee produced by this farmer (EXTI 6), Local government authority regularly influences this farmer to sell his/her coffee to other buyers (EXTI 7).

Control Variables

In addition to the dependent and independent variables, four control variables: relationship durations (REDURA), location of buying organizations (RURAL), number of bags produced per year (BAGS) and goal conflict (GOAL) were included in the model.

Relationship Duration (RUDURA)

Relationship duration measured in years represents the number of years that a supplier has been selling to the buyer. This variable was adapted from Heide and Miner (1992). The natural logarithm of the REDURA is used and it is measured by the single open question: How long have you been selling to this company?

Location of Organization (RURAL)

As many farmers are located in rural areas, we could expect to have primary society/association close to them for effective monitoring. The

location of buying organizations was identified by a single question:
Where is your organization located: Rural………..or Urban………………

Number of Bags (BAGS)

The annual sales volume (BAGS) was measured as a single item scale adapted from a previous research by Heide and Miner (1992). The sale volume was measured by the natural logarithm of the total number of bags sold to the buying firm and is measured by a single question:
How many number of bags you bought from coffee growers during the last crop season… Bags.

Number of Bags

Many scholars in agricultural literature highlight how farmers can increase quantity of their cash crops at expense of quality (Olmos and Martínez 2010).There is always a trade-off between quantity and quality in cash crops cultivation. Then we expect existence of a negative association between number of bags and quality performance of farmers.

Goal Conflict

Goal conflict (GOAL) was measured by using a 7 point Likert scale where 1 represents strongly agree and 7 represent strongly disagree, and is operationalized by the following eight items as adapted from Glavee-Geo (2012) and are listed as follows: This farmer always produces more volume than what is desirable for good coffee quality (GOAL1), This farmer frequently uses shorter period for drying coffee than what is desirable for good coffee quality (GOAL2), This farmer always uses cheaper fermentation units than what is desirable for good coffee quality (GOAL3), This farmer always uses cheaper transportation equipment than what is desirable for good coffee quality (GOAL4), This farmer frequently uses cheaper fertilizer than what is desirable for good coffee quality (GOAL5),

This farmer always uses shorter fermentation period than what is desirable for good coffee quality (GOAL6), This farmer always uses less water for washing coffee than what is desirable for good coffee quality (GOAL7), This farmers frequently uses very cheap pesticides than what is desirable for good coffee quality (GOAL8).

Measurements Assessment and Data Validation

Data Screening and Cleaning

According to Pallant (2007 p 43), before data and analyzed it is advised that the data are checked for errors since this may affect results from the analysis. The process of screening the data involves:

Step 1: Checking for errors: By checking for values out of a range within the possible scores such as mistakes made in data entering.

Step 2: Finding and correcting the error in the data file: By locating exactly where the error can be found in the data file and rectifying or deleting the value (Pallant, 2007, p 43).

In accordance with the recommendation, in this study the data set was checked for errors like outliners but this was found to be non-existent.

Descriptive Statistics

According to Pallant (2007) it is advisable that data are initially subjected to a descriptive analysis before they are validated or used for any analysis. The statistics obtained can be used as a characterization of the sample, they can also be used to check whether or not any of the variables undermine the assumption of the intended statistical technique to be use in answering the research questions and also use in particular research questions. Descriptive statistic is defined by Gaur and Guar (2006) as numerical and

graphical method used in the summary of data. They gave three numerical methods for descriptive statistic as the: Measurement of central tendency (mean, median, and mode) and normality; Measurement of variability (range and variance) and the Measurement of skewness and kurtosis (Gaur and Guar, 2006). In this regard, descriptive statistic was run for the variables. The items were checked for normality (Figure 1.3a, b and c) and they were found to be acceptable in meeting the various assumptions of normality. This is important according to Hair, et al. (1998) because when it is not normal it will compromise results of the correlation and factor analysis. The result of the descriptive statistics for all the variables in the research model and the sample characteristics of the study are presented in Table 1.3 and 1.4 shown below. It includes the minimum, maximum, mean and the standard deviations of the variables.
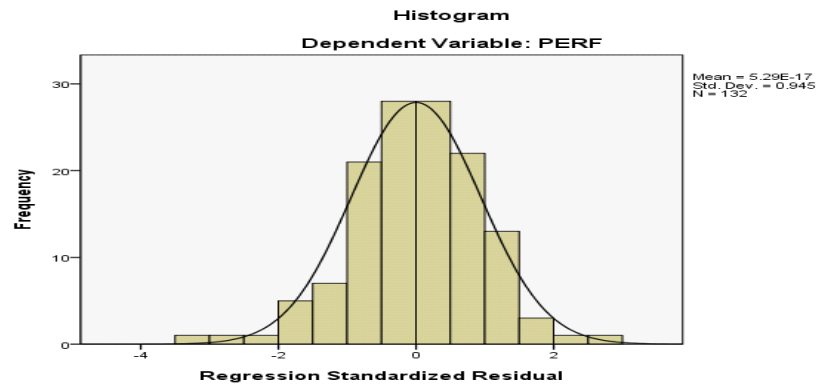
Table 1.3: *Descriptive Statistics*

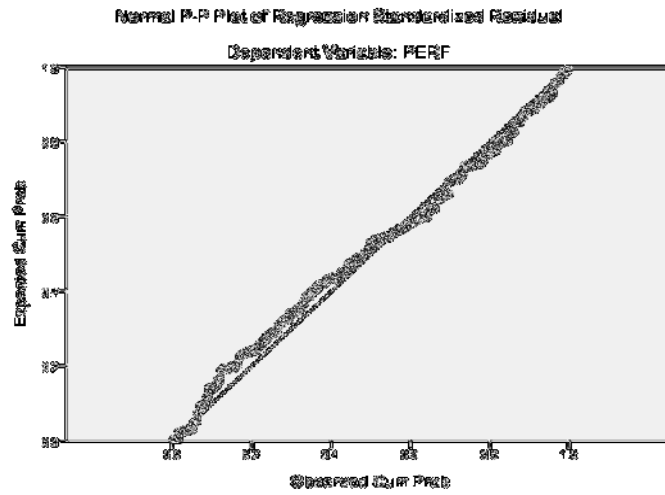**Table 1.4:** *Characteristics of the Sample*

	N	Min.	Max.	Mean	SD
Relationship duration (years)	132	2.00	30.00	3.46	1.08
Number of bags	132	63.0	3050.00	555.31	525.25
Goal Conflict (GOAL)	132	1.00	7.00	4.33	1.07

However, the measure of normality is shown in Figure 1.3 (a), (b) and (c) and reveal existence of normality in the data.

Histogram

Dependent Variable: PERF

Mean = 5.29E-17
Std. Dev. = 0.945
N = 132

Fig. 1.3 (a)

Normal P-P Plot of Regression Standardized Residual

Dependent Variable: PERF
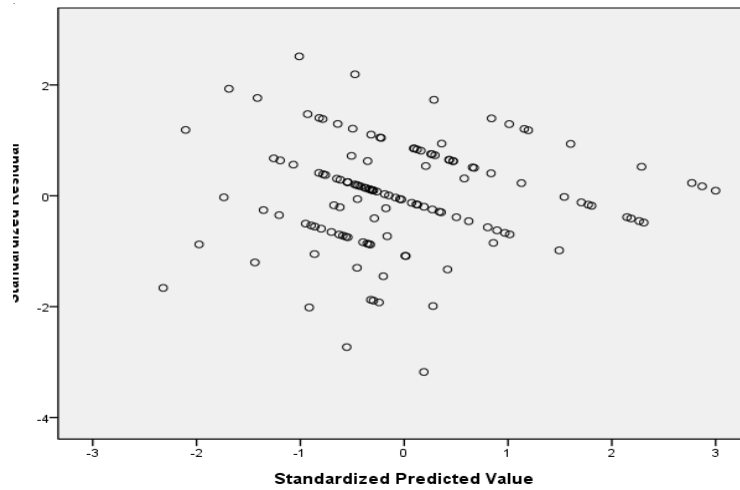
Fig. 1.3 (b)

Standardized Predicted Value

Fig. 1.3 (c)

Scale Reliability

In this section, reliability of the scales used in the study is discussed. Reliability is referred to by Kerlinger (1986; p.404-405) cited in Agle and Kelly (2001) as the accuracy or precision of a measuring instrument. Synonyms to reliability are: dependability, stability, consistency, predictability and accuracy". Thus, it seeks to answer the questions does the measurement represent the true properties; should the research be conducted by new researcher with new variables will the same results be obtained? Agle and Kelly (2001).

Peter (1979) cited in Mentzer and Flint (1997) identified four types of reliability depending on the main intents of the research. It could either be test-retest; mostly used for the development of psychological constructs; split half reliability, where the sample is randomly divided into two half and the results from the two groups are correlated; internal consistency which

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is the commonest method used based in the determination of Cronbach Alpha; and inter-judge, commonly used in case study based research (Kimberin and Almut, 2008; Mentzer and Flint 1997).

The scale reliability for each of the latent construct was assessed. This was done by first undertaking an exploratory factor analysis (EFA). Exploratory factor analysis is one of the two types of factor analysis and the other type is confirmatory factor analysis. According to Pallant (2007; p179) factor analysis refers to data reduction technique whereby large data sets are taken and a way is found for reducing that data into a smaller set of factors or components. She explained several different approaches used in the factor extraction, namely the principal component model; the principal factors; image factoring; maximum likelihood factoring; alpha factoring; unweighted least squares; and generalized least squares. In this study the principal component approach was adopted due to the fact that it is the commonest method use for factor extraction (Pallant, 2007).

Tables 4.5 below shows the results of the Varimax rotated factor analysis carried out in this study. Five factors were identified namely factor1 External Influence (EXTI), factor2 Monitoring (MONIT), factor3 Information Sharing (INFO), factor4 Performance and factor5 Goal Conflict. Items with factor loadings less than .40 were deleted and all cross loading items were also deleted. The results show all factor loading were between .616 and .979 (Table 1.5). High factor loadings has been recognized to be a good indicator of high convergent validity (Hair, et.al. 1998).

Table 1.5: *Rotated Component Matrix[a]*

Factor	Component				
	1	*2*	*3*	*4*	*5*
EXTI1	**.808**	-.051	-.077	.111	.174
EXTI2	**.877**	-.009	-.051	.074	.148
EXTI4	**.867**	.065	.013	.050	.079
EXTI5	**.764**	.100	.007	.066	.197
EXTI6	**.822**	-.095	.031	.179	.049
EXTI7	**.785**	-.054	-.021	.091	.226
MONIT1	-.130	**.887**	.180	.016	-.036
MONIT2	.063	**.974**	-.063	.040	-.017
MONIT3	.016	**.953**	-.107	-.005	-.016
MONIT6	.015	**.957**	-.123	.003	.022
INFO1	-.044	-.002	**.979**	-.002	.007
INFO2	-.061	-.034	**.976**	-.023	-.012
INFO3	.059	-.002	**.834**	-.061	.153
INFO4	-.036	-.080	**.906**	.086	-.045
PERF2	.153	.026	-.005	**.855**	.135
PERF4	.019	.037	-.027	**.852**	.158
PERF6	.144	.031	-.025	**.876**	.131
PERF7	.178	-.052	.065	**.591**	.310
GOAL1	.287	.038	.045	.183	**.709**
GOAL2	.233	-.030	.060	.067	**.741**
GOAL3	.201	.030	-.029	.226	**.616**
GOAL6	.030	-.066	.023	.189	**.774**

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 5 iterations.

The Cronbach alpha of each factor is used in assessing the internal consistency in this study. This is due to the fact that it is a very important indicator of reliability and without it the other tests will have no meaning (Mentzer and Flint, 1997). The Cronbach alpha is used to compare how well each of the questions in a questionnaire correlates with the other questions measuring the construct. It is seen as an average correlation of

one question to the rest in the group. A low Cronbach alpha shows that the sample poorly captures the construct used for measurement (Nunnally, 1967). Therefore, it is advised that the construct should have at least three question items to establish reliability since the greater the number of items the higher the Cronbach alpha will be and this will improve the measurements reliability and precision (Mentzer and Flint, 1997). The coefficient of Cronbach alphas of the constructs shown in Table 1.6 indicates that all the measurement items forming a construct/factor have internal consistent reliability greater than .70 as recommended by Nunnally (1967) with goal conflict (GOAL) having the least with á =.754.

Table 1.6: *Reliability*

Construct	*Items*	*No. of Items*	*Cronbach alpha (α)*
Performance	PERF 2,4,6,7	4	0.848
Monitoring	MONIT 1,2,3,6	4	0.960
Goal Conflict	GOAL 1,2,3,6	4	0.754
External Influence	EXTI1,2,4,5,6, 7	6	0.916
Information sharing	INFO 1,2,3,4	4	0.941

Data Analysis and Empirical Findings

Regression Model

The regression model that was applied in this study used the Ordinal Least Square (OLS) estimation technique. All the variables were included in the regression model. All items that were found to be consistent in each construct were used to find average in that particular construct before subjecting to the model. The model looks as follows:

$$PERF = b_o + b_1 INFO + b_2 MONIT + b_3 EXTI + b_4 GOAL + b_5 RURAL + b_6 BAGS + b_7 REDU + \varepsilon$$

Where:
Dependent variable
PERF = Coffee grower's (Agent's) performance

Independent variables
INFO = Information
MONIT = Monitoring
EXTI = Negative External Influence
GOAL = Goal Conflict
RURAL = Dummy variable if the buying organization operates in rural area.
BAGS = Number of bags produced by a farmer
REDU = Relationship Duration between a farmer and organization.
 – = Error term
b_0 = Constant
$b_1, b_2, b_3, b_4, b_5, b_6, b_7$ = regression coefficients.

Regression Assumptions

Correlation Matrix

The correlation matrix presented in Table 1.7 shows results from the correlation analysis and the corresponding means and standard deviations (SD). The obtained results show that monitoring is significantly related to performance (PERF).

Table 1.7: *Correlation Matrix*

Factor	1	2	3	4	5	6	7
1PERF	1	-.008	.320[**]	.033	.082	-.05	.02
2INFO		1	-.065	.332[**]	.259[**]	.013	.008
3MONIT			1	.048	.193[*]	.025	-.019
4EXTI				1	.182[*]	-.011	-.024
5GOAL					1	-.003	.026
6BAGS						1	.042
7REDU							1
Mean	**4.58**	**4.08**	**3.91**	**4.19**	**4.33**	**8.64**	**3.46**
SD	**1.13**	**1.39**	**1.49**	**1.06**	**1.07**	**2.45**	**1.08**

** Correlation significant at the.01level (2-tail)
*Correlation significant at the .05 level (2-tail)

Regression Analysis

Results from the hierarchical multiple regression analysis technique are shown in Table 4.8. The analysis in Table 1.8 includes both the independent variable and the control variables. Table 1.8 also includes values of Tolerance and the Variance inflation factor (VIF) which was used in assessing multicollinearity. The results indicate there was no high intercorrelation between the independent variables since all the tolerance values were greater than .10. A VIF value of 10 or above is also an indicator of the existence of multicollinearity (Pallant, 2007). The individual VIF also indicates the variables in this study are not highly correlated.

Table 1.8: *Regression Analysis: Dependent Variable: Performance (PERF)*

Independent Variables	Unstandardized Coefficients (b)	t-values	P-values	Tolerance (VIF)
Constant (b_0)	3.498	4.107***	.000	
INFO(b_1)	.288	1.988**	.049	.08(13.39)
MONIT(b_2)	.531	3.697***	.000	.06(16.13)
EXTI(b_3)	-.682	-3.669***	.000	.04(23.48)
GOAL(b_4)	.016	.183	.855	.83(1.21)
RURAL(b_5)	.100	.429	.668	.89(1.12)
BAGS(b_6)	-.026	-.716	.475	.98(1.02)
REDURA(b_{11})	.038	.458	.648	.95(1.05)
***indicates p=.01 (2-tail)	Model Fit: R^2_{adj} = 0.211			
**indicates p=.05 (2-tail)	R^2 = 0.277			
* indicates p=.10 (2-tail)	F(11,120) = 4.179, p<.01 (.000)			

An overall assessment of the goodness of fit model shows model fit based on the F test from the ANOVA as it was found to be statistically significant with $F(11, 120) = 4.179$ (p<0.01), $R^2 = 0.277$ and $R^2_{Adj} = 0.211$. An interpretation of the $R^2_{adj} = 0.211$ means that 21% of the variance in the performance (PERF) construct is explained by the independent variable in the model whilst the remaining percent of the explanation is done by other non-included variables. The coefficient of multiple determination known as R^2 refers to the degree of variation of the dependent variable explained by the covariance of the independent variables (Churchill and Brown, 2004). Thus $R^2 = 0.27$ means 27% of the variation in the dependent variable performance is explained by the variation in the independent variables.

PERF=3.498+.288INFO+.531MONIT-.682EXTI+.016GOAL+.100RURAL-.026BAGS+.038REDU + ε

The regression model (Table 1.8) shows the association between the dependent variable and the independent variables. The b coefficient is

used in interpreting the regression model. The b coefficient of the various independent variables (predictor variables) is interpreted to mean the average change in the particular predictor variable when all other predictor variables are held constant.

The statistics from Table 1.8 shows that information sharing is positively associated with performance (PERF) with b_1 = .288; and t=1.988. This means that, as the level of information sharing increases by one unit, while the other variables stay, the same performance (PERF) will increase by .288. This relationship is significant at the level of p<.05. Also monitoring is positively associated with performance (PERF) with b_2 = .531; and t=3.697. This means that, as the level of monitoring increase by one unit, whiles the other variables stay the same performance (PERF) will increase by .531. This relationship is also significant at the level of p<.01.

On the other hand negative external influence (EXTI) is negatively associated with performance (PERF) at the significant level of p d"0.01 with b_3 = -0.682, t value = -3.669. This means that as the level of negative external influences increase by one unit whilst the other variables remain unchanged performance decrease by .682 units.

Test of Hypothesis

The three hypotheses were presented earlier. They were tested by using the statistical results from the SPSS regression estimates. The three hypotheses are:

H1: There is a positive association between information sharing and coffee growers' (agents') performance on quality.

H3: There is a negative association between negative external influence and coffee growers' (agents') performance on quality.

Hypothesis 1

The statistical results presented support the hypothesis. A significant positive association is observed between information sharing (INFO) and performance (PERF) as hypothesized. The estimate is summarized as (b_1= .288, t=-1.988, p<.05).

Hypothesis 2

The statistical results presented support the hypothesis. A significant positive association is observed between monitoring (MONIT) and performance (PERF) as hypothesized. The estimate is summarized as (b_2= .531, t=-3.697, p<.01).

Hypothesis 3

The statistical results presented support the hypothesis. A significant negative association is observed between negative external influence (EXTI) and performance (PERF) as hypothesized. The estimate is summarized as (b_3= -.682, t=-3.669, p<.01).

Summary of Hypotheses Test

Table 1.9 presents the summary of the hypothesized effects and the findings. The results show that all four hypotheses were supported significantly.

Table 1.9: *Summary of Results of Hypotheses Tests*

Hypotheses	Relationship between variables	Hypothesized effect	Findings
Hypothesis 1	Performance and Information Sharing	+**	Supported
Hypothesis 2	Performance and Monitoring	+***	Supported
Hypothesis 3	Performance and Negative External Influence	+***	Supported

Discussion, Managerial Implication and Limitations and Areas for Further Research

Discussion

According to agency theory, presence of information sharing, monitoring and less negative external influence in a principal-agent relationship would enhance performance of an agent (See also Glazer, 1991; Eisenhardt; 1989; Chou, et al., 2008; Buvik and Rokkan, 2003; Markelova and Meinzen-Dick, 2009). Then increasing information sharing and monitoring while reducing negative external influence in the relationship of coffee suppliers and buyers would improve performance.

As revealed from Parrish et al., (2005) presence of transparency and information sharing improves performance of farmers. Then more increase of information sharing in coffee growers would improve performance. As per Parish, et. al., (2005) more monitoring would improve performance of coffee growers. As pointed out by some scholars negative external influence strongly reduces performance of an agent when there is no motivation/incentives (Bruno and Reto, 2001)**.** As the price of coffee deteriorates then farmers are always performing poorly on quality.

Managerial Implications

This study lays out foundation on which coffee stakeholders such as managers, government and farmers can improve quality of coffee supplied in the global market.

Frequent communication and well established reporting systems. Since most of farmers are found in rural areas where communication through emails is not possible then better transfer of information between farmers and managers can be facilitated through SMS and calling by using phones.

Also, by establishing centers in rural areas tailored for training farmers on how to conduct coffee production would enhance coffee quality.

Furthermore, increasing farmers follow up through regular visits and inspection will improve coffee quality. Organizations using uniform pricing should shift to quality pricing that provides more motivation for famers to respond positively to negative external influence.

Limitations and Areas for Further Research

This study analysed only a single industry (coffee industry). As a result it is difficult to apply findings from the study in other industries like cotton, tea, sisal and tobacco. Thus, in future more cash crops should be incorporated. As this research is based on cross sectional design then it implies that hypotheses are tested only once at a time and thus difficult to demonstrate causality and resolve this problem. In future longitudinal research design should be used.

From this study, principal agent theory has been used, and questionnaires were based on collecting information about agents (farmers). For more improvement, then further research needs to be conducted by gathering information from the other side (principal-buying organizations) or from both parties. Also this research was based only on Northern part of Tanzania (Kilimanjaro) then in forth coming days all regions growing coffee in Tanzania should be incorporated to get highly clear results.

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