

**THE EFFECT OF FINANCIAL INNOVATION ON FINANCIAL
PERFORMANCE OF THE TEA INDUSTRY IN KENYA**

BY

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D61/64655/2011**

**A RESEARCH PROJECT REPORT SUBMITTED IN PARTIAL FULFILLMENT OF
THE REQUIREMENT FOR THE AWARD OF THE DEGREE OF MASTER OF
BUSINESS ADMINISTRATION, SCHOOL OF BUSINESS, UNIVERSITY OF NAIROBI**

OCTOBER, 2013

DECLARATION

This project report is my own original work and it has not been submitted anywhere for any award of a degree or diploma. Where other sources of information have been used, they have been acknowledged.

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This project Report has been presented with my approval as the university supervisor.

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DEDICATION

This work is dedicated to my loving Husband, David, for his full support
and to our Children for their understanding and encouragement.

ACKNOWLEDGEMENTS

I wish to acknowledge the effort and support of my supervisor Dr Fredrick Ogilo. Without his guidance, patience and direction, I would not have completed this project. My sincere gratitude also goes to University of Nairobi Mombasa Campus MBA management and staff from the office of the coordinator to the MBA projects coordination officers for their guidance.

This research project has taken time and financial resources. I thank my husband David Marusoi for sponsoring me through this study; I thank my children for understanding and providing moral support and my siblings for their encouragement. I also wish to acknowledge the help and moral support provided my classmates, I salute them for the great team effort and pulling each other up.

I wish to recognize the help given by few tea finance and other managers who took time to fill out the questionnaire and provide insight into the tea trade industry in Kenya. I also thank the EATTA secretariat for their help in providing historical and other information pertaining to the tea trade in Kenya, especially through the auction of Mombasa.

Above all, I wish to thank God for this far He has brought me and for His many Blessings!

ABSTRACT

The main objective of this study was to establish the effect Financial Innovation has had in the Financial Performance in the Tea Industry in Kenya. The financial process innovation introduced at the end of the year 2009 as an electronic billboard data capture and payment system (ebb) was meant to create a platform for secure trading for tea trade in Kenya, improve earnings, increase turnover and reduce trade related costs. Existing studies on financial innovations have focused more on the financial sector and rarely on the agricultural sector and therefore the study sought to fill the gap by analyzing the effect financial innovation has had on the financial performance in tea industry. The study adopted the use of descriptive survey design methodology and used both primary and secondary data. The population was made up of all the licensed tea manufacturers / producers (107 factories), tea Buyers / Exporters (65); brokerage firms (10) and warehouses (16) as at June, 2013. Population refers to players in the tea industry whose operations are directly affected by the electronic billboard trading system and who are registered by the Tea Board of Kenya, the Tea Trade regulating government body in Kenya as per Tea Act Cap 343 of the laws of Kenya. Stratified sampling was used to select the study sample to ensure that at least an observation is picked from each of the strata. A sample of 30 was selected but 22 responded to a questionnaire giving a response rate of 73.3%. A questionnaire designed on scale of six was used to collect primary data. Secondary data was collected from firms' financial statements for public owned firms which comprised mainly manufacturers / small scale holder factories and through questionnaire method for privately owned firms. Secondary data collected included Turnover, Trade Related Costs, and Earnings before Interest and Tax, and Traded Volumes of Tea. The data period spanned 2008 through to 2011; two years before the introduction and use of electronic billboard system, the financial innovation process, and two years after its introduction and use. Primary data was collected and analyzed using descriptive statistics comprising of the mean and the standard deviation. These were presented in tables as per each issue addressed in the questionnaire. Secondary data was collected, presented in tables and analyzed using two regression models to cover the period before and the period after the introduction of the electronic billboard system at the end of the year 2009. An average for Turnover, Operating Costs and earnings before interest and tax was calculated based on financial statements for the period 2008 to 2009 then for 2010 to 2011. Data analysis results at 5% confidence level showed that before ebb, earnings per unit of sales volumes was not highly dependent on turnover and trade related costs. The model after the introduction of the ebb gave a higher level of significance meaning that earnings per unit of sales volumes were highly influenced by turnover and trade related costs. In conclusion, the study established that the introduction and use of the financial innovation process in the tea industry has resulted in a positive effect on financial performance and a better alignment of earnings to turnover and costs. The study contributes to issues of financial innovation in a non finance sector and also adds to scant empirical studies on financial innovation in the agricultural sector. On policy matters, Tea board of Kenya could benefit from the study by looking at how issues of debt, liquidity and trading platform affect all tea trade stakeholders especially in relation to turnover, earnings before interest and tax and transfer pricing. Further areas of study would be to go into detail and establish how the ebb has had an effect on financial performance of each category of players in the tea industry in Kenya.

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LIST OF ABBREVIATIONS

ANOVA	Analysis of Variance Analysis
EBB	Electronic Billboard System
EATTA	East African Tea Trade Association
KRA	Kenya Revenue Authority
NPD	New Product Development
NSD	New Service Development
R & D	Research and Development
RBV	Resource Based View
TBK	Tea Board of Kenya
TRFK	Tea Research Foundation of Kenya
GDP	Gross Domestic Product
KTDA	Kenya Tea Development Agency

CHAPTER ONE: INTRODUCTION

1.1 Background of the study

Financial innovation (FI) stands for the process of creation and diffusion of a new financial product, service and functional technique whenever such technique is required (Philippas and Siriopoulos, 2009). Mullineux (2010) described financial innovation to include both the introduction of brand new financial products and services in a market. Innovation is the incorporation, combination, composition and use of new knowledge and new technology in products, services and productive or administrative processes. Innovation refers to anything new, any operational section, products and services of a financial organization. Changes in regulation, increasing competition and rapid technological changes have all placed pressure on established financial service providers to financially innovate (Johne and Harbone, 2003). A consequence of these challenges have been the recognition by financial services executives that in order to compete effectively in a dynamic business environment (D'Aveni, 1994); they must continually develop new products (Costanzo and Ashton, 2006).

Financial innovation has been explained by various theoretical frameworks. The adoption and diffusion theory and resource-based view (RBV) theory of the firm are the two dominant streams existing in the financial innovation literature (Harmancioglu, 2009). According to the adoption and diffusion theory, most financial innovations are adoptions rather than radically new innovations since this is cheaper. According to the RBV, firms gain competitive advantage if their resources and internal capabilities are matched appropriately to environmental opportunities (Day, 1994). Adoption and use of financial innovation would thus depend on the resource capabilities of a firm or an industry as has been the case in the tea industry in Kenya.

The tea industry in Kenya, through its tea auction trading arm, the East African Tea Trade Association (EATTA) has borrowed heavily from both the diffusion and Resource based theories to put in place a financial system aimed at improving their financial performance as individual firms and as an industry in Kenya. The Tea Industry contributes about 26% of the Gross Domestic Product (GDP) and a further 27% of GDP through linkages with

manufacturing, distribution and service related sectors (TRFK, 2012). This study focused on the effect financial innovation has had on financial performance in the tea industry in Kenya.

1.1.1 Financial innovation

Financial Innovation can be defined as the act of creating then popularizing new financial instruments, technologies, institutions, markets and business models; including application of existing ideas in different markets (World Economic Forum, 2012). Financial Innovation can be either product innovation or process innovation or institutional innovation. Merton (1997) identified financial innovation as a central force driving the financial system towards greater economic efficiency.

Tufano (2003) enumerated the following as common motivations for financial innovations; to complete inherently incomplete markets, to address inherent agency concerns and information asymmetries; to enable parties to minimize search, transactions, or marketing costs; as a response to taxes and regulation (decoupling economic ownership or exposure from legal ownership with governance and tax implications); as a response to globalization and increasing risks; and as a result of technological shocks.

A firm's operating environment, and strategic posture affect innovation. O'Regan and Ghobadian (2005) showed that firms place a greater emphasis on innovation in difficult operating environments, characterized by short product cycle, rapid technological change, and intense rivalry. In turbulent environments, prospectors deploy new process technologies, and leading management practices more compared with defenders. Prospectors are firms that "continually seek opportunities, flexible to adapt, respond rapidly and creatively to external changing environment". Prospectors engage in developing new products by introducing newly patented products. Defenders are firms that "compete on the basis of price, quality, delivery or service, and operate efficiently with a strong emphasis on maintaining existing markets" (O'Regan and Ghobadian, 2005). Ozsomer et al (1997)) associated innovative companies with a proactive strategic posture, aggressive firms, competitive and risk takers. Proactive firms differentiate themselves from their competitors by changing their production methods, and products.

FI can make financial life easier in the areas of capital movement and accumulation, risk management and derivation of conclusions for decision making, facilitation of transactions and services via a payment system, moral hazard management and management of problems related to information asymmetry, the growing globalization, economic instability and technology shocks (Merton, 1992). The usefulness of financial innovation depends in part on what drives it. If the driver is regulatory circumvention and arbitrage, then it is both desirable to inhibit it and difficult to do so. The drive may also arise out of the need to respond to changes in demand or supply side (Mullineux, 2010). The Primary function of any financial system is to facilitate the allocation and deployment of economic resources across borders and across time in an uncertain environment (Bodie and Merton, 1995).

1.1.2 Financial Performance

Different people define performance in different ways. It can be regarded as a record of outcomes achieved on an individual basis (Drucker, 1977). Performance is a measure of progress against set targets or objectives and can be based on outcomes of an individual, team, firm, industry or region. Performance can be measured in numerical or financial terms.

Financial Performance is a subjective measure of how well a firm can use assets from its primary mode of business to generate revenues. This term is also used as a general measure of a firm's overall financial health over a given period of time, and can be used to compare similar firms across the same industry or to compare industries or sectors in aggregation. Financial performance measures are expressed in monetary units which include turnover, costs, profitability, assets or liabilities. These measures are obtained from financial statements of corporations as reported per International accounting Standards.

International Accounting standard number one (IAS1) prescribes the basis for presentation of general purpose financial statements to ensure comparability both with the entity's financial statements of previous periods and with the financial statements of other entities. IAS 1 sets out the overall requirements for the presentation of financial statements, guidelines for their structure and minimum requirements for their content. The standards set out guidelines for recognizing, measuring and disclosing specific transactions and

interpretation techniques as used in assessing firm or industry performance. Chandra (2005) noted financial ratios as compared to actual monetary values give a better picture of a firm's financial performance as this eliminates the effect of size. Computation of financial ratios can be grouped into five broad categories; turnover, profitability, liquidity, leverage and valuation ratios.

It is from the financial performance as dictated by increase or decrease in firm revenues or decrease or increase in operating costs that will be the focus in measuring performance in the Kenyan tea sector. This study will use turnover, profitability and operating costs to measure each individual firm's financial performance before and after the introduction of the electronic billboard system. Firm size as measured based on tea sold in total and through the tea auction will also be used as a measure of diffusion of financial innovation.

1.1.3 Role of Financial Innovation in Financial Performance

Financial performance of an entity is largely driven by its revenue base and associated costs of production. An increase in revenue or a decrease in running costs will result in increased profitability which is one measure of financial performance.

Gitau (2011) sought to determine the relationship between financial innovation and financial performance of commercial banks in Kenya and established that financial innovation resulted in strong financial results of commercial banks. The world Economic Report (2012) enumerates major benefits of financial innovation as reduced transactional costs, improved information source and a better ability for firms to transfer or hedge against risks. The result of these two studies would be reduced operating costs and hence improved profitability which is a measure of financial performance.

The financial sector per se can be described as a service department to other sectors in an economy and financial innovation falls into the service sector innovation. Service innovation is the process through which a firm undertakes changes in its philosophy, culture, operations and procedures to add value to the result of the service or product for the benefit of the customer. Tidd et al (2001) observed that the innovation processes in product and service

development are similar in principle; however, they vary in specific routines and activities performed, by which the innovation processes are enabled. Gadrey et al (1995) defined service innovations as innovations in processes and innovations in organization for existing service products. The core offering of service companies is often referred to as a service product or simply as a product even though most tend to be intangible (Oke, 2004). The terms “service product innovations” and “product innovations” have been used interchangeably in the literature to describe a particular set of innovations in service companies. Service product innovations are related to new developments in the core offering of service companies that tend to create new revenue streams.

The importance of the service-innovation-driven service sector is growing in the Kenyan economy. There has been a growth in the service sector contribution to the GNP in Kenya over the last ten years. Innovations in services have led to the greatest level of growth and dynamism over the past several years in terms of economic activity (de Brentani, 2001). The service sector typically is comprised of the transport, government, education, health care, social and personal services, retail and wholesale, hotels and restaurants, telecommunication and financial sectors. The financial services sector, contributing 11% per cent of GNP in Kenya in 2012 (CBK, 2012), is wide ranging and covers banks, building societies, insurance and companies from other sectors setting up financial services operations. The barriers to entry are relatively low, likely due to the ease of copying new financial products and the difficulty of achieving sustainable competitive advantages using product strategy (Drew, 1995).

Different measures have been used to assess the innovation performance of service firms. Generally, outcome measures of innovation have been based on financial and non-financial metrics (Avlonitis et al., 2001; Cooper and Kleinschmidt, 1995). Expenditures on research and development, the number of personnel engaged in formal R&D activities, a count of invention patents received, a count of significant innovation pioneered and estimates of sales associated with new products may be used for this purpose. R&D expenditures are widely considered as input and patent counts as output in the innovative process. However, there is no consensus in measuring firms’ inventive and innovative efforts (Voss et al, 1992).

1.1.4 The Tea Industry in Kenya

The tea industry in Kenya constitutes the following key players – The regulator and associated agencies made up of the Tea Board of Kenya (TBK) and the Tea Research Foundation of Kenya (TRFK); tea manufacturers; importers and exporters; brokers; tea warehouses; tea packers; and tea management agents. Tea sales are a key contributor to the agricultural sector, which is a mainstay of the economy. In 2012, tea earnings rose to Kenya Shillings 127.1 billion from 109 billion in 2011 and 97 billion in 2010. This was an increase of 16.6% and 12.4% respectively.

Tea was first planted in Limuru near Nairobi by G.W.L Caine in 1903. Commercial cultivation of tea in Kenya commenced in the 1930's. Tea is today one of Kenya's most important cash crops. Kenya is acknowledged world wide as one of the world's leading Black Tea producers (KTDA, 2013). Tea sales have risen steadily with ever growing transactions since the 1990's.

In terms of importance to the Kenyan economy, performance of the tea sector in Kenya may be measured based on volumes of tea produced and exported where Kenya is ranked second in the world (TBK, 2012) or its contribution to Gross Domestic Product (GDP). The tea industry in Kenya contributes 4% of Kenya's Gross Domestic Product (GDP) and accounts for 26% of foreign exchange earnings. The tea also promotes rural industrialization and contributes positively to gender empowerment (TRFK, 2012). Tea, together with horticulture makes up the top two foreign exchange earners in the country and contributes positively to a stable exchange rate in the country (World Bank Report, 2013)

To get the much needed revenue, Kenyan tea is sold to exporters through two main channels; the main channel is through Auction sales where an exporter buys the tea through the Mombasa Tea Auction while the other channel is Direct Sales from a producer to an exporter or retail seller. The Mombasa Auction is mainly preferred as it sets prices for all other channels and is regulated by all tea sector stakeholders (KTDA, 2013). It is from this stakeholder engagement that an electronic billboard data capture and payment system was developed to facilitate tea trade and provide competitive advantage to members. This was

done through the East African Tea Trade Association (EATTA), the trading / auction management wing of the tea industry in Kenya.

The East African Tea Trade Association was formed in 1957 to promote the best interest of the Tea Trade in Africa. The East African Tea Trade Association is a voluntary organization bringing together Tea Producers / Manufacturers, Buyers (Exporters), Brokers, Tea Packers and Warehouses, all working to promote the best interests of the Tea Trade in Africa. EATTA is mandated to promote and facilitate the interests of all the stakeholders in the tea trade in Africa by creating an enabling business environment geared towards maintaining global standards and delivering tea products to the customers in the most profitable way. The primary functions of the Association are: i) to facilitate the Mombasa Tea Auction operations Maintain discipline in the trade by ensuring compliance with the constitution, ii) to promote the best interests of the Tea Trade in Africa, iii) to compile and circulate statistical information to assist members in their operations and iv) to help solve trade problems affecting members collectively. In its role of facilitating tea trade, EATTA ensures that tea handling chain is foolproof to avoid mix-ups and compromise on the tea standards. For this reason, rules were changed in 1981 to put in place a detailed code of practice for tea trade operators (EATTA, 2009).

The code of practice prepared by the Tea Brokers Association sets out guidelines on tea handling, a system that eases the work of identifying unevenly bulked tea before it is entered into a catalogue which acts as a weekly tea trade manual in the tea auction. It is this unique coding system, improved technological process and a robust banking system in Kenya that drove EATTA to come up with a financial / data capture system for use in the tea trade industry in Kenya. The main objectives of this financial system were i) to create a secure platform for sharing information on what is available for sale, ii) to ensure the buyer pays for teas sold within a stipulated time and that this information would be available to the buyer, the broker and the warehouse where the teas are sold iii) to ensure teas are released to the buyer immediately funds are sighted in the producers' or sellers' account and iv) to monitor all defaulters for disciplinary action which includes being locked out of tea trade either for a period of time or for good (EATTA, 2009).

Given that performance advantage results when valuable and rare combinations of resources and capabilities are applied to reduce costs, exploit market opportunities, and/or neutralize competitive threats, firms of all sizes can achieve competitive advantage by adopting strategies that increase their economic value (Barney and Peteraf, 2003). By leveraging on financial and other resources, the tea industry through EATTA introduced a financial system to help all stakeholders better their performance by among other things - reducing the spiraling transaction costs; availing trading information real-time to ease trading; increase liquidity; hastening payment process; reducing loss of cash; providing crucial management information and fostering integrity in trade (KTDA, 2012; EATTA, 2009).

1.2 Research problem

Financial innovations accrue numerous benefits some of which include making financial processes more convenient and efficient, facilitation of transactions and services via a payment system (Merton, 1992). Among other drivers, supply side drivers may necessitate financial innovation as a response clientele demands and equally out of profit optimization motives (Mullineux, 2010). Diffusion rather than the generation of new technology is the financial innovation approach that most service industry firms adopt due to its obvious resource advantages (Pilat and Lee, 2001; Sullivan and Wang, 2005).

The tea industry is a vibrant industry, a major foreign currency earner and a key pillar of the agricultural sector, which is a key sector of the Kenyan economy. In 2012, tea trade valued at 127.1 billion from 109 billion in 2011 and 97 billion in 2010. The introduction of the electronic billboard System, was intended to improve general efficiency and different aspect of financial performance (cost reduction or increase in revenue); lower transaction costs; reduce cash losses; hasten payments; improve profitability among other objectives (KTDA, 2013).

Several studies have been conducted both locally and internationally on financial innovations, the bulk of them in the banking industry. Al-Salem (2009) investigated the financial product innovativeness of Islamic financial institutions. Malhotra and Singh (2007) investigated the factors affecting a bank's decision to adopt Internet banking in India;

Mostafavi and Abraham (2012) assessed determinants of financial innovations in infrastructure using a system-of-systems approach; and to demonstrate that approach in the context of the US highway transportation sector; among other international studies. Locally; Mugo (2012) investigated the effects of financial innovation on the growth of Micro Finance Institutions (MFIs) in Kenya. Gitau (2011) sought to determine the relationship between financial innovation and financial performance of commercial banks in Kenya; among others. Most studies, though, both locally and internationally have focused on the financial sector. Financial innovation in the agricultural sector has rarely been studied.

Financial innovations are documented to accrue numerous benefits to firms, industries and even nations. The electronic billboard system was a widely anticipated financial innovation in the tea industry with prospects of greatly increased financial performance. This study sought to answer the question; has the use of financial Innovation in the Tea Industry in Kenya led to improved financial performance?

1.3 Research objectives

- I. The general objective was to establish the effect financial innovation through the use of an electronic billboard system (ebb) has had on financial performance in the tea industry in Kenya.
- II. Specific objective was to establish the effect the financial innovation has had on earnings per unit of sales volumes sold in relation to turnover and trade related costs in each industry firm for the period before (2008/2009) and after (2010/2011) the introduction of the electronic billboard system.

1.4 Value of the study

The study will add to the scant empirical studies on financial innovation in non-financial institutions' both locally and abroad. The study will also ascertain whether financial innovations are as beneficial to non-financial institutions as they have been to financial institutions.

The study will provide policy makers' with information on which they can use to prescribe policies regarding innovative practice and adoption within the industry. It shall also provide policy makers with information on the impact of the innovation and thus help in policy prioritization and resource allocation in the tea sector in Kenya. One key benefit would be formulation of transfer pricing policies especially for foreign owned tea plantations in Kenya whose main role is to support their sister companies in the tea business in other parts of the world.

The study sought to provide stakeholders with a glimpse into financial innovations have affected performance in the industry and thus provide a useful reference for decision making. It also sought to assist stakeholders in ascertaining to what extent financial performance can be attributed the investment in the electronic billboard system.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This chapter focused on theoretical review supporting financial and general innovations; Sources of financial innovations, measurement methods and empirical review. The first part looked at Diffusion/adoption theory and resource based theories on innovations. This was followed by classification of innovation then drivers of innovation. A review of measurement approaches followed by empirical review was done. The chapter concluded with a summary on literature review.

2.2 Theoretical Review

Various theoretical frameworks have attempted to explain the concept of financial innovation in innovation studies. The adoption and diffusion theory and resource-based theory of the firm are the two dominant streams existing in the innovation literature (Harmancioglu, 2009).

2.2.1 The adoption and diffusion theory

The adoption and diffusion theory propagates acquired rather than radically new financial innovativeness. The adoption and usage behavior theory employs two prevalent approaches; the reasoned action model (Azjen and Fishbein, 1975) and the technology acceptance model (Davis et al, 1989). In the theory of reasoned action framework, behavioral intention is the key dependent variable (usually, intention to adopt the innovative product): it is determined by attitude (perhaps the entire attitudinal belief structure) and subjective norm (normative belief structure). This framework suggests that the proximal cause of behavior is intention to engage in this behavior (Azjen and Fishbein, 1975; Harmancioglu, 2009). The basic assumption of the technology acceptance model, on the other hand, is that two beliefs in particular; perceived usefulness and perceived ease of use; influence technology adoption through attitudes and intentions. According to Davis et al(1989), other external variables (such as social net, system/product, or individual variables) can also influence use; however, no study scrutinizes these variables collectively to determine which type of external factor has the most influence on acceptance, and how it influences acceptance.

Previous research on adoption and diffusion of innovations highlighted the role of the users' perceptions in the definition of an innovation (Boone et al., 2001; Kim and Chhajed, 2001; Lowrey). Rogers (1976), one of leading scholars of the field, has defined innovation as "an idea perceived as new by the individual". In the same vein, Rogers and Shoemaker (1971) emphasized the subjective and the perceived notion of the "newness" of an idea. The adoption and diffusion of innovation literature demonstrates that the greater discontinuity of an innovation, the more difficult it is for the user to adopt. Another common construct related to innovations is "fit", which indicates how well the internally available knowledge and/or resources fit the requirements for the use of the technology or product (Atuahene-Gima and Ko, 2001; Danneels and Kleinschmidt, 2001). Based on this view, highly innovative products face significant threats to their adoption since their degree of fit with both the existing knowledge structures of consumers and the design, manufacturing and marketing practices of firms is likely to be very low (Harmancioglu, 2009).

The studies on adoption of innovation in the literature expanded the domain of innovation to include "new products, technologies, practices or significant restructurings of processes that consumers or firms utilize for the first time, whether or not other organizations or users have previously adopted it" (Bhoovaraghavan et al., 1996; Brown and Eisenhardt, 1997; Kumar et al., 1998). For a firm, innovation is "an idea, practice or a material artifact perceived to be new by the relevant unit of adoption" (Damanpour, 1991). Most studies have introduced the notion of risk and uncertainty in adopting innovations; for example, three dimensions of risk are performance risk, social risk and uncertainty (Schmidt and Calantone, 1998). Other researchers have examined the antecedents of technology or innovation adoption in a firm such as the type and characteristics of the innovation, the attitudes of adopting groups and the overall value the innovation constitutes for them (O'Callaghan et al., 1992; Sahay and Riley, 2003).

From a customer perspective, research dwells on consumer perception and accepts the majority customer opinion of what is and what is not an innovation (Robertson, 1967). Typically, the adoption and diffusion of innovation have been analyzed according to Rogers' (1976) scheme: it proposes that the innovation's relative advantage, compatibility with

potential adopters, trial-ability and observe-ability are positively related to adoption while complexity and perceived risk are negatively related to adoption

At the program or firm level, innovation usually refers to new technologies for improving operational efficiencies and enabling the production of products and services; these lead to a significant restructuring or improvement in a process (Bhoovaraghavan et al., 1996; Johne, 1984). Innovations are often process innovations, which lower the manufacturing costs of existing products and follow product innovation (Johne, 1984), or administrative innovations, which involve organizational structures and administrative processes related to the basic work activities of an organization (Damanpour, 1991; Han et al., 1998). For the tea industry in Kenya, financial innovation was expected to reduce costs of selling teas at the auction, make pricing information more accessible to all stakeholders, reduce bad debts and subsequently improve firm and industry financial performance.

2.2.2 Resource-based theory

The resource-based view (RBV) is a paradigm backed by a vast amount of research from scholars from diverse areas (Grant, 1991; Peteraf, 1993). According to the RBV, firms gain competitive advantage if their resources and internal capabilities are matched appropriately to environmental opportunities (Day, 1994). The basic assumption of the RBV is that resources and capabilities are heterogeneous across firms, and the firms that have superior resources (i.e. rare, non-imitable and non-substitutable) gain sustainable competitive advantages (Peteraf, 1993). Firms utilize their capabilities to cultivate these rent-generating resources and match them to external conditions to generate supra-normal profits (Harmancioglu, 2009).

The RBV takes into account the influential internal and external factors on the conduct of firms' business and competitive actions. In this theory, innovation has been broadly identified as response(s) to market and technological changes, including the attitude taken and adjustments made in an organization (Damanpour, 1991; Garcia and Calantone, 2002). To be more innovative and develop products that are new to both the firm and the market, more learning and change is required, the right resource mix is necessary, and more

uncertainty is involved. This uncertainty can be reduced through external orientation (for example, partnering) and market information processing. Despite these challenges, the innovating firm has a higher likelihood of achieving a differentiated position and success than its less innovating competitors. In this stream, conceptualizations of innovation are built mainly on the degree of familiarity organizations or users have with a product, process and/or actions (Harmancioglu, 2009).

At the firm/SBU or program level, researchers have analyzed innovation on a broader scale as “a means of changing an organization, whether as a response to changes in its internal or external environment or as a pre-emptive action taken to influence an environment” (Damanpour, 1991). This definition includes both actions taken by the firm (such as the number of and changes in new products or services introduced), and the attitude of the firm toward innovation as indicated by the emphasis on R&D, technological leadership and innovation (Brown and Eisenhardt, 1997; Calantone et al., 1994; Hultink et al., 1997; Ozsomer et al., 1997). Variables examined include both market-related variables such as market turbulence, market attractiveness, and competition, and company-related variables, such as strategies, capabilities, resources of the firm, and competitive advantage (Montoya-Weiss and Calantone, 1994).

Within the customer/market perspective, the definition of innovation newness has focused on the degree to which the new product/service varies from current customer consumption requirements and experiences, and thus the degree of learning and adoption effort required by customers (Micheal et al., 2003; Sengupta, 1998). The greater the discontinuity of an innovation, the greater product benefits customers perceive and the less familiar they are with product attributes (Lilly and Walters, 1997; Veryzer, 1998); thus consumers must expend resources such as time and effort in order to grasp them.

Within the firm perspective, major innovations are acknowledged to require a great variety of resources and a departure from existing technology and practices (McDermott and O'Connor, 2002). They require more learning and unlearning, the development of new skills, and the adjustment of existing capabilities (Ottum and Moore, 1997). Makadok

(2001) emphasizes the distinction between capabilities and resources by defining capabilities as “a special type of resource, specifically an organizationally embedded non-transferable firm-specific resource whose purpose is to improve the productivity of the other resources possessed by the firm. RBV provides the understanding that certain unique existing resources will result in superior performance and ultimately build a competitive advantage. Borrowing from this theory, the tea industry through EATTA pooled resources and capabilities to invest in a financial innovation system to benefit the tea industry in Kenya.

2.3 Measurement approaches to innovation

Different studies have employed different measurement approaches to assess the innovation performance of service firms. Generally, outcome measures of innovation have been based on financial and non-financial metrics (Cooper and Kleinschmidt, 1995).

A number of benchmarking indicators are used in measuring a company's innovativeness such as a company's position in the marketplace, percentage sales from products introduced in the last five years, implementation of ISO9001, performance measurement like net sale of new products, profitability of new products, and the rate of R&D investments in a given period. Laforet (2011) suggested ten key indicators as arbitrary measures of innovativeness: number of new product ideas a company has in the last five years; number of new product(s) launched in the last five years, number of product (s) improvement introduced in the last five years, innovation prize(s); percentage of sales from the most recent product introduced; extent to which major customers provide specification for new product(s); level of investment in systems, and technology for office; technology for shop floor, and new or improved ways of working in the last five years.

Alternatively, objective measures for measuring innovation types and innovation performance may be used. Examples are the number of patents and the percentage of revenue generated from innovations and financial performance measures (Oke, 2007). R&D expenditures are widely considered as input and patent counts as output in the innovative process. However, there is no consensus in measuring firms' inventive and innovative efforts (Voss et al, 1992).

2.4 Empirical review

Empirical studies have been conducted on financial innovation both internationally and locally. Most studies on financial innovation are based on the financial sector and most notably commercial banks (Malhotra and Singh, 2007). Shahroki (2008) sought to provide an overview of the status of e-finance and discuss related issues and challenges; provide data about growth of e-finance in the last decade; and introduce advances and innovations in e-finance and challenges facing the financial services and IT industries. The study employed the archival method of reviewing related literature (theoretical, applied and empirical) and organizing and presenting the topics to provide an overview of e-finance status. The major contributions and finding of the study included a comprehensive analysis of application of technological innovations of e-finance in the financial services industry.

Malhotra and Singh (2007) sought to investigate the factors affecting a bank's decision to adopt Internet banking in India. The data for this study consist of panel data of 88 banks in India covering the financial years 1997-1998 to 2004-2005. Logistic regression technique is employed to study the relationship. The results showed that the larger banks, banks with younger age, private ownership, and higher expenses for fixed assets, higher deposits and lower branch intensity evidenced a higher probability of adoption of this new technology. Banks with lower market share also regarded the Internet banking technology as a means to increase the market share by attracting more and more customers through this new channel of delivery. Further, the adoption of Internet banking by other banks increased the probability that a decision to adopt will be made.

Mullineux (2010) sought to consider the case for regulating financial innovation in light of the then recent global financial crisis. Responsibility for assuring the bank customers are "treated fairly" in the UK then belonged to the Financial Services Authority (FSA), whilst the Office of Fair Trading (OFT) oversaw the Consumer Credit Act. The study argued for the regulation of retail banking and financial service provision as a utility, leaving the FSA to concentrate on prudential supervision and the OFT to concentrate on its other responsibilities. The study found that New financial instruments were frequently underpriced, which could have been in part to encourage rapid and widespread adoption.

Mostafavi and Abraham (2012) sought to assess determinants of financial innovations in infrastructure using a system-of-systems approach, and to demonstrate that approach in the context of the US highway transportation sector. A system-of-systems approach was adopted for systemic assessment. Data obtained from a case-based research approach and a survey deployed to the state Departments of Transportation in the US was utilized in parallel with a network analysis to explore the status quo, key players and interactions, and the drivers of financial innovations for infrastructure. The findings included constructs regarding the players, practices, and activities and also a conceptual model relating to the drivers of financial innovations.

Mugo (2012) sought to investigate the effects of financial innovation on the growth of Micro Finance Institutions (MFIs) in Kenya. A survey was conducted targeting all the thirty four registered MFIs in Kenya. After data collection, the research data was analyzed in a correlation design using SPSS program. The research findings showed that most Micro Finance Institutions (MFIs) had innovated new services like mobile banking, business accounts, SME loans, school fee loans, financial trainings and partnerships. The study found a strong positive correlation between financial growth and reason like addressing clients' needs, clients' retention and reducing transaction time. The research concluded that financial innovation by MFIs lead to an aggregate growth of firm in various dimensions like number of products, market share, loan sales and the overall profitability.

Nyathira (2012) sought to assess the effect of financial innovation on commercial bank's financial performance as the key players in the banking sector over a period of 4 years. A causal research design was used. The population of study was all the 43 commercial banks in Kenya as at 30th June 2012. The study used secondary data from published central banks' annual reports. Study results indicated that financial innovation indeed contributed to and was positively correlated to profitability in the banking sector particularly that of commercial banks.

Jepkorir (2011) sought to determine the challenges faced by commercial banks in Kenya in implementing financial innovations. In order to achieve this objective a questionnaire was mailed to all commercial bank financial managers in Kenya. Technology power supply inadequate skills and political factors were the major challenges.

Gitau (2011) sought to determine the relationship between financial innovation and financial performance of commercial banks in Kenya. The study adopted a Quasi-experimental research design. Qualitative and quantitative analysis techniques were used. The study used descriptive statistics and multiple linear regressions to analyze the data. The study found that commercial banks had adopted process, product and institutional innovation. Product innovation strategies adopted by the commercial banks were Credit cards, business club and unsecured loans. Institutional innovations adopted were Insurance services, credit reference bureau and Islamic banking. Process innovation adopted were RTGS, mobile and internet banking. The study showed that financial innovation resulted in strong financial results of commercial banks.

2.5 Summary to the literature

Various theoretical frameworks have attempted to explain the concept of financial innovation in the literature. The adoption/diffusion theory and resource-based theory of the firm are the two dominant streams existing in the innovation literature.

In the financial sector and for financial innovation in particular, diffusion rather than the generation of new technology is the preferred mode of financial innovations. Determinants of innovation range from firm specific factors to markets specific factors. Even though there is yet no consensus in measuring firms' inventive and innovative efforts, most approaches have looked at innovation input and output variables. Several studies have been conducted on financial innovation, the bulk of which have been in the financial sector. Rarely have financial innovation studies conducted in non-financial firms. Empirical research of financial innovation in the agricultural sector is particularly scant. This study sought to fill that gap.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This chapter examined the research design methodology used to conduct the research study, the Population of study, the sample and sampling techniques, data collection methods, data analysis and data presentation methods were covered.

3.2 Research design

The study used a descriptive survey research design methodology. Descriptive surveys portray an accurate profiler of persons, events, or situations (Robson, 2002). In addition, it allows one to collect quantitative data, which can be analyzed using descriptive and inferential statistics (Robson, 2002).

3.3 Population of the study

The population was made up of all the licensed tea manufacturers / producers (107 factories), tea Buyers / Exporters (65); brokerage firms (10) and warehouses (16) as at June, 2013 (refer to lists attached in appendix 1, 2, 3 and 4. The population refers to players in the tea industry in whose operations are directly affected by the electronic trading system and are registered by the Tea Board of Kenya, the Tea Trade Regulating Government body in Kenya as per Tea Act Cap 343 of the laws of Kenya.

3.4 Study sample

Since the population of the trading firms, brokers and warehouses is large and widely dispersed, stratified sampling was used to select the study sample. Stratified sampling ensures that at least one observation is picked from each of the strata. The strata's or subgroups are made up of population shown above. The sample was made up of the following; Producers /Manufacturers (16), Buyers (10), brokers (2) warehouses (2).

3.5 Data collection

Both Primary and secondary data was collected and used in the study. A questionnaire designed on leaguered scale of six was used to collect primary data (Appendix 5). Secondary data was collected from firms' financial statements for public owned firms which comprised mainly manufacturers / small scale holder factories and through questionnaire method for privately owned firms.

Secondary data collected included Turnover, Trade Related Costs, and Earnings before Interest and Tax, and Sales Volumes of Tea in Kilograms made tea. The data period spanned 2008 through to 2011; two years before the introduction and use of electronic billboard system, the financial innovation process tool, and two years after its introduction and use.

3.6 Data analysis

Primary data was collected and analyzed using descriptive statistics comprising of the mean and the standard deviation. These were presented in tables as per each issue addressed in the questionnaire. The sides for Personal information and company details were not fully completed hence were also not analyzed.

Secondary data was collected, presented in tables and analyzed using two regression models to cover the period before and the period after the introduction of the electronic billboard system at the end of the year 2009. An average for Turnover, Operating Costs and earnings before interest and tax was calculated based on financial statements for the period 2008 to 2009 then for 2010 to 2011. Earnings before interest and tax per unit of sales volumes were regressed against turnover and trade related costs for the period before and after the introduction of the billboard system.

The Statistical Package for Social Sciences (SPSS) was used to analyze the data collected. According to Kombo and tromp (2006), correlation designs enables researchers to assess the degree of relationship that exists between two or more variables. The coefficient of determination, R squared, measure was used to test the significance of the regression model in explaining the relationship between earnings before interest and tax, turnover and trade

related costs. The correlation coefficient, R squared, is a number ranging from 1 (a perfectly positive correlation) through Zero (no correlation) to -1 (a perfectly negative correlation). The higher the R squared the better the model. ANOVA from the two regression models was used to test the level of significance of the predictor variables that was used in the study.

3.6.1 Operationalization of the Variables

An assessment of profitability or earnings per unit of sales volumes, turnover and operating costs two years before and after the introduction of the financial innovation was done. Average turnover, Earnings before interest and tax and operating costs was tabulated and ANOVA results table from SPSS Regression results was used to test for level of significance.

CHAPTER FOUR: DATA COLLECTION AND ANALYSIS

4.1 Introduction

This chapter discussed data analysis and findings of the research study. Descriptive statistics based on primary data collected was presented in table format and findings discussed. Regression analysis for secondary data was then presented and analysis discussed.

4.2 Descriptive Statistics from Primary Data

A questionnaire was administered to a stratified sample of 30 and 22 responded as per the table below. This was a response rate of 73%, 100% in all categories except buyers or exporters of tea.

Table No. 1 Questionnaire Respondents

Category /Strata	Population	Sample Size	Number of Respondents	% Response per Category
Producers / Factories	107	16	16	100%
Buyers/Exporters	65	10	2	20%
Brokers	10	2	2	100%
Warehouses	16	2	2	100%
Totals	198	30	22	73%

Source: Primary Data

More than 50% of the respondents did not fill in the side of personal information and company related information hence this side was not analyzed.

4.2.1 Descriptive Statistics of Study variables

Out of a sample of 30 firms, there were only 22 respondents to a questionnaire administered between 23rd September 2013 and 11th October 2013. The aim of the questionnaire was to establish from the tea industry stakeholders the following issues pertaining to the introduction and use of the electronic billboard system and each response were on a 6

lacquered scale of 1 being strongly disagree to 6 being strongly agree. The issues addressed in the questionnaire were as follows; a) faster and more secure access to information required for tea trade at the Mombasa tea auction, b) improved pricing decisions and hence increased revenues turnover for tea trade, c) reduced trade associated transaction costs, d) reduced bad debts associated with default in payments or complete inability to pay for teas purchased or sold via the auction and e) improved profitability for tea trade. The results of the survey are tabulated below;

Table 2 Descriptive Statistics Results of study variables

PERFORMANCE MEASURE	MEAN SCORE	STANDARD DEVIATION	RANK
Secure Access to Trade Information	4.73	1.24	3
Improved Turnover due to Improved Pricing Decisions	4.91	1.48	2
Reduced Trade Associated Costs	4.09	1.15	5
Reduced Bad Debts or Default in Payments for tea Sold/Bought	5.64	2.21	1
Improved Profitability in Tea Trade	4.18	1.46	4

Source: Primary Data

From the results tabulated in table 4.2, most respondents conger that the financial innovation system had been useful in reducing bad debts or minimizing default in payments, improving turnover as a result of better pricing decisions then having a secure access to trade information. The least beneficial was that of reducing trade related costs.

4.3 REGRESSION ANALYSIS

A Regression model to show relationship of earnings to turnover and costs before and after the electronic billboard system was used to determine if the introduction and use of the system resulted in improved financial performance of the tea industry in Kenya.

The relationship was explained by the following regression model;

$$Y = \alpha + \alpha_1 X_1 + \alpha_2 X_2 + e$$

Where:

Y= Earnings before Interest and Tax per unit of Sale Volumes

X_1 =Turnover per unit of Sales Volume

X_2 =Trade Related Costs per unit of Sales Volumes

e= error term

α =Constant,

α_1 - constant (coefficient) of turnover,

α_2 - a constant (coefficient) of trade costs

4.3.1 Regression Results for Period before Introduction of the Financial Innovation

From the regression table number 4.3 below, the regression equation for the period before the introduction of the financial innovation was established as follows:

$$Y = 63.308 + 0.260 X_1 - 0.093 X_2$$

The regression model shows that turnover per unit volumes of tea (X_1) was positively correlated with Earnings per unit (Y) while costs (X_2) was inversely related with Earnings per unit of tea sales volumes. The regression coefficient for the model, α , was 63.308. The model also shows that for every one unit increase in turnover, earnings per unit as a measure of the firm's financial performance would increase by 0.26. For every increase of one unit in costs, the firm's earnings per unit would decrease by 0.093.

Table No. 3: Coefficients of regression before adoption of electronic billboard system

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	95.0% Confidence Interval for B		
	B	Std. Error	Beta			Lower Bound	Upper Bound	
(Constant)	63.308	68.351			.926	.366	-79.751	206.368
Turnover/Unit	.260	.420	.140	.619	.543	.543	-.619	1.139
Total Costs per Unit	-.093	.229	-.092	-.407	.688	.688	-.573	.386

Source: Data Analysis

4.3.2 Regression Results for Period after Introduction of the Financial Innovation

From the regression table number 4 below, the regression equation for the period before the introduction of the financial innovation was established as follows:

$$Y = -0.14 + X_1 - X_2$$

The regression model shows that turnover per unit volumes of tea (X_1) was perfectly positively correlated with Earnings per unit (Y) while costs (X_2) was inversely related with Earnings per unit of tea. The regression coefficient for the model, α , was -0.14. The model also shows that for every one unit increase in turnover, earnings per unit as a measure of the firm's financial performance would increase by a similar unit of one. For every increase of one unit in costs, the firm's earnings per unit would decrease by unit of one.

Table 4: the coefficient of regression after adoption of electronic billboard System

Coefficients ^a							
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
	B	Std. Error	Beta			Lower Bound	Upper Bound
1 (Constant)	-.014	.012		-1.158	.261	-.039	.011
COST_AFTER	-1.000	.000	-.735	-2.701E4	.000	-1.000	-1.000
PRICE_AFTER	1.000	.000	.591	2.173E4	.000	1.000	1.000

Source: Research Data

4.4 Goodness of Fit Test

Adjusted R square attempts to correct R² (square) to more closely reflect the goodness of fit of the model in the population but since we used only one model, we can only rely on R square. The R square measures the proportion of variability in a data set that is accounted for by a statistical model. Table 5 below shows model summary results for the period before the introduction of the electronic data capture and payment billboard system. From these results, R squared is 0.073 implying that there exist a weak positive relationship between earnings per unit sold on one hand and turnover and costs on the other hand. Based on the same results in table 5, only 2.9% variations of earnings were explained any changes in turnover and trade related costs. This implies trade information for pricing and aligning costs to actual sales made was not available or could not adequately be used to facilitate trade and generate earnings for tea trade stakeholders.

Table 5 illustrating the Model summary of regression before ebb (2008/2009)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.172 ^a	.029	-.073	17.98371	.029	.288	2	19	.753	1.405

a. Predictors: (Constant), Total Costs per Kg Made Tea, Turnover/Kg Made Tea

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1	.172 ^a	.029	-.073	17.98371	.029	.288	2	19	.753	1.405

a. Predictors: (Constant), Total Costs per Kg Made Tea, Turnover/Kg Made Tea

b. Dependent Variable: Earnings / Bonus per Kg Made Tea

In the second regression model using data before the introduction of the electronic data capture and payment billboard system, there exist a strong positive relationship between earnings per unit sold on one hand and turnover and costs on the other hand. 100% of variations in earnings per unit sold were explained changes in turnover and trade related costs as per results in table 6 below.

Table 6 illustrating Model summary after adoption

Mo	R	R	Adjusted	Std. Error	Change Statistics	Durbin-
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del		Square	R Square	of the	R	F				Watson
				Estimate	Square	Change	df1	df2	Sig. F	
					Change	e			Change	
1	1.000	1.000	1.000	.00357	1.000	6.871E8	2	19	.000	2.201
	E0									

Source: Research Data

4.5 ANOVA Test

Analysis of Variance (ANOVA) consists of calculations that provide information about levels of variability within a regression model and form a basis for tests of significance. It provides a statistic for testing the level of significance in a relationship between the response and predictor variables.

Correlation exists between the response and predictor variables if P-value is less than 0.05. As shown in table 7 below, P-value = 0.753 which is more than 0.05. This implies that in the first model using data before ebb, there is not enough evidence that earnings is a factor dependant on turnover and costs per unit of sales volumes. For the second model for period after ebb introduction, P-value =0.000 which is less than 0.05. This implies that there exist a significant relationship between earnings per unit of sales and turnover and the same for trade related costs after the introduction of the ebb system.

Table 7 illustrating ANOVA Before Ebb (2008/2009)

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	186.212	2	93.106	.288	.753 ^a
	Residual	6144.861	19	323.414		
	Total	6331.073	21			

a. Predictors: (Constant), Total Costs per Kg Made Tea, Turnover/Kg Made Tea

Table 7 illustrating ANOVA Before Ebb (2008/2009)

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	186.212	2	93.106	.288	.753 ^a
	Residual	6144.861	19	323.414		
	Total	6331.073	21			

a. Predictors: (Constant), Total Costs per Kg Made Tea, Turnover/Kg Made Tea

b. Dependent Variable: Earnings / Bonus per Kg Made Tea before

Table No. 8: ANOVA after introduction of ebb (2010/2011)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	17497.942	2	8748.971	6.871E8	.000 ^a
	Residual	.000	19	.000		
	Total	17497.942	21			

a. Predictors: (Constant), PRICE_AFTER, COST_AFTER

b. Dependent Variable: EARNINGS_AFTER

CHAPTER FIVE: CONCLUSION AND RECCOMENDATIONS

5.1 Introduction

This chapter presents a summary of the findings of this study, recommendations, conclusion and areas of further study.

5.2 Summary of Findings

The results from chapter four were summarized in line with the two models from the regression analysis as follows;

The results of the regression models as reflected in table 8 in chapter four gave a P-value for period after introduction of ebb was 0.000 and a p-value of 0.753 for the period before the introduction of ebb. The p-value after is less than 0.05 while that of before ebb was more than 0.05. This implied that there exists a significant relationship between response variable (earnings per unit of sales) and the predictor variables (turnover and trade related costs). This meant that with the introduction of new ebb system, traders can now be able to maximize their earning through increased turnover and reduction in trade related costs

As a measure of goodness of fit, R^2 was used as shown in table numbers 5 and 6 showed that the regression model earnings could better be predicted by turnover and costs after introduction of ebb than before. The regression model after ebb showed that turnover per unit volumes of tea (X_1) was perfectly positively correlated with Earnings per unit (Y) which meant that for every one unit increase in turnover, earning also increases by one unit. On the other hand, costs (X_2) was inversely related with Earnings per unit of tea which meant that for every one unit reduction in costs, earnings increases by one unit.

5.3 Conclusion

The main objective of this study was to establish the effect Financial Innovation on Financial Performance in the Tea Industry in Kenya. Specifically the study analyzed the effect of the use of electronic billboard system on financial performance in tea industry in Kenya. From results tabulated in chapter 4, the model before the use of the financial innovation (FI) gave an R^2 of 0.029 which meant only 2.9% of changes in earnings per unit

of volumes sold was explained by turnover and trade related costs. R^2 for the model after the introduction and use of the FI was 1. This meant that a higher percentage of changes in earnings per unit of sales volumes were attributable to turnover and trade related costs. ANOVA from the two regression models was used to test the level of significance of the predictor variables that was used in the study. P-value before was 0.753 which meant in the first model using data before ebb, there was not enough evidence that earnings is a factor dependent on turnover and costs per unit of sales volumes. For the second model P-value =0.000 which is less than 0.05 and meant that a significant relationship between earnings per unit of sales and turnover/costs now existed. In conclusion, the study established that the introduction and use of the financial innovation process in the tea industry has resulted in improved financial performance and a better alignment of earnings to turnover and costs.

5.4 Limitations of the Study

For the first part, the study relied on a raw data collected using a questionnaire. The aim was to reach many stakeholders but such a method can be biased as the person filling in the questionnaire may put in personal opinion not necessarily what the system has done. By design such a system can be biased and this can be reflected in the data collected and analyzed. The biasness is reduced by taking a large sample of at least 30 but in this case, only 22 responded.

The second limitation of this study is the distortion biological assets in terms of Tea plants and Eucalyptus plant used as a source of fuel in factories have when computing Return on Assets. It was established that each manufacturer had biological assets not necessarily commensurate with the volume of tea the firm manufactured and sold. To avoid the resultant biasness on ROA, Earnings before interest and Tax was computed per unit of tea sold by each stakeholder, not on assets held at any one time.

The third limitation was lack of data specifically from buyers, brokers and Warehouses. During the study and looking through firms registered by tea trade, very few are listed on the Nairobi Securities Exchange (NSE). Out of a sample of 30, only three firms were listed on the NSE and out of the three, other crops like Sisal and Coffee formed part of their published financial statements, hence it was difficult to isolate what was attributable to tea.

The study therefore relied on scant data available in the tea industry in Kenya. Both primary and secondary data is scant but based on data collected and analysis the introduction and use of financial innovation in late 2009 has had a positive financial impact in the tea sector in Kenya. It also emerged that the introduction and use of the electronic billboard data capture and financial system was part of an effort by mainly the producers to have better access to trade information, pricing decisions and associated costs.

5.5 Recommendations and Areas for Further Study

The study has established that financial innovation introduced and used in a non financial sector can have an effect financial performance. This presents opportunities for policy makers for decision making and scholars for further study

Tea Board of Kenya, as a regulator of tea trade could benefit from the study by looking through the area most and least beneficial to trade and building on these for all stakeholders. These are areas of liquidity for all stakeholders and availability of trade information. From the limitations of the study mentioned, Tea board of Kenya may also need to establish why tea trade is not an attractive venture to listed companies or reasons why most tea firms are privately owned. The Tea Auction in Mombasa is used for most firms as a benchmark for pricing. This would be of interest to regulatory authorizes as far as transfer pricing is concerned. Transfer prizing as is of interest as it can be a tool to evade tax and tax authorities can also use the same to levy undue taxes.

For academic scholars, the study adds to little non finance sector financial innovation studies. In light of the 2007/2008 financial crisis which started in the US, this opens a window of opportunity for academicians to look at financial innovations in light of what stakeholders want, not what financial intermediaries can create and offer. Same study but different methodology could shade more light especially on areas where data was limited.

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APPENDICES

Appendix 1: List of licensed Tea Producers / Manufacturing Firms (as at June, 2013)

1	Arrocket Factory - Sotik Tea Company Ltd
2	Chagaik Factory - UTK Ltd
3	Changana Factory - JFK Ltd
4	Changoi Tea Factory - WTK Ltd
5	Chebut Tea Factory Co. Ltd
6	Chelal Tea
7	Chemomi Factory - EPK Ltd
8	Chinga Tea Factory Co. Ltd
9	Chomogonday Factory - JFK Ltd
10	Eastern Produce Kenya Ltd
11	Eberege Tea Factory Co. Ltd
12	Gacharage Tea Factory Co. Ltd
13	Gachege Tea Factory Co. Ltd
14	Gathuthi Tea Factory Co. Ltd
15	Gatitu Tea Factory
16	Gatunguru Tea Factory Co. Ltd
17	Gianchore Tea Factory Co. Ltd
18	Githambo Tea Factory Co. Ltd
19	Githongo Tea Factory Co. Ltd
20	Gitugi Tea Factory Co. Ltd
21	Igembe Tea Factory Co. Ltd
22	Ikumbi Tea Factory Co. Ltd
23	Imenti Tea Factory Co. Ltd
24	Iriaini Tea Factory Co. Ltd
25	Itumbe Tea Factory Co. Ltd
26	James Finlay (Kenya) Ltd
27	Jamji Factory - UTK Ltd
28	Kagwe Tea Factory Co. Ltd
29	Kaimosi Tea Company Ltd - WTK Ltd
30	Kaisugu Tea Factory Co. Ltd
31	Kambaa Tea Factory Co. Ltd
32	Kangaita Tea Factory Co. Ltd
33	Kanyenyaini Tea Factory Co. Ltd
34	Kapchebet Tea Factory Ltd
35	Kapcheluch Tea Factory Ltd
36	Kapchorua Tea Company Ltd - WTK Ltd
37	Kapkatet Tea Factory Co. Ltd
38	Kapkoros Tea Factory Co. Ltd
39	Kapsara Tea Factory Co. Ltd
40	Kapset Tea Factory Co. Ltd

41	Kapsumbeiwa Factory - EPK Ltd
42	Kaptumo Tea Factory Co. Ltd
43	Karirana Estates Ltd
44	Kathangariri Tea Factory Co. Ltd
45	Kebirigo Tea Factory Co. Ltd
46	Kepchomo Factory - EPK Ltd
47	Kericho Factory - UTK Ltd
48	Kiamokama Tea Factory Co. Ltd
49	Kibwari Ltd
50	Kiegoi Tea Factory Co. Ltd
51	Kimari Factory - UTK Ltd
52	Kimugu Factory - UTK Ltd
53	Kimunye Tea Factory Co. Ltd
54	Kinoro Tea Factory Co. Ltd
55	Kionyo Tea Factory Co. Ltd
56	Kipkebe Factory/ Kipkebe Ltd
57	Kipkoimet - EPK Ltd
58	Kiptagich Tea Estate Ltd
59	Kiru Tea Factory Co. Ltd
60	Kitumbe Factory - JFK Ltd
61	Kobel Tea
62	Koros Factory - JFK Ltd
63	Kuri Tea Factory Co. Ltd
64	Kymulot Factory - JFK Ltd
65	Litein Tea Factory Co. Ltd
66	Mabroukie Factory - UTK Ltd
67	Makomboki Tea Factory Co. Ltd
68	Mara Mara Instant - JFK Ltd
69	Maramba Tea Factory Ltd
70	Mataara Tea Factory Co. Ltd
71	Mettarora Factory - Sotik Highlands Tea Estate Ltd
72	Michimikuru Tea Factory Co. Ltd
73	Mogogosiek Tea Factory Co. Ltd
74	Momul Tea Factory Co. Ltd
75	Mudete Tea Factory Co. Ltd
76	Mungania Tea Factory Co. Ltd
77	Mununga Tea Factory Co. Ltd
78	Nandi Tea Estates - Nandi Hills
79	Ndimba Tea Factory Co. Ltd
80	Nduti Tea Factory Co. Ltd
81	Ngere Tea Factory Co. Ltd
82	Ngorongo Tea Factory Co. Ltd
83	Njunu Tea Factory Co. Ltd
84	Nyamache Tea Factory Co. Ltd
85	Nyankoba Tea Factory Co. Ltd
86	Nyansiongo Tea Factory Co. Ltd

87	Nyayo Tea Zones Development. Corporation
88	Ogembo Tea Factory Co. Ltd
89	Ragati Tea Factory Co. Ltd
90	Rianyamwamu Tea
91	Rorok Tea Factory Co. Ltd
92	Rukuriri Tea Factory Co. Ltd
93	Sanganyi Tea Factory Co. Ltd
94	Saosa Factory - JFK Ltd
95	Savani Factory - EPK Ltd
96	Siret Tea Company Ltd Ltd
97	Tagabi Factory - UTK Ltd
98	Tegat Tea Factory Co. Ltd
99	Theta Tea Factory Co. Ltd
100	Thumaita Tea Factory Co. Ltd
101	Tinderet Tea Estate (1989) Ltd - WTK Ltd
102	Tirgaga Tea Factory Co. Ltd
103	Tombe Tea Factory Co. Ltd
104	Toror Tea Factory Co. Ltd
105	Unilever Tea Kenya Ltd
106	Weru Tea Factory Co. Ltd
107	Williamson Tea Kenya Ltd

Source: Tea Board of Kenya

Appendix 2: List of licensed Tea trading (buyers/exporters) firms as at June, 2013.

1	Abbas Traders Ltd (01/86)
2	Adamji Multi Supplies Ltd
3	Afribridge Trade Exporters Ltd
4	Africa Tea & Coffee Company
5	Alanwood Ltd
6	Alibhai Ramji (Msa) Ltd
7	Al-Itihad (1998) Ltd
8	Almasi Chai Kenya
9	Black Dew Ltd
10	Bridges Global Ltd
11	Chai Trading Company
12	Chamu Supplies Ltd
13	Cofftea Agencies Ltd
14	Dafina Tea Traders
15	Devchand Keshavji Ltd
16	Diamond Tea Exporters (K) Ltd
17	Eastern Produce Kenya Limited
18	Gacak Merchants Ltd.
19	Global Tea & Commodities
20	Gokal Beverages (EPZ) Ltd
21	Gokal Trading (K) Ltd
22	Greenleaf Trading Co. Ltd
23	Imperial Tea (EPZ) Ltd
24	Indo-African Tea Company (K) Ltd.
25	James Finlay (K) Ltd - Mombasa
26	Jawai Tea ltd
27	Juja Coffee Exporters Ltd
28	Kipkebe Ltd.
29	Kirindo Tea Packers Ltd
30	Lindop & Company (Kenya) Ltd
31	Lula Trading Company
32	Lutex Ltd
33	M. J. Clarke Ltd
34	Maymun Enterprises
35	Mombasa Advance Logistics Ltd
36	Mombasa Coffee Ltd
37	Mombasa Tea Traders Ltd.
38	Mucimex (Kenya) Ltd
39	Oriental Tea Expo Ltd
40	Pangea Trading Company Ltd

41	Pema Africa Holdings Ltd
42	Ranfer Teas (Kenya) Ltd
43	Reeds Edge Ltd
44	Riotana Trading Ltd
45	Rose of Sharon Exporters Ltd
46	Sardia International Co. Ltd
47	Sasini Limited
48	Shakab Imports Exports Co. Ltd
49	Sheeqoh Investments
50	Simray Investments Co. Ltd
51	Sirocco Commercial Services Ltd
52	Sondhi Trading Ltd
53	Sotik Highlands - Arroket Factory
54	Sotik Highlands - Mettarora Factory
55	Stansand (Africa) Ltd
56	Summer Liner Co. Ltd
57	Suwad Enterprises
58	Tea & Coffee Connection Ltd
59	Tea Rose Ltd.
60	Three Worlds Limited
61	Tropical Crop & Commodities Ltd
62	Trust Tea Traders Ltd
63	Unilever Tea Kenya Ltd
64	United (E.A) Warehouses Ltd
65	Van Ress B.V

Source: Tea Board of Kenya, 2013

Appendix 3: List of registered Tea brokers as at June, 2013.

1. Africa Tea Brokers Ltd
2. Anjeli Limited
3. Bicorn Exim Ltd
4. CentreLine Tea Brokers Ltd
5. Choice Tea Brokers Ltd
6. Combrok Ltd
7. Prudential Tea Brokers (E.A.) Ltd
8. Tea Brokers East Africa Ltd
9. Union Tea Brokers Ltd
10. Venus Tea Brokers Ltd

Source: Tea Board of Kenya, 2013.

Appendix 4: List of registered Tea warehouses as at June, 2013.

1. Alibhai Ramji (Msa) Ltd
2. Bahari (T) Company
3. Bryson Express Ltd
4. Chai Trading Company
5. Consolidated (Msa) Ltd
6. James Finlay (Mombasa)
7. Kipkebe Ltd
8. Mbaraki Port Warehouses (K)
9. Mitchell Cotts Freight Kenya Ltd
10. Peerless Tea Services
11. Risala Limited
12. SDV Transami Kenya Ltd
13. Signon Freight Limited
14. Tea Warehouses Ltd
15. Ufanisi Freighters(K) Ltd
16. United (E.A) Warehouses Ltd

Source: Tea Board of Kenya, 2013.

Appendix 5: Questionnaire

QUESTIONARE:

SECTION A

RESPONDENT INFORMATION

Name _____ of _____ Respondent _____ (Optional)

.....

Age Category: ☐ Below 20 ☐ 21-30 ☐ 31-40 ☐ 41-50 ☐ 51-60 ☐ Above 60

Title _____ or _____ Position _____ in _____ the

Organization.....

Length of Service in the Tea Industry;years.

Length of service in your current organization;years.

SECTION B

COMPANY INFORMATION

1. Name of the Organization

2. How Long has the Company been a member of EATTA

3. How long has the company been trading through the Auction of Mombasa? (tick as per below choices)

☐ Below 1 ☐ 1-2.9 ☐ 3-4.9 ☐ 5-8.9 ☐ 9-11.9 ☐ Over 9 years

4. What is the ownership Structure of your organization?

☐ Local ;(over 50%); Privately owned % Government% Public
..... %

☐ Foreign Owned % public% (if over 50% foreign
ownership)

5. What Volumes of your Organization's Tea were traded in the year 2012.....
Kgs

i. Sales/Purchases through Mombasa AuctionKg Made Tea

ii. Direct Sales/Purchases Kg Made Tea

iii. Other (Specify) Kg Made Tea

SECTION C

INFORMATION ON ELECTRONIC BILLBOARD SYSTEM & FINANCIAL PERFORMANCE IN THE TEA INDUSTRY

6. The Introduction and use of the Electronic Billboard System has resulted in faster and more secure access to information required for tea trade at the auction in Kenya. (please tick correct choice per below alternatives)

Strongly Disagree	Disagree	Slightly Disagree	Slightly Agree	Agree	Strongly Agree

7. The Introduction and use of the Electronic Billboard System has resulted in improved pricing decisions and hence increased revenues for tea trade. (please tick correct choice per below alternatives)

Strongly Disagree	Disagree	Slightly Disagree	Slightly Agree	Agree	Strongly Agree

8. The Introduction and use of the Electronic Billboard System led to reduced trade associated transaction costs. (please tick correct choice per below alternatives)

Strongly Disagree	Disagree	Slightly Disagree	Slightly Agree	Agree	Strongly Agree

9. The Introduction and use of the Electronic Billboard System has resulted in reduced bad debts associated with default in payments or complete inability to pay for teas purchased or sold via the auction. Risk of default or exposure to bad debts has been reduced. (please tick correct choice per below alternatives)

Strongly Disagree	Disagree	Slightly Disagree	Slightly Agree	Agree	Strongly Agree

10. The Introduction and use of the Electronic Billboard System has resulted in improved profitability for tea trade. (please tick correct choice per below alternatives

Strongly Disagree	Disagree	Slightly Disagree	Slightly Agree	Agree	Strongly Agree

SECTION D

STRUCTURED QUESTIONS

11. What aspects of the Electronic Billboard System are most useful to your organization?

- Secure platform for sharing trade information.....
- Secure, efficient and timely payment system
- Faster monitoring of turnaround of stocks and debtors in the tea trade
- Other (Specify)

12. What aspects of the electronic billboard system are least beneficial?

- Specify.....
.....
.....
.....
.....

13. In your own view, what needs o be done to improve this financial system so that it can serve the tea trade better?

.....
.....
.....
.....
.....