THE RELATIONSHIP BETWEEN RISK PROFILING AND REVENUE PERFORMANCE: A CASE STUDY OF KENYA REVENUE AUTHORITY (KRA)

By;

DOROTHY MBITHE NGUI

A MANAGEMENT RESEARCH PROJECT SUBMITTED TO THE SCHOOL OF BUSINESS IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF BUSINESS ADMINISTRATION, UNIVERSITY OF NAIROBI.

NOVEMBER 2010

DECLARATION

This management research project is my original work and has never been presented for a degree in any other university

Signed....~~Mbithe~~..........   Date...16|11|2010....

Dorothy Mbithe Ngui

D61/ 70574/2008

This management research project has been submitted with my approval as the university supervisor

Signed........................   Date...16/11/10....

DR. Josiah O. Aduda

Lecturer, Department of Accounting and Finance

TABLE OF CONTENTS

DEDICATION

I dedicate this work to my dear husband Dominic Kieti and to my children, Douglas Kimanthi and Domitilah Mutheu for their continued support, motivation and love. To my mum, Mrs Joyce Ngui, for teaching me the value of education and for her wise guidance.

ACKNOWLEDGEMENT

LIST OF TABLES

LIST OF FIGURES

LIST OF CHARTS

ABBREVIATIONS AND ACRONYMS

FRAGP   - Fiscalis Risk Analysis Project Group

KRA   - Kenya Revenue Authority

MPT   - Modern Portfolio Theory

OECD   - Organization for Economic Co-Operation and Development

UGA   - Uganda Revenue Authority

SME   - Small and Medium Enterprises

ABSTRACT

The vision of probably all revenue authorities is to promote compliance with the provisions of the taxation laws and to ensure responsible enforcement by the revenue authorities, thereby contributing to the economic well being of the country. As with virtually all revenue authorities, KRA has to a large extent implemented the self-assessment approach to tax assessments. Because this system depends on this process of self assessment, an effective risk-based audit approach is required to ensure that tax compliance and responsible enforcement is adhered to. An effective case selection methodology is required for revenue authorities to make informed choices on how best to direct their activities in order to address areas of greatest risk.

Given these imperatives, the purpose of this study was to investigate the relationship between the risk profiling and revenue performance in KRA, and to focus on the key parameters used to allocate risk to the taxpayers. Data was collected from KRA revenue reports, additional data was extracted from the working files of 20 taxpayers that were purposefully sampled for this study to cover the all the sectors/ category of taxpayers KRA administers.

Pearson correlation coefficient was computed, which showed a strong positive relationship between risk level and the amount of additional tax collected, ($r = .607$, $p<.01$). Regression analysis was also used to determine the explanatory power of risk level /score in the variance of the amount of additional tax collected. The results of the study generally determined that realistic risk profiling leads to increased revenue performance as implied by the risk and return theories.

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

Risk management is part of our subconscious behavior which guides us in making the best possible choices each time we have to make a decision. Revenue tax authorities do not operate in a risk- free environment and neither does risk profiling create such an environment, but rather enables management to operate more efficiently in environments filled with risks. The term 'risk' can mean different things to different people. In certain field of research, risk is used to denote the width of the confidence level associated with particular estimate (so a high risk estimate has a greater degree of uncertainty than a low risk estimate). To some it is the magnitude of the exposure; a high risk event has a potentially large money value or outrage factor attached to it. In reality, both concepts need to be considered if risk is to be correctly assessed and managed (OECD Report, 2004).

1.1.1 Risk Profiling

Risk profiling can be defined as a systematic process in the course of which people and resources are deployed, based on risk analysis, aiming to achieve an optimum tax revenue yield (Bird, 1992). It is simply a practice of systematically selecting cost effective approaches for minimizing the effect of threat realization to the organization. Because the risk profiling process is continuous, the process must be effective within the environment in which the revenue authority is operating. As the environment changes, it will have an effect on risks and risk assessment. The objective is to provide a clearly defined risk

profiling procedure in case selection focused towards the identified risk indicators, due to lack of prioritization parameters.(Nel,2004)

According to Emmett et al, (1995), just like in any investment decision, revenue authorities need to adopt risk and return analysis in their operations so as to curb any revenue loss. The tax authority makes forecasts of cash flows likely to arise from a particular course of action; these forecasts are based on what the tax administrator expects to happen given his present state of knowledge. Samuels et al (1938) noted that in an uncertain world the actual cash flows are almost certain to differ from prior expectations; it is this uncertainty about an investments actual return that gives rise to risk in business and investment activity generally.

In their technical report, Crichton and Lyimo (2004) noted that there are three dimensions of risk; probability, the chance that a loss will occur; consequence, the magnitude of the risk; and perception, the significance of the loss as it relates to the basic objectives of the organization. They argued that risk profiling principles are used to identify, evaluate, analyze and control potential adverse effects and consequence. In the tax administration context, it involves developing concrete information about existing and emerging threats, and developing compliance and enforcement strategies so that efforts can be focused in probable areas of high risk. In the past, tax authorities dealt with risk on a one - dimensional plane – the potential existence of non-compliance. However, risk profiling decisions must also reflect a balance between the level of risk in terms of adverse social and economic effects, and must show the benefits versus the costs associated with control

activities. Risk Profiling requires a combination of compliance research and intelligence to provide an objective and comprehensive picture of the risk posed to the revenue authorities mandate by internal and external threats. Neither compliance research nor intelligence, in their own, gives a truly complete view of a problem. The two must be considered together to fully appreciate the magnitude of the risk.

The fundamental goal of any revenue authority is to collect taxes and duties payable according to the law in such a manner that will sustain confidence in the tax system. However, when it comes to the obligations imposed on them by the law, taxpayers are not always compliant. According to Bird (1992), a compliant tax payer is one who fulfils every aspect of their obligations including, registering with the revenue authority as required, filing the various returns on time, accurately reporting tax liability in accordance with the prevailing legislation , paying any outstanding tax as they fall due and maintaining all records as required. A non-compliant taxpayer is one who fails to satisfy any one or more of those aspects and poses a risk to revenue collection. Research has shown that non compliance may be as a result of a deliberate decision by the taxpayer, or it may be unintentional (McKerchar, 2003) .There is a range of possible compliance outcomes driven by demographic (including age, gender and level of education), personal (including attitudes, experiences, morale and financial circumstances) and aspects of the tax system itself (including tax rates, penalties, audit probabilities, enforcement strategies, complexity and costs of compliance). As many of these factors are not constant, it is to be expected that compliance behavior can change over time and a compliant taxpayer one year may be non-compliant the next. Therefore,

tax administrations should have in place strategies to ensure that non-compliance with tax law or tax fraud is kept to the minimum possible (Fiscalis Risk Analysis Project Group {FRAPG}, 2006)

Further the quantity of taxpayers especially the small and medium enterprises (SME's) has increased rapidly over the years, while the tax collection and administration resources have remained relatively insufficient. The average number of taxpayers under the control of tax administrators has been increased continuously and in many regions, each tax administrator may administer more than one hundred enterprises. This has affected tax services provided by tax administrators for many taxpayers, especially making these administrators unable to give enough education and instructions about tax laws to increasingly newly established enterprises, resulting in the enterprises poor compliance with tax laws and brought enormous tax collection and administrative risks. Currently, tax administration is confronted with the difficulties in that the increase of tax collection and administration resources lags behind the increase and change of tax collection and administrative objectives. As a result, the tax evasion risks in enterprises are continuously enlarged, so that administration efficiency of tax authorities should be increased as soon as possible (Gill, 2007)

The tax system of most revenue authorities in the world is based on self assessment system which relies mainly on taxpayers declaring their tax obligations under the respective laws. Verifying that the correct amount of tax has been paid is an important component of improving compliance; however limited resources restrict the ability of

revenue authorities to audit each and every return submitted .Increased focus on areas of greater revenue risk would form a major part of the strategy of any revenue authority, which relies on self assessment (Nel, 2004).

From the perspective of the revenue authority, the ideal is to have all taxpayers fully compliant at all times. If this were the case, the tax gap (the difference between what a revenue authority theoretically should collect and what it actually does collect) would not exist. The ideal is obviously not attainable. But to be able to work towards this ideal, the revenue authority needs to be able to identify and understand the various types of compliance outcomes and then develop and apply appropriate strategies to modify (or reinforce) taxpayers' behavior accordingly. As the revenue authority normally has limited resources at its disposal, it needs to be strategic if it is to be efficient and effective in managing its risks. This will require the authority to identify and prioritize its risks, to tailor and target specific activities to each identified risk, and to allocate resources accordingly. This is commonly referred to as a risk profiling approach to compliance and is widely adopted in many jurisdictions, and in particular, where taxpayers are required to self-assess their tax liability (OECD report, 2004).

For an administration tasked with collecting revenue on behalf of the government, revenue risk management at a macro, or policy level can be considered to be about trying to ensure appropriate taxpayer compliance in that the right taxpayers/ clients pay or the right amounts of tax, at the right time is paid. The term right taxpayers or clients implies that either the revenue authority , or the client can identify that they need to be registered

on the tax system and lodge returns of some kind (OECD report,2004). It follows there is an obvious risk that the client /taxpayer will not register or will not lodge, either through an honest error, ignorance or confusion of the requirements or deliberate concealment so as to avoid assessment The likelihood and consequences of this risks will clearly depend on the type of taxpayer. For example, if the profitable entity failed to lodge; the tax revenue forgone could be quite significant whereas if a social security recipient failed to lodge, the revenue effect would probably be trivial. The right amount of revenue implies that the correct amount can be assessed and collected from those clients that lodge. In countries with well developed systems most clients tend to end up paying most of their tax if knowledge of the tax laws and regulations is correctly disseminated and assistance is available. This is generally termed as the level of voluntary compliance, although widespread use of tax withholding systems ensures a greater degree of compliance than would be otherwise be the case (OECD report, 2004).

1.1.2 Kenya Revenue Authority

KRA is a state corporation established by an act of parliament July 1st, 1995 Cap 469 as a central body. The authority is charged with the responsibility of collecting revenue on behalf of the government of Kenya. It is under the general supervision of the Minister of finance (treasury). The authority's mandate and core business is to assess, account, administrate and enforce all laws relating to revenue. KRA`s role is assessment, collection, administration and enforcement of laws relating to revenue, restoring economic independence be it elimination of budget deficits and creating organizational structure that maximize revenue collection. The Authority is a Government agency that

runs its operations in the same was as a private enterprise. In terms of revenue collection and other support functions, the Authority is divided into the following Departments: Customs Services Department; Domestic Taxes Department, which entails - Domestic Revenue and Large Taxpayers Office; Road Transport Department; Support Services Department and Investigations and Enforcement Department. Each Department is headed by a Commissioner. In addition to the four divisions the Authority had seven service Departments that enhance its operational efficiency (KRA, 2009).

KRA operates through corporate plans and is currently in its fourth corporate plan covering the period of 2009/10 – 2011/12. Over 90% of annual National budget, funding comes from local taxes collected by KRA (Omondi, 2008). The government of Kenya gives KRA annual revenue target through performance contracting which has been cascaded down to all management staff. The revenue target has grown from 122billion in 1995 to 550 billion for the fiscal year 2009/10. By the end of May 2009, KRA had total staff of 4,305 and this number is expected to collect taxes from all corners of the Republic and not only meet but also surpass the annual Government revenue targets.

For most domestic taxes collected in Kenya, the tax laws allow for self declaration by the taxpayer on or before due dates. Once the self assessment declarations have been made, it is upon KRA staff to capture the data and subject it to screening and risk profiling process. This will either lead to a decision to confirm the genuineness of the tax declared through compliance checks or tax audits which involves literally looking at the necessary primary records of the taxpayer. A simple audit takes at least 2 months to complete while a simple compliance check takes at least a week. This posse a challenge to the tax

authority in that they are not in a position to audit each and every taxpayer within the limited resources. KRA has other several factors, which are recognized as increasing the risks it faces in revenue collections such as the complexity and innovations in business structures of the tax payers, large numbers of taxable persons and services, e-commerce developments, etc. At the same time, KRA needs to work more efficiently, not only in the view of public opinion, which demands new levels of efficiency and accountability of government services, but also in view of reductions in budgets and restrictions to hire new personnel (KRA, 2007) .To counter these challenges KRA has come up with the Revenue Administration Reform and Modernization Programme which aims at increasing revenue collection. Among those reforms is the concept of risk profiling, where by compliance checks and tax audits are only carried to selected taxpayers which have got the highest level of risk to revenue loss (Oyugi, 2005).

In KRA the risk profiling system rides on the assumption that the staff: - fully understand the taxpayers risk behavior; have adequate knowledge of all its business processes, linkages and the expected results; are aware and understand the defined risk parameters and variables; are in a position to select cases whose trend vary from the norm; and are experienced and fully understand what is expected in addressing the gaps i.e. prioritized risks. As per KRA's risk profiling manual, (2009) risk based case selection classifies risks in to two levels; Group/portfolio risk analysis and Individual taxpayer risk analysis. Risk ratings are allocated based on the perception of sector complexity from past experience and the sector tax performance and then, individual taxpayer risk profile is evaluated on the basis of certain indicators as; past tax performance record; financial

8

performance – both in profitability and stability; complexity of company or taxpayer operations and structure; and frequency of change in tax agent/auditor. A risk matrix is then developed from the weighted risk scores and used to determine the cases to be selected. Other important considerations used are; Revenue at risk- once the taxpayers are rated, the question of revenue at loss should come into play and additional information- where there is reliable information to the effect that a taxpayer may be involved in malpractice , the tax payer may be selected though ranked low along the risk profile (KRA Risk Profiling Manual, 2009).

1.2 Statement of the Problem

Limited resources like lack of enough staff restrict the ability of revenue authorities to audit each and every tax return submitted and thus increased focus on areas of greater revenue risk forms a major part of the strategy of any revenue authority that relies on a self assessment system. The adoption of the risk profiling has been motivated by the need to identify the most serious cases of non compliance to deter revenue loss/ tax evasion. It is documented from research that risk profiling usually increases the amount of tax collected by the revenue authorities, thus risk profiling has a positive relationship with revenue performance (Nel, 2004 and Canadian government publication, 2003).

The focus on the prior literature in risk profiling has largely, but not exclusively been on various sectors of the economy like banking (Kabiru, 2002 and Kimeu, 2008), manufacturing (Njiru, 2003) etc but there are few studies on the risk profiling in tax administration. Though Nel, (2004) did a study on the analysis of the compliance

approach used by revenue authorities, his study did not specifically examine how risk profiling related with revenue performance, further his study did not cover the Kenyan context. Kieleko, (2006) undertook a study on the effects of tax reforms on tax productivity in Kenya; she however did not capture the use of risk profiling in tax administration. No known study has focused on finding out on the use of risk profiling and its relationship with the revenue performance (amount of tax collected) in Kenya Revenue Authority.

This study will address these gaps by using a tax administration authority and focusing in the Kenyan context. This study therefore, proposes to assess the relationship of risk profiling practice and revenue performance (amount of tax collected) in KRA as a case study.

1.3 Objectives of the Study

The objectives of this study was;-

1. To investigate the relationship between risk profiling and the amount of tax collected in KRA.

2. To examine the risk factors/parameters used by the tax administrators to allocate the risk score.

1.4 Significance of the Study

Revenue Authorities

The study will bring together comprehensive evidence on the impact of risk profiling in tax administration and to KRA; this will be useful in case selection and evaluating risk to minimize revenue loss. The 2004 OECD report notes that "the benefits of pursuing a risk profiling approach are well established. For a revenue authority they include: a structured basis for strategic planning; a focus on the underlying drivers (not symptoms) of non-compliance, and promotion of diversity in the treatment of major tax compliance risks, rather than the adoption of a 'one size fits all' approach; better outcomes in terms of programme efficiency and effectiveness (e.g. improved compliance with tax laws leading to increased tax collections and Improved taxpayer service);a defensible approach that can withstand external scrutiny (e.g. by external audit officials); and a stronger foundation for evidence-based evaluation."

Tax Consultants

A study of the risk profiling practice will assist the tax consultants who endeavor to advise their clients on respective tax matters. The study could be used to develop frameworks on the aspects of the tax payers considered risky by the tax authority and the appropriate advice will be accorded to the clients to prevent chances of being penalized for non-compliance, consequently such tax payers will behave transparently and due to lower risk tax issues they will reasonably expect support and lower compliance costs.

Academicians and Policy Makers

The findings of this study will provide an informed basis for further research by academicians to shed more light on risk profiling and possibly develop new models to successfully carry out risk profiling in tax administration. The study will contribute new findings to already existing body of literature on risk profiling, act as a base for policy formulations and a guide for further research in Kenya and the world at large.

Public

To the public, the study will create awareness of the risk profiling in tax administration and how and why revenue authorities apply it; this enhances the public's appreciation on the role of tax collection in the country.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This section will review the theoretical discussion and empirical literature on risk profiling in tax administration. The first section examines the theories related to risk profiling in tax administration. The second section deals with a review of empirical studies.

2.2 Theories on Risk Profiling

According to Hull (2007), there is a trade off between risk and return in any investment, the greater the risks taken, the higher the returns that can be realized. Several theories have been put forward to explain this phenomenon and are: -

2.2.1 Markowitz Portfolio Theory

As in Pandey,(1999) the Markowitz Portfolio Theory (MPT), which was first developed by Harry Markowitz and published under the title "Portfolio Selection" in the 1952 *Journal of Finance*. MPT proposes that it is not enough to look at the expected risk and return of one particular stock. By investing in more than one stock, an investor can reap the benefits of diversification - chief among them, a reduction in the riskiness of the portfolio. MPT quantifies the benefits of diversification and assumes that investors are risk averse, meaning that given two portfolios that offer the same expected return, investors will prefer the less risky one. Thus, an investor will take on increased risk only

if compensated by higher expected returns. Conversely, an investor who wants higher expected returns must accept more risk.

Despite the fact that MPT was developed specifically for common stock, the same concepts may be applied in risk profiling though in a different perspective, in that the riskier the taxpayer the higher the expected revenue. However, unlike in the MPT, the tax administrator is a risk taker who is interested in the most risky taxpayer as in them there is a high revenue loss saving. Further the concept of combining portfolios does not directly apply to tax administration as each tax payers is mostly considered individually.

2.2.2 Arbitrage Pricing Theory

The Arbitrage Pricing Theory (APT) was developed primarily by Ross (1976). It is a one-period model in which every investor believes that the stochastic properties of returns of capital assets are consistent with a factor structure. It is a multifactor model where factors influencing the return of a security are industrial production, changes in default premium, changes in the interest rates structures, inflation and changes in real rate of return among others. Ross argues that if equilibrium prices offer no arbitrage opportunities over static portfolios of the assets, then the expected returns on the assets are approximately linearly related to the factor loadings.

In APT there are one or macro economic factors that may measure the systematic and specific risk of an asset. Systematic risk is the risk of holding the market portfolio. As the market moves, each individual asset is more or less affected. To the extent that any asset

14

participates in such general market moves, that asset entails systematic risk. Specific risk is the risk which is unique to an individual asset. It represents the component of an asset's return which is uncorrelated with general market moves. According to APT, the market place compensates investors for taking systematic risk but not for taking specific risk. This is because specific risk can be diversified away. The fundamental logic of APT is that investors are always arbitrage whenever they find differences in the return f assets with similar risk characteristics (Pandey, 1999)

APT can be summarised in to the following formula:

$$r = r_f + \beta_1 f_1 + \beta_2 f_2 + \beta_3 f_3 + \cdots$$

Where r is the expected return on the security; rf is the risk free rate; each f is a separate factor and each β is a measure of the relationship between the security price and that factor.

APT was developed for common stocks and examined under that context; however it has become a common practice to extend its concepts in other areas of risk management. Risk profiling borrows APT concepts in that the risk free rate is the rate of voluntary compliance by the taxpayers. Similar to APT , in risk profiling, several factors are taken in to consideration in establishing the risk ness of a taxpayer like compliance history, business ownership, existence of regulatory frame work , auditors etc.

However , the concept of systematic and specific risks are treated differently in that the tax authority gains more returns by considering the risks that are unique to specific taxpayers.

2.2.3 Behavioral Finance Theory

According to Brigham and Ehrhardt, (2008), various researchers are blending psychology with finance creating a new theory called the Behavioural Finance Theory that indicates that people do not always behave rationally. Some researchers have hypothesised that the combination of overconfidence and biased self attribution leads to overly volatile stock markets and long term revesals.Thus stock returns reflects the irrational but predictable behaviour of humans.

This theory however contravenes the practise of risk profiling where one of the major assumption is that the tax administrator / risk profiler is rational in decision making. Never the less, risk profiling highly depends on the predictable nature of tax payers.

2.3 Risk Profiling Practices

Considerable emphasis in the literature has been placed on the application of risk profiling in tax administration. The FRAPG, (2006) noted that risk profiling is a process composed of the following steps;

i) Risk identification

This is the first step in risk profiling process and potential risks that threaten the objectives of the organization are recorded. Risks can be identified using either top-down techniques such as macro-economic analysis or by bottom-up approach processes such as risk assessment systems (Gallagher, 2004). FRAPG, (2006) observed that those risks may be broadly classified according to six factors/aspects. These are: -

Risk genres - in this regard risks are categorized as; - register risk, filing risk, payment risk and declaration risk. Payment risk and filing risk could be closely related but it is important to analyze them separately since treatments may vary (Nel, 2004).

Levels of identification- FRAPG, (2006) observes that the sum of the individual risks identified must be equal to the whole of the tax gap and both the top down and bottom up methods are used. According to Gallagher, (2004), risks can be identified and described at different levels:-general level, medium level and detailed level.

Risk area /groups of taxpayers – a risk area is a collection of connected risks, for example, risks referring to turnover or to specific part of tax legislation .Different risk areas can be identified and described in a risk register (Nel, 2004).Tax payers can be grouped in different ways, for example in sectors (such as construction, agriculture etc.), level of importance, legal form, compliance level or a combination of these.

Completing the identification – risk identification includes a (rough) estimate of the risk related tax gap, the number of taxpayers involved and possible relations with other risk areas. For example, if the entrance was the risk of under declaration of turnover, the final stage is the identification of sectors in which the risk is high, e.g. Pubs. (Gallagher, 2004).

Sources for risk identification – for risk identification, several sources are available, and none of them are perfect and enough for 100% result. This can only be approached by a balanced and combined use of all the available sources. FRAPG, (2006) adds that an open mind is needed to spot new things, new risks or changing existing ones.

Risk picture – this shows areas, groups of taxpayers or sectors where risks are expected. This facilitates choices for the next phase, risk analysis. (Gallagher ,2004)

At the end of this stage, you will have a list of possible risks from which a group of taxpayers likely to present the risk can be identified. This reduces the pool of potential audit candidates from the total tax payer population to only those taxpayers in the risks groups.

ii) Risk analysis

According to FRAPG, (2006) risk analysis involves the why question: what is the reason for non- compliant behavior in the specific areas. This is important because it contributes to the assessment and the choice of the most efficient and effective treatments. For instance, if the reason for non-compliance is the complexity of a specific part of the tax legislation the possible treatment can be education. Risk analysis is the key to the risk profiling process. It is a proactive and dynamic process through which risks are systematically identified, analyzed and assessed, so that it provides the basis for decisions on further actions. It also monitors and reviews the development of risks through measuring taxpayers' compliance (Alink, 2004:5).

When reviewing information for risk areas the focus is on potential areas of non-compliance. The risk analyst is therefore trying to identify what is missing or lacking in the information available. The risk analyst or profiler should find sufficient evidence of risk to trigger the case for investigation. It is recommended that a profiler make use of a risk analysis guideline to ensure that all areas of risk are covered. Nel (2004) designed the following risk analysis program to ensure that, when profiling a case, the profiler has utilized all possible internal and external resources to ensure that all risks are detected.

Table 2.3: Risk analysis program

1	Ensure, via the case allocation tracking system, that the case has not yet been allocated.
2	Review prior audit actions.
3	Obtain details of risks identified on the computerized risk selection program, if any.
4	Obtain details of any suspicious activity reported on the case, if any.
5	Conduct risk analysis from the financial statements submitted.
7	Search for possible risks in the specific industry using the internet or any industry profile that has been compiled
8	Evaluate risks in terms of possible revenue involved to determine whether the case should be allocated to the audit section.

iii) Risk assessment and prioritization

Once risks have been identified they must be assessed so as to their potential severity of loss and to the probability of occurrence. Therefore, in the assessment stage, it is critical to make the best educated guesses possible in order to properly prioritize the implementation of risk profiling plan (Alexander, 2005). Gill, (2007), noted that tax authorities needed a mechanism for objective evaluation of the relative proportion of non compliant risk in the context of organizational priorities. Not every type of risk can be resolved; we just need a balanced approach for treating this wide variety of risks. A balanced approach to risk makes possible focusing on certain risks, risks that do not represent major budgetary threats.

The identified and analyzed risks must be ranked and prioritized, because they differ from each other in several ways, for example financially, the appropriate treatment or the effect. As per FRAPG, (2006) the indicators which play a role in this process include:- the amount of tax involved directly; the possible amount which is involved indirectly; the resources for treatment; deterrent; social and compliance effects ; political desires; image and random selection of taxpayers.

iv) Risk treatment and evaluation

Having established the relevant contexts and performed the required analysis and assessment of risks, the next stage is to apply the right treatment, at the right moment and in the right way. The way in which the tax administration applies this effect can be put into a work programme, a plan that describes the way several assessed risks will be treated.

As per FRAPG, (2006) the treatment options available are either: pass the risk, reducing the risk or risk covering.

2.4 Risk Profiling Models

Various risk profiling models have been developed to assist the tax administrators identify the risk areas and the risky taxpayers .The common models adopted are:-

i) Risk Analysis Matrix Model

The risk analysis matrix divides taxpayers into four groups from the two aspects of tax evasion probability and tax evasion amount: 1 represents those taxpayers with high tax

evasion probability and high tax evasion amount, which is the auditing object of tax authorities, and its specific quantity depends on the auditing capability of tax authorities; 2 represents large quantities of newly-established small enterprises with high tax evasion probability but low tax evasion amount; 3 represents taxpayers with low tax evasion probability and low tax evasion amount. Many medium enterprises which have developed for a long time but are not big in size are parts of this group; 4 represent taxpayers with low tax evasion probability but very high tax evasion amount. A few of large enterprises belong to this group. From the view of the requirements on tax auditing, we'll select the high-risk taxpayers from Group 1 and 4, i.e., to find out specific taxpayers in group and carry out tax auditing.

Figure 2.4. Risk Matrix Model

Category C
Small enterprises
Secondary low risk (2)

Data
analysis

Auditing objectives
High risk (1)

Tax Evasion

Probability

Category B
Medium enterprises
Low risk (3)

Category A
Large enterprises
Secondary High risk (3)

Tax Evasion Amount (Kshs)
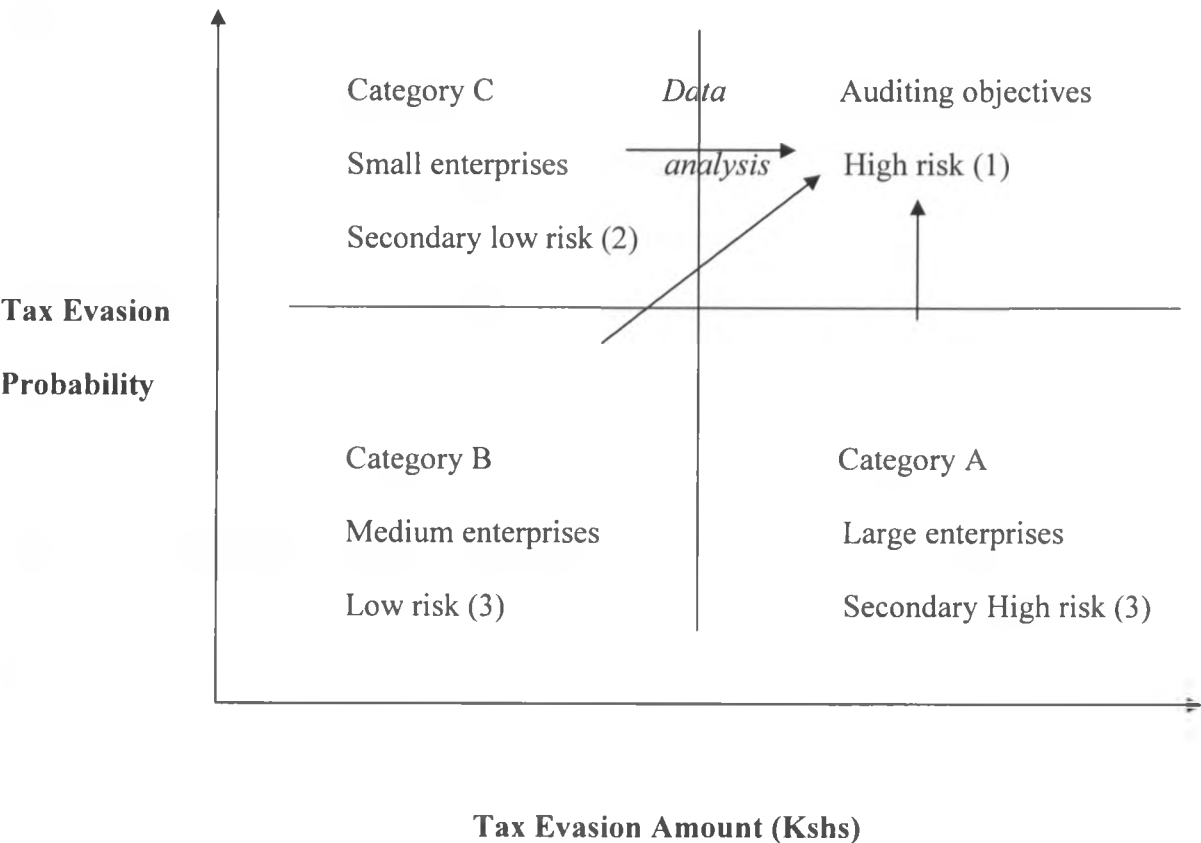
The tax authority then classifies taxpayers into Category A, B and C based on the basic analysis above: Taxpayers in Group 4 belong to Category A enterprises, which is small in quantity but high in taxation, so the tax authorities carry out supervision and control one by one and report any suspicious tax evasion enterprises to the tax auditing departments; Taxpayers in Group3 and 2 in large quantities belong to Category B and C enterprises respectively, i.e., SME. Tax authorities shall analyze and manage data about these enterprises through macroscopic and microcosmic data analysis as well as empirical investigation, and report the suspicious tax evasion enterprises if any to the tax auditing departments.

ii) Event Tree Analysis Model

Firstly put forward by Bell Laboratories USA in 1962, event tree analysis has been extensively applied to risk profiling field. Event tree is a kind of tree diagram composed of nodes and lines, in which the node represents certain specific link, while the line shows the relationship between these links. For risks may exist in the aspects below, tax authorities have established corresponding administration systems:

Tax registration: Mass media publish an Announcement on consolidation within a specified time per month; be networked with the industrial and commercial bureau that is in charge of the registration and profiling of the enterprises, and find the tax evaders according to the regular data analysis and verification.

Approval of qualifications: For the major general taxpayers, they are not only examined on the spot for their sales income, but also verified the sales transactions of their suppliers. For the approval of the new firms' income tax reduction and exemption, their essential transactions must be examined if they are transferred from the old ones. For other approval projects, the detailed examining points and operating procedures are obviously described.

Invoice control: The risk of VAT special invoices has been reduced to a lower level, through comparison and verification to invoice information of upstream and downstream enterprises within China. Meanwhile, the risk of ordinary invoices is also being controlled to a lower level by popularizing the electronic tax register (ETR).

Tax declaration control: The risks of overdue declaration and none declaration are mainly controlled through the routine supervision and administration by tax officers, while the ones of understatement are generally controlled through the approaches of classification profiling, integrated audit, etc.

Tax payment: Building the network system among Revenue, Bank and Treasury, it is convenient for taxpayers paying tax on-line. Tax administrators usually call and notify the taxpayers who do not pay their tax on time, and expose the delinquent ones through mass media, or even adopt the tax guarantee and enforcement measures if necessary.

2.5 Empirical Studies

Studies on the KRA's risk profiling practice were not found and this may be attributed to the fact that this has been a recent phenomenon in tax administration. However various other studies on risk profiling and factors related to this research have already been performed elsewhere.

A number of studies have attempted to assess the use of risk profiling in tax administration. Risk profiling was conducted in New Zealand to determine which corporate firms reduced their taxes illegally. The profiles of tax evaders as compared to tax compliers indicated that larger firms tend to be significantly more compliant that smaller ones (Caragata:1998). Allingham and Sandmo (1972) modelled an individual's choice regarding tax evasion and stated that an individual regards tax evasion as a choice or a sort of gamble in which there is a trade-off between a gain if the evasion is undetected and a loss if the evasion is detected and penalised. It is submitted that taxpayers are neither honest nor dishonest, but merely rational decision-makers in calculating what is in their best interest.

Updating the earlier work, the European Commission's (EC) Directorate General Taxation and Customs Union finalised a report on research it had commissioned in 2007 to provide estimates (and associated trends) of the incidence of overall VAT revenue leakage, the VAT tax gap, for all (then) 25 EU member countries (which includes 18 OECD member countries and two others currently subject to OECD accession processes). The purpose of this research, which is part of a wider study into fraud that also includes

corporate income taxation and excise duties, is to quantify and analyse the extent of tax fraud, thereby allowing an assessment of tax fraud and tax activities and their impact on the fiscal revenues of member states. While the detailed findings of this work are yet to be published, EC officials have indicated that, based on the preliminary findings of this work, the estimated VAT gaps for the 25 countries included in the study vary widely in their magnitude and for some countries the results are both disturbing and confronting (ranging up to around 30% of the estimated theoretical tax base). While acknowledging the limitations of the top down VAT gap estimation methodology (ies), these findings point to the likelihood that, faced with serious levels of non-compliance, many countries may need to mount major efforts to revamp their overall risk profiling approaches.

Slemrod (2003) found that the most comprehensive data on tax compliance for any Country at any time was collected by the United States revenue department. This was done by means of its tax compliance measurement program which measured the total estimated amount of under-reported income and overstated subtractions using a sample of returns filed for six tax years. The study clearly indicated a contrast between the relatively low income tax compliance rates of small businesses and a much higher compliance rate for other sources of income, such as wages and salaries.

Limited regional studies have looked into the use of risk profiling in tax administration, and no found study has focused on how this relates with revenue performance. Nel (2004) carried a study on "an analysis of the compliance approach used by revenue authorities with specific reference to case selection and risk profiling". The purpose of his

study was to examine the case selection methodologies used by certain revenue authorities, including the South African Revenue Services, and to focus on the key elements of case selection: the use of computerized database systems, industry profiles, third party data and the role of the risk profiler. The results of the study indicated that the case selection methodology of the South African Revenue Services is lacking in some areas and that computerized risk analysis is limited to a certain classes of taxpayers.

In their study, 'benchmarking tax compliance efficiency among South African retail firms', Oludele and Kinfack, (2009) used profit efficiency benchmarking to analyse selected retail firms tax compliance risk in South Africa over the 2005-2006 period. They sought to identify the firms that should be audited because of the suspected tax compliance risk, using a stochastic frontier analysis. The profit efficiency estimates of 24 retail stores were used to rank them in terms of their performance. They were also tracked over time. The study found out that approximately 50 percent of the firms performed better than the average profit efficiency of 0.39. The top 10 firms were significantly performing better. However, the bottom 50 percent of the retail firms performed poorly and could be targeted for tax audit. They concluded that there was a need to adopt other methods that are efficient and effective rather than the random selection of tax payers for audit, as it mostly nets tax compliant taxpayers.

Osoro (1993) using data from 1970-93 to evaluate the implication of tax reform on revenue productivity in Tanzania, concluded that the reforms failed to raise revenue productivity of the tax system. He reported an elasticity and buoyancy of 0.81 and 1.06

respectively. He attributed the poor performance of revenue to generous exemption, wide spread evasion and weak administration.

Kaweesa (2004) studied the challenges of tax payer service in Uganda Revenue Authority (URA). He highlights the various problems faced in tax administrations like compliance, the tax problem (tax paying culture) and tax education. He stresses their need to provide high quality and good services to taxpayers/customers. He looks at the taxpayer as a customer and one who makes your business exist and gainful. Tax education should target to market tax as a product. Some of the tax education components he highlights include tax education programmes, tax information, and customer care and media relations.

In relation to Kenya, Wagacha (1999) argues that Kenya's tax reforms should seek to: (a) Improve the efficiency and productivity of taxation, (b) Improve tax collection and administration while lowering the rates and (c) Gain tax effectiveness through greater tax elasticises based on tax/ revenue ratios for the period 1992/93-1996/97. This author observed that Kenya's tax burden (averaging 26.6%) is high by international standards and therefore the ultimate objective of a reform scheme should be to lower the excessive tax burden and efficiency costs of taxation. He noted that there was need for appropriate modern measures of collecting revenue.

Weru (2008) carried a study of the information system risks of Practical Action (International). He used standard structured questionnaires to collect the data. A total of

11 IT staff out of 16 responded giving a response rate of 68.75%. He found out that the greatest fear of all human related information systems risks were insiders. He also found out that most countries had not put in measures in place for dealing with naturally occurring risks. Further only 54.5% of the countries had a staff directly charged with risk profiling and thus almost 50% had not considered general risk profiling with a high priority as it should. However his study was only limited to information systems risks but did not look at the revenue risk profiling of the organisation as a whole.

In his study, Kabiru (2002) determined how banks assess credit risks in Kenya. His findings revealed that, there is common understanding that shared information between banks regarding potential borrowers will assist in determining the non risky customers. In a more recent study ' a survey of credit risk profiling techniques of unsecured bank loans of commercial banks in Kenya', Kimeu (2008) , found out that 87.6% of the commercial banks in Kenya managed their risks in various ways and that this practise had a major impact in improving the banks financial performance as compared to other profiling practices. However, their study was limited the banking sector risk management.

Kieleko (2006) studied the effects of tax reforms on tax productivity in Kenya. She did an analysis to evaluate tax productivity using the proportional adjustment method (PAM) and found out that there has been a considerate improvement of the tax revenue productivity due to reforms. She found out that tax modernization reform had a positive impact on the Kenya's tax productivity. Her study however ignored the concept of risk profiling in tax administration.

2.6 Conclusions

From the literature reviewed, it's clear that there is relative small evidence on risk profiling in tax administration, as outlined however; improvements may be expected due to the emerging need for revenue authorities to adopt tax reforms in order to improve their performance. Taxpayers will evade taxes at any opportunity to the best of their interest, and revenue authorities need a strong control measures to ensure tax compliance.

While existing studies have identified important aspects of the risk profiling practice in organisations, these aspects do not fully explain the use of risk profiling in tax authorities and how such a practise has impacted revenue collection in KRA. There appears to be a large emphasises on tax reforms (Kieleko, 2006 and Osoro 1993) in general as part of the modernisation of revenue administration, but this fails to give attention to risk profiling.

In order to capture the influence of risk profiling practise in tax administration, it is desirable to use past revenue data of taxpayer's representative of all the sectors to measure the effect of risk profiling. The additional tax paid by the taxpayers that have been subjected to some sort of risk profiling with the control item as the self declared tax ,risk free return from the same taxpayers prior to subjecting them same kind of treatment. The effect can be established by analysing the additional tax raised after risk profiling

From the literature it's also clear that despite there being several studies on risk profiling in tax administration; this is an area which needs to be explored in Kenya. This study therefore will use revenue data from sampled taxpayers to examine the relationship of risk profiling and revenue performance in Kenya Revenue Authority.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter presents the methodology to be employed in analysing the use of risk profiling in Kenya Revenue authority. The research design for the study is first outlined, followed by the data collection method and procedure, and data analysis techniques used in the study.

3.2 Research Design

The study was conducted through a case study design. This was deemed appropriate because the study involved an in depth investigation of a single subject. KRA being an autonomous body in tax administration was considered important in understanding the practice of risk profiling in tax administration and how that impacts revenue performance or the amount of tax collected. According to Kothari (1990), a case study involves a careful and complete examination of a social unit, institution, family, cultural group or an entire community and embraces depth rather than breadth of a study.

3.3 Data Collection Method and Procedure

For the secondary data, authority was sought from KRA's management {see appendix (i)} and copy of response granting the authority) to collect data from the KRA's revenue reports. This data targeted purposefully sampled tax payers' revenue records (as per

appendix ii) where they were coded A, B, C, D etc up to T in order to conceal their identity as some of the information used is confidential. These taxpayers were selected to cover each of the 20 taxpayer categories/ sectors in KRA as taxpayers in the same sector were deemed to almost have similar objectives and are likely to score a similar risk level. A secondary data collection form was designed to record the level of risk, the additional tax raised after the taxpayer was selected for audit, the self declared tax and the percent increase in tax collected after risk profiling. This information was obtained from the KRA data system, after specifying the selected taxpayer's identification number, popularly referred to as PIN.

This research was aimed at investigating the relationship between risk profiling and the amount of tax collected. This was achieved by developing a similar empirical framework used by Shin and Seonen (1998) and more recently by Kithii (2008).For the purpose of this study, additional tax raised after risk profiling is measured in the Kenya shillings and is used as the dependent variable. Where as the risk level was taken as the independent variable and is measured as the percentage of risk allocated. The choice of this measure was due to the need to determine how revenue / amount of tax collected related with the amount of risk levels of taxpayers.

3.4 Data Analysis Techniques

To determine the relationship between the risk level and the amount of additional tax collected descriptive and inferential data analysis were used.

3.4.1 Descriptive Statistics

Descriptive statistics was used to enable the researcher to meaningfully the parameters used to allocate the risk level. Descriptive statistics such as mean, median, mode, maximum and minimum were used to describe the aspects in which tax administrators had allocated risk to the various taxpayers. They were presented using charts to give clear view of such risk factors or parameters.

3.4.2 Quantitative Statistics

The inferential statistics adopted were correlation analysis and linear regression which enabled the researcher to test the degree of relationship between the level of risk and amount of additional tax collected.

The Pearson's correlation model used is shown below;-

$$r = \frac{n\sum(xy) - \sum x \sum y}{\sqrt{\left[n\sum(x^2) - (\sum x)^2\right]\left[n\sum(y^2) - (\sum y)^2\right]}}$$

Pearson's correlation model

Where **r** is the correlation coefficient

   y is the amount of additional tax raised per tax payer after risk profiling

   x is the level of risk allocated by the risk profiler

   n is the number of tax payers used for this study

T test was used to test the validity of the correlation coefficient. The choice of this model was necessitated by the need to show the strength of the relationship between the two variables, that is the additional tax raised and the risk level allocated to a taxpayer.

After determining the value of r the researcher used regression analysis to further investigate the causal relationship between risk profiling and the amount of tax collected. The regression model may be adopted for predicting the amount of additional tax to be raised in a given level of risk. Since the data is expected to have a linear correlation, it is not necessary to plot the data in order to determine the constants m (slope) and b (y-intercept) of the equation $y = mx + b$. Instead, the researcher applied a statistical treatment known as linear regression to the data and determined these constants. Theoretically for any given a set of data, the following can be determined using:

$$m = \frac{n \sum (xy) - \sum x \sum y}{n \sum (x^2) - (\sum x)^2}$$

$$b = \frac{\sum y - m \sum x}{n}$$

The accuracy of the regression line was tested using the coefficient of determination, which is the R-squared. Further the regression model was tested for significance using the F- statistic.

Statistical package for social sciences (SPSS 17.0) computer software was used to analyze the data collected.

CHAPTER FOUR

DATA ANALYSIS, RESULTS AND DISCUSSION

4.1 Introduction

This chapter presents the results of research as described in Chapter three. It covers data analysis and findings of the research and seeks to analyze the secondary data that was obtained from purposefully sampled taxpayers revenue reports. The purpose of the research study was to investigate the relationship between risk profiling and revenue performance, which is the amount of tax collected, in Kenya Revenue Authority. The study examined various taxpayers tax amount which was self declared (risk free revenue) and the additional amount collected after the taxpayer was risk profiled. The comparison is made between the level of risk allocated and the amount of additional tax raised, to investigate the kind of relationship that exists. Section 4.2 discusses the descriptive statistics that is used to present the qualitative aspects of the factors that are used by the tax administrators in profiling the risk level. Section 4.3 analyses and discusses the results of the Pearson correlation coefficient and regression analysis.

Data analysis was carried out using both descriptive and quantitative analysis. The results of the analyses was as follows;-

4.2 Descriptive statistics

Descriptive analysis shows the average, mode and the frequency of different parameters used to allocated risk score to the taxpayers of interest in this study (see appendix v). It

also presents the minimum and maximum scores which assist us get a picture about the most risky parameter among various taxpayers.

Table 4.2: Descriptive Statistics

	business ownership	existence of regulatory framework	auditors/tax agents	past tax performance record	financial performance	complexity of company operations	others
Mean	8 5500	8.8500	9 80	15.05	10.45	9.55	2.2500
Median	9.0000	10.0000	10.00	16.00	10.00	9.00	2.0000
Mode	8 00ª	12.00	10	19	9	9	2.00ª
Std. Deviation	3.06894	3.37600	1.881	3.663	2.781	3 804	1 44641
Variance	9.418	11.397	3.537	13.418	7.734	14.471	2.092
Skew ness	-.582	-.923	.268	-.380	-.079	-.181	-.022
Std. Error of Skewness	.512	.512	.512	.512	.512	.512	.512
Minimum	2.00	2.00	7	9	5	3	.00
Maximum	14.00	13.00	13	19	15	15	5.00

ª Multiple modes exist. The smallest value is shown

Table 2 above presents the various descriptive statistics that were used to explain the various risk factors used to allocate the risk score to the various taxpayers. The past tax performance of the taxpayers is deemed more risky and is allocated a score out of 20% whereas the other unclassified risk categories has the least score of 5%. The other parameters are allocated scores out of 15% each as they pose relatively equal threat.

The average score for past tax performance is the highest rating at 15.05% and the for the other unclassified scores is 2.25%, nevertheless financial performance of the taxpayers was deemed more risky among the other risk factor averaging at 10.45%. The minimum score and maximum score for each of the risk factors are shown above and range from 0% to 19%.

4.2.1 Business Ownership

Data for the business risk ownership risk factor was analyzed and findings were as follows:-

Chart 4.2.1: Business ownership risk factor
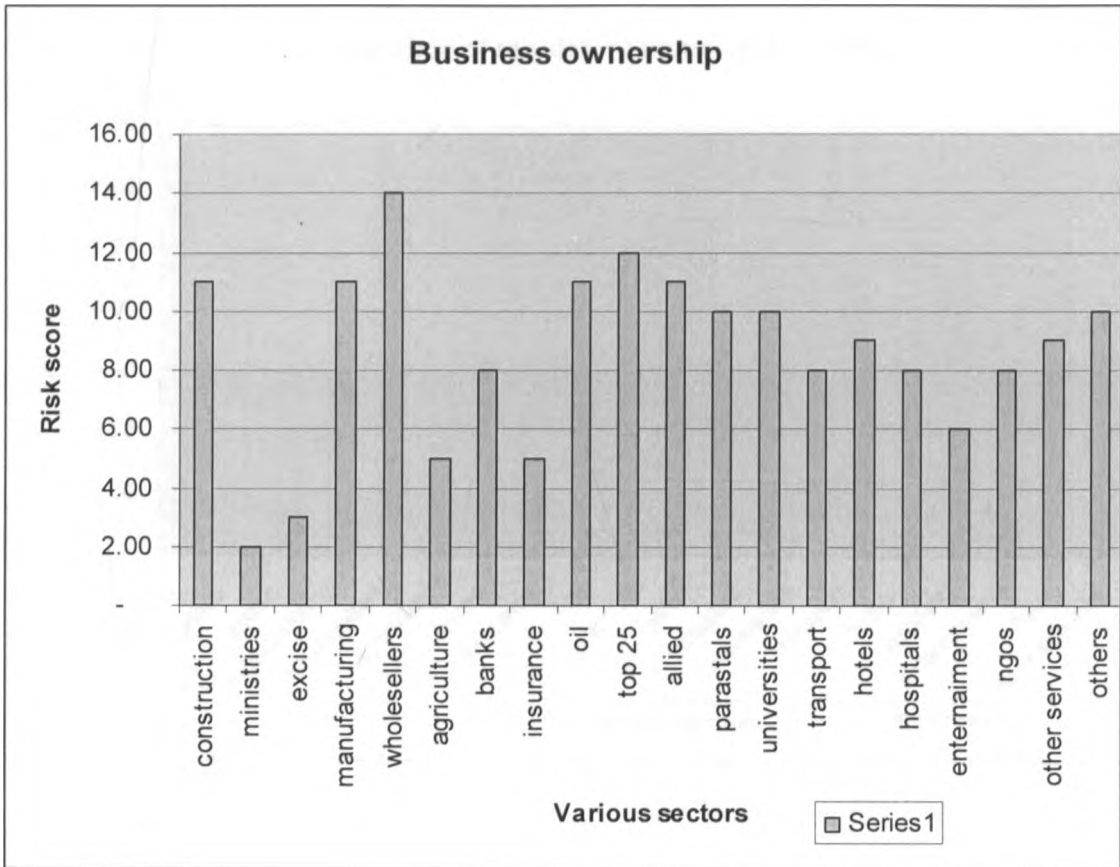
As per table 4.2.1 above, the highest risk score was 14% out of the 15% highest possible score, and was by the taxpayer in the wholesalers and retailers category. Also relatively high in business ownership risk score are the taxpayers in top 25(12%), construction (11%), allied (11%) and manufacturing (11%) sectors. Ministries and Government departments had the lowest score i.e. 2% in this category.

4.2.2 Existence of regulatory framework

The score from the 20 taxpayers sampled from various sectors/ programmes were presented as:-

Chart 4.2.2: Existence of regulatory framework risk factor
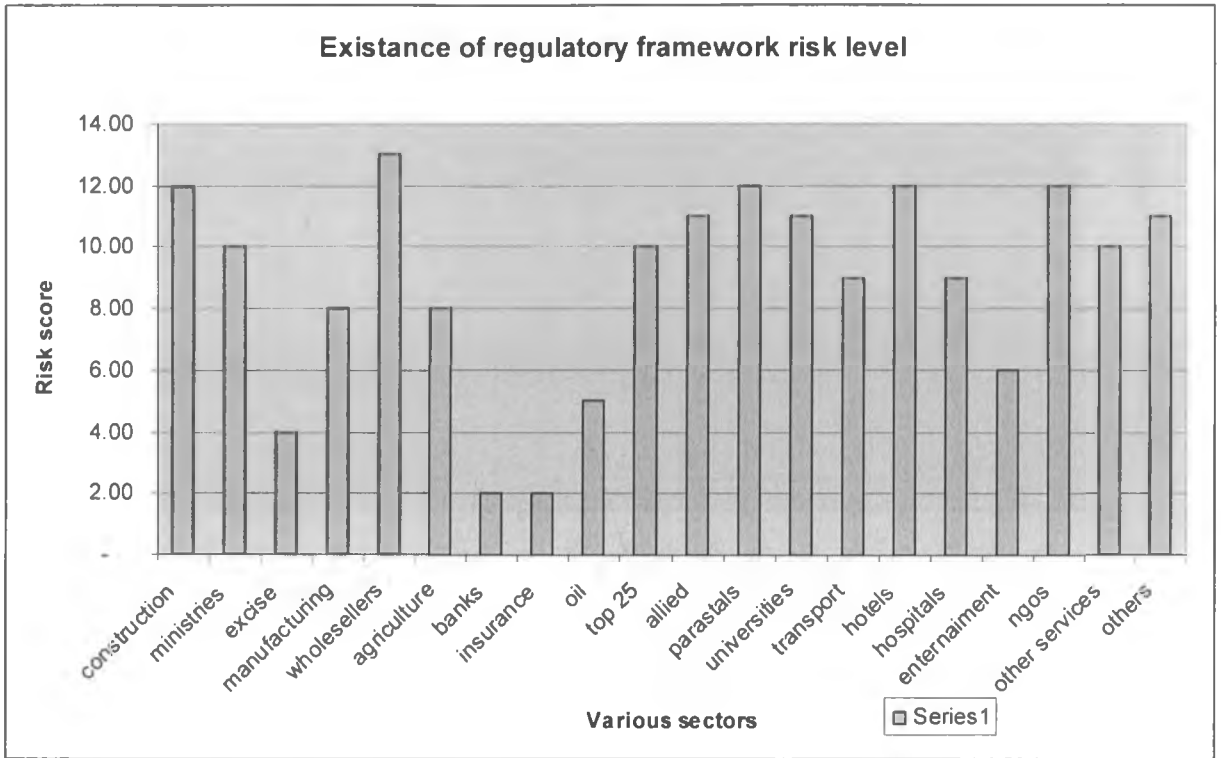
From table 4.2.2 above, wholesalers and retailers taxpayer had the highest risk rating at 13% out of the possible 15% score. This was followed closely by construction (12%), parastatals (12%), hotels and restaurants (12%) and NGO`s (12%). On the other hand, banks and insurance taxpayers had the lowest risk rating and both were rated at 2%.

4.2.3 Auditors/Tax Agents

The analysis of the risk allocation under the auditors and tax agents involved in the in auditing and reporting the tax matters of the taxpayers are shown below:-

Chart 4.2.3: Auditors/Tax agents' risk factor
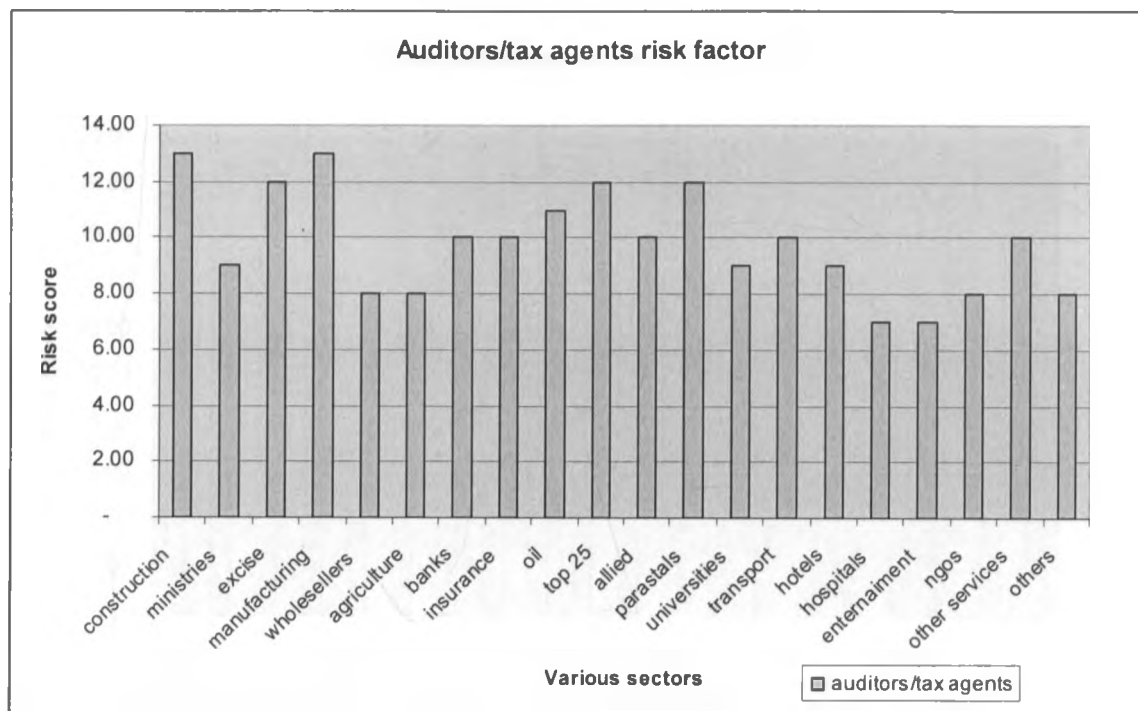
While auditors are regulated, their operations differ in certain respects and thus risk score among taxpayers is allocated according to the kind of auditor/ tax agent for the particular taxpayer. Taxpayers in the construction and manufacturing sectors were deemed to engage auditors / tax agents who were not registered, firms that have handled taxpayer(s) who have been found in tax malpractice, or Firms that have been found guilty of professional misconduct by the accountancy regulator in the last 3 years and thus had the highest risk rating of 13% out of the possible 15 %. Never the less, hospital and entertainment sector taxpayers were deemed not to engage risky auditors and tax agents and thus had the lowest risk score of 7%.

4.2.4 Past Tax Performance Record

Risk scores had also been allocated according to the past tax record and the findings of this allocation is presented as:-

Chart 4.2.4: Past tax performance record risk factor
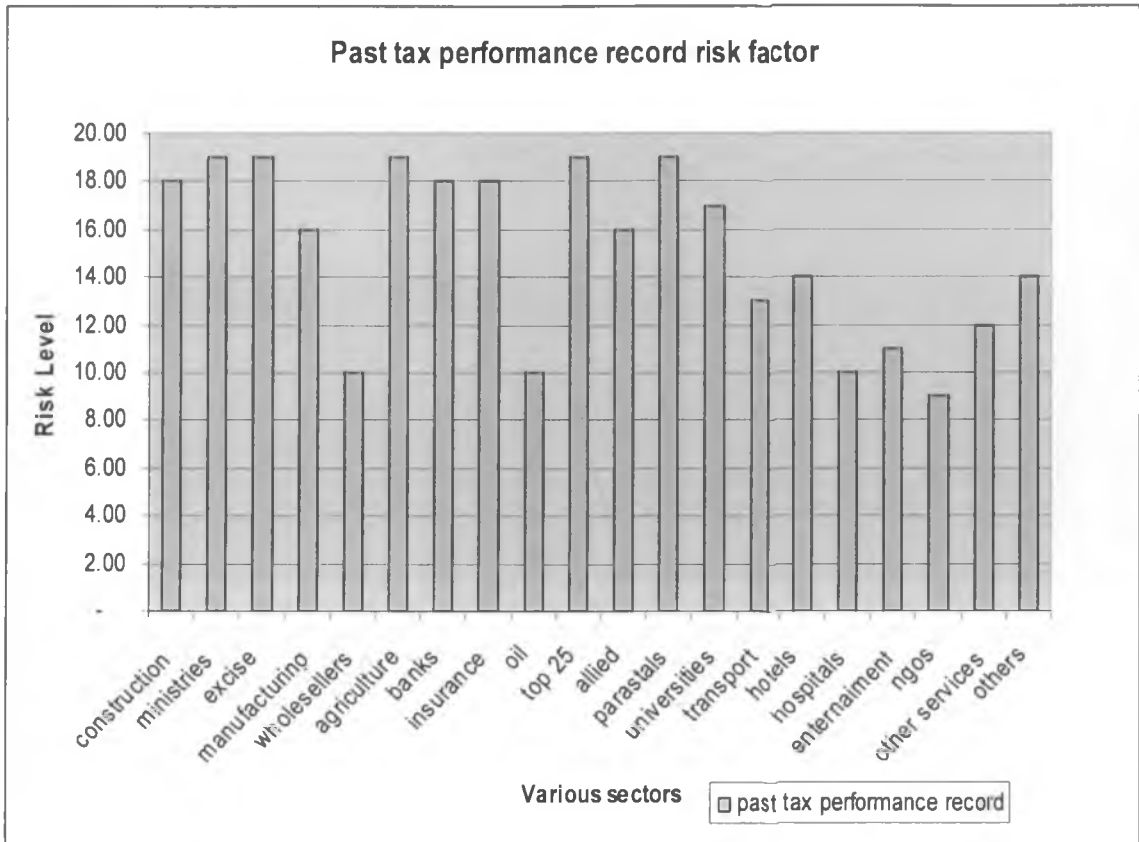
This risk parameter carries the highest weight in terms of risk score, unlike the other risk factors and the tax administrator allocates risk ratings out of 20%. Almost every taxpayer carry a high risk score, except for NGO's who risk rating fall below 10% ranking at 9%. The highest in this risk parameter is ministries, excise, agriculture and parastatals scoring 19%. The mean score for this risk factor is 15.05%, which is quite a high score.

4.2.5 Financial Performance

The taxpayers were evaluated on certain aspects of performance both in profitability and stability. The score allocated were analyzed and the results were as:-

Chart 4.2.5: Financial performance risk factor
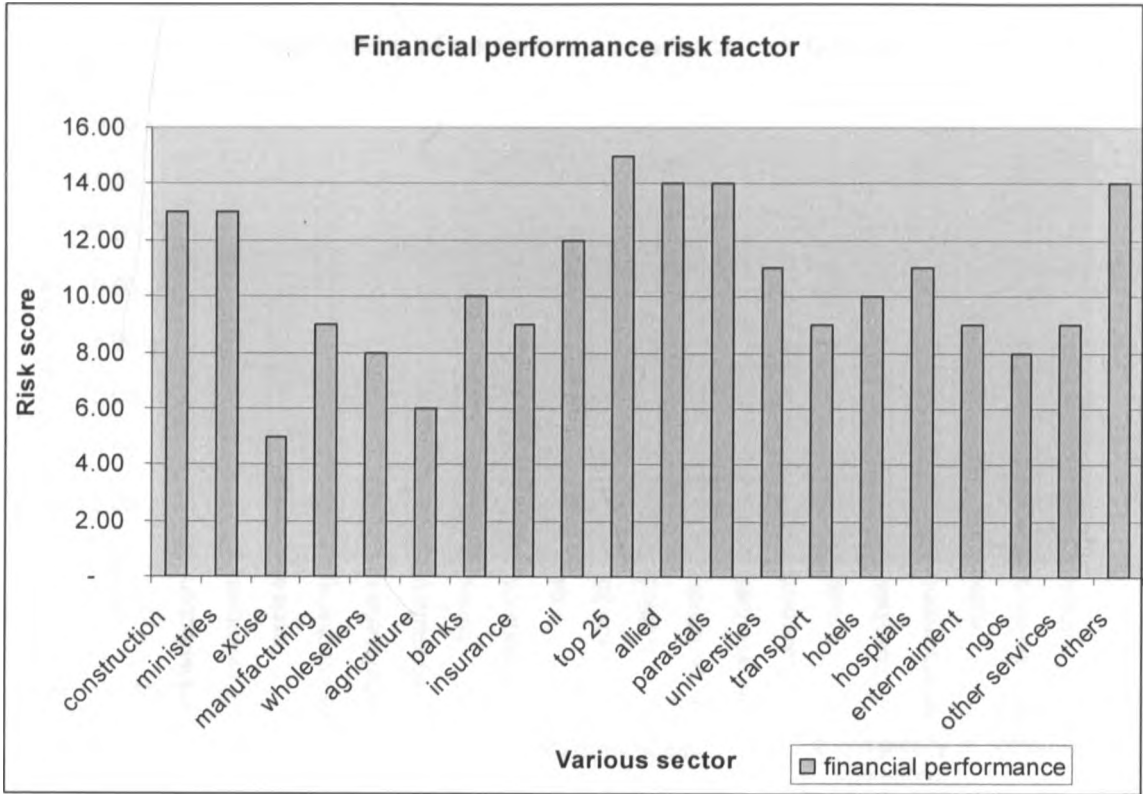
Top 25 taxpayers is a sector of taxpayers whose turnover is very high like safaricom, it scores very high in this risk factor since a small malpractice might translate to huge tax loss, and thus the maximum risk score of 15%. Other risky sectors were allied and parastatals scoring 14%. On the other hand, the agriculture sector had the lowest risk score of 8%. The other taxpayers in the other sectors had a relatively high score in this risk parameter averaging at 10.45%.

4.2.6 Complexity of Company/Taxpayer Operations & Structure

Data in regard to the complexity of company or taxpayers operations and structure was presented as:-

Chart 4.2.6: Complexity of Company/Taxpayer Operations & Structure
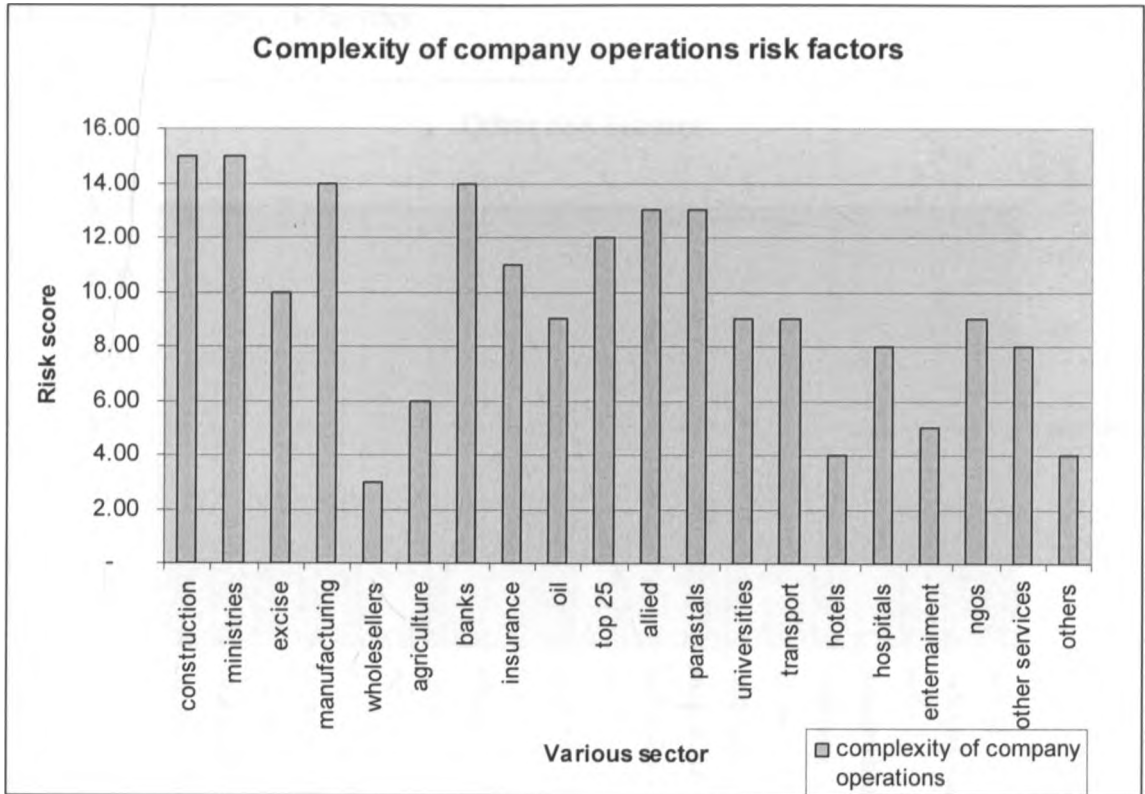
This risk factor had the most erratic variations with the highest score being as high as 15% and the lowest risk score being as low as 3%. Construction and ministries & government department taxpayers were rated the highest with the maximum score of 15% each, where as the wholesalers and retailers had the lowest score of 3%. Manufacturing and banks taxpayers also had a relatively high score of 14%, perhaps because of their unique and complicated operations.

4.2.7 Others

The risk score had also been allocated using other risk paraments like the amount of revenue at risk and any additional information sourced from the public, the results of the analysis is presented as:-

Chart 4.2.7 Other risk factors
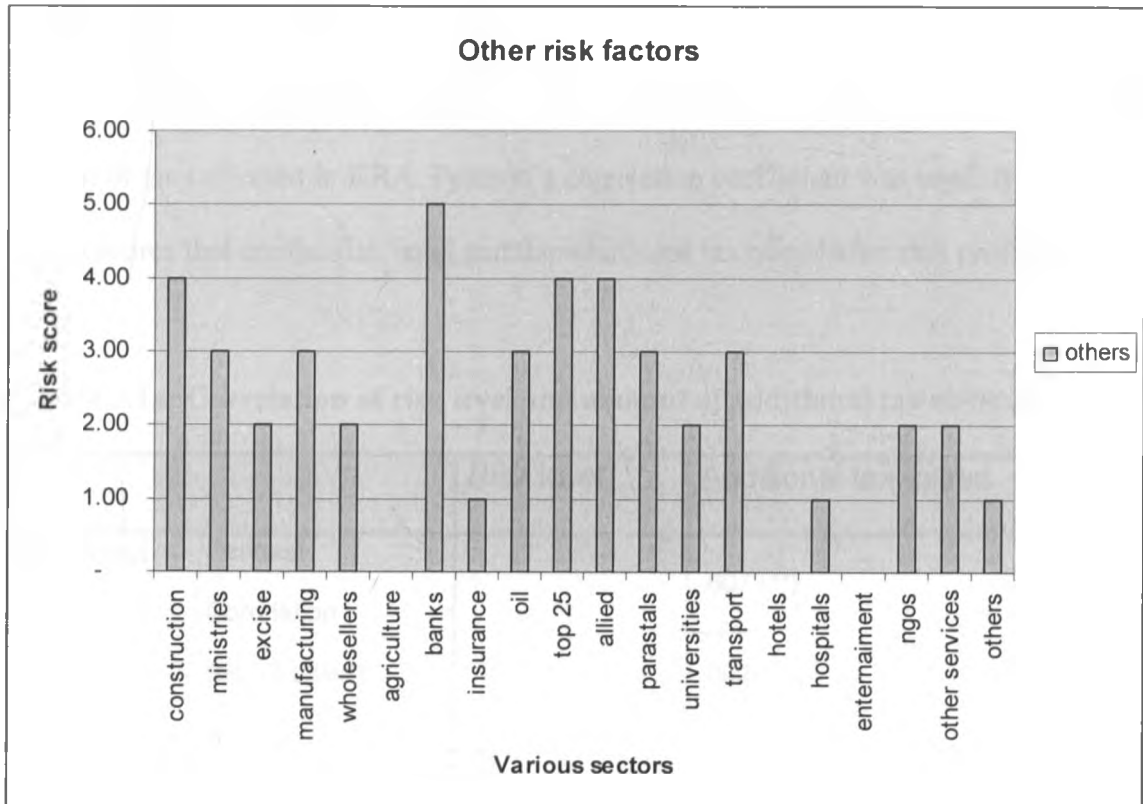
In this parameter, risk was allocated out of 5% and the taxpayer in the banks sector was rated the highest with the maximum score of 5%. Hotels, entertainment and agriculture sector taxpayers posed no risk in this category with 0% rating.

4.3 Quantitative Statistics Results

Pearson's correlation coefficient and regression analysis were used to further analyze the data and in testing whether there exist any relationship between the two variables under study. The results were as follows:-

4.3.1 Pearson's Correlation Coefficient

To determine the nature and strength of the relationship between risk profiling and the amount of tax collected in KRA, Pearson's correlation coefficient was used. It considered two measures that are the risk level and the additional tax raised after risk profiling.

Table 4.3.1a: Correlation of risk level and amount of additional tax collected

		Risk level	Additional tax raised
Risk level	Pearson Correlation	1	.607 (**)
	Sig. (2-tailed)		.002
	N	20	20
Additional tax raised	Pearson Correlation	.607(**)	1
	Sig. (2-tailed)	.002	
	N	20	21

** Correlation is significant at the 0.01 level (2-tailed).

Table 4.3.1a above presents the correlation coefficient between the two variables, which is the risk level / score and the additional tax raised. Risk level and the amount of additional tax collected were found to be positively correlated with a coefficient of $r = 0.607$, which is significant at $p<0.01$.

Separate correlation was run to study the relationship of the risk level and the percentage increase in the additional tax collected. The results are as shown in the table 4.3.1b below.

Table 4.3.1b: Correlation of risk level and percentage increase in the amount of tax collected

		Risk level	%age increase in tax collected
Risk level	Pearson Correlation	1	.536 (*)
	Sig. (2-tailed)		.015
	N	20	20
%age increase in tax collected	Pearson Correlation	.536(*)	1
	Sig. (2-tailed)	.015	
	N	20	21

Correlation is significant at the 0.05 level (2-tailed).

The results of the correlation analysis of the risk level and the percentage increase in tax collected show that risk level is positively correlated with the percentage increase in tax

collected with a coefficient of $r = 0.536$ which is significant at $p<.05$. This shows a fairly strong relationship between the two variables. The results further reveal that as the level of risk increases the percentage increase in tax collected goes up as well.

4.3.2 Regression Analysis

Linear regression was done in order to determine the explanatory power of independent variable (risk level / score) in the variance of dependent variable (the additional amount of tax raised). The estimated results are shown on tables 4.3.2a and 4.3.2b below:-

Table 4.3.2a Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.607[a]	.369	.334	329172558	.369	10.513	1	18	.005

a. Predictors: (Constant), risk level

R square is 0.369

Adjusted R square is 0.334

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1139104243454598000.00	1	1139104243454598000.0	10.513	005[a]
	Residual	1950382310703445000.00	18	108354572816858000.00		
	Total	30894865541580	19			

a. Predictors: (Constant), risk level

b. Dependent Variable: additional tax

45

Table 4.3.2a above is summary of the model and provides the value of R and R^2 for the model. R has a value of 0.607 and since there is only one variable, this value represents Table 4.3.2a above is a summary of the model and provides the value of R and R^2 for the model. . R has a value of 0.607 and since there is only one variable, this value represents simple correlation between the two variables. The value of the adjusted R^2 also called the coefficient of determination is at the percentage of the 0.334.

The F statistic was used to test the significance of the regression model and F ratio is 10.513 (from the ANOVA table) which is significant at p<.005, thus the regression model is significant.

Table 4.3.2b Coefficients ₐ

Model		Unstandardized Coefficients		Standardized Coefficients			95% Confidence Interval for
		B	Std. Error	Beta	t	Sig.	Lower Bound	Upper Bound
1	(Constant)	-1194492745.:	421977526.598		-2.83	.011	-2081034631	-307950859
	risk level	20887107.356	6441992.075	.607	3.242	.005	7352984.222	34421230.49

a. Dependent Variable: additional tax

The table 4.3.2b above provides details of the model parameters (the beta values) and the significance of those values. From the table 4.3.2b, we can say that, *b* is -1,194,492,745 and *m* is 20,887,107 at a significance level of 0.011 and 0.005 respectively.

4.4 Summary of Findings, Interpretation and Implications

The results of this study found out that the various risk parameters are usually adopted by the tax administrators in the allocation of risk score/level. It was found that out of the foregoing, the past tax performance record was deemed more risky and the risk score was allocated out of 20 % with an average score of 15.05% While out of the other parameters rated out of 15%, financial performance had an average score of 10.45%.

From the above findings, most taxpayers who were either sole proprietorships or partnerships had a high score since the owners of the business have higher participation in managing the business and will be the primary beneficiaries of any benefits from tax evasion and thus they carried high risk rating like wholesalers and retailers. On the other hand public ltd and government bodies had lower risk scores perhaps due to the fact that the involvement of owners in management is limited and hence the motivation to evade taxes is reduced. Taxpayers falling in sectors which lacked separate regulatory frameworks under separate legislations had relatively high scores like construction sector. Whereas, banks and insurance taxpayers had the lowest risk rating in this category as they are considered to have stringent regulation. Analysis of findings found out that taxpayers in the construction and manufacturing sectors were deemed to engage auditors / tax agents who were not registered firms that have handled taxpayer who have been found in tax malpractice, or firms that have been found guilty of professional misconduct by the accountancy regulator in the last 3 years.

The results of the Pearson's correlation coefficient indicated that $r = 0.607$ at $p<0.01$, significance level. This can be interpreted to mean that risk profiling had a strong positive

impact on the revenue collected thus as the level of risk of a given taxpayer goes up, so does the additional tax to be raised. This significance value tells us that the probability of this correlation being a 'fluke' is very low, infact close to zero, Hence we can have confidence with the results of the correlation analysis indicating that as far as KRA is concerned, risk profiling strongly affects the amount of tax collected.

From the regression analysis results; $b = -1,194,492,745$ and m was found to be 20,887,107 .This can be interpreted to mean that when there is no risk profiling and thus no auditing or compliance check is done (when $X = 0$), then the model predicts the authority (KRA) will lose up to Kshs.1,194,492,745. The value of m represents the gradient of the regression line. It is 20,887,107 and this value is the slope of the regression line. It is more useful to think of this value as representing the change in the additional tax collected associated with a unit change in the level of risk.

The adjusted R^2 is 0.334 and tells us that the risk level of the taxpayers can account for 33.4% of the amount of tax collected. There might be many factors that can explain the revenue performance in KRA but our model which includes only the risk level can explain 33.4% of it. This means 66.6% of the amount of tax collected by KRA cannot be explained by risk level alone. The developed regression analysis may be used by the tax administrators to estimate the expected amount of additional tax to be raised for any given level of risk. The results of this study therefore imply that risk profiling improves the amount of tax a revenue authority would collect.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Summary

The study sought to investigate the relationship of risk profiling with the amount of tax collected in KRA. The other objective was to explore the parameters used by the tax administrators to allocate the risk score. Data was collected from the KRA revenue reports, additional data was extracted from the working files of 20 taxpayers that were purposefully sampled for this study covering the various sectors of taxpayers administers. The data that was extracted were risk level allocated, the additional tax collected after the taxpayers were risk profiled for audit / compliance check and the risk allocated to each of the parameters for each of the taxpayers.

SPSS version 17.0 was then used to analyze the secondary data collected. All the risk parameters were analyzed and represented in graphs, to show the extend of score with regard to the respective taxpayer sector. Percentages mean, and other descriptive statistics used to describe such risk parameters. Pearson's correlation coefficient and regression analysis model were determined.

The study found out that risk profiling assists the tax administrators to select the cases for audit / compliance check by considering the taxpayers with the highest risk as it is deemed to have more return in terms of the additional tax raised. The study established that risk profiling had a strong positive impact on the revenue collected ($r = 0.607$) and the practice of risk profiling explained about 33.4% of the revenue collected as $R^2 = 0.334$

5.2 Conclusions

In conclusion this study has investigated the relationship between risk profiling and the amount of tax collected in KRA. This study has also examined the parameters used by the tax administrators to allocated risk scores. These factors included; business ownership, existence of regulatory framework, auditor/tax agents, past tax performance record, financial performance and other unclassified factors like the amount of revenue at risk and third party information.

The study has proved that risk profiling of the taxpayers can lead to improved revenue collection of even up to additional tax of around 46%. This is a significant effect in revenue performance and thus risk profiling plays a crucial role in tax collection. Most importantly the study has achieved the set objectives and has fully answered the research gaps found in this field.

Finally, this study has concluded that where any revenue authority relies on a self-assessment system of calculating the tax liability of a taxpayer, it is important that it should adopt risk profiling as an effective strategy in revenue collection. This because the study found out that the risk profiling greatly impacts on the amount of tax a revenue authority can collect given the limited human resource and increased number of taxpayers especially the SME's . Hence, in addition to other factors contributing to revenue collections, risk profiling is a must practice for any revenue authority to achieve its goals.

5.3 Policy Recommendations

This study makes the following recommendations for improving the current risk based case selection practice;-To enable KRA benefit from the practice of risk profiling, it should certainly benchmark its risk based case selection methodology against those of other developed revenue authorities like Canada to ensure that it uses a world-class process, which will promote compliance with tax, ensure responsible enforcement and thereby reduce the tax gap. It should also ensure that the risk profiling is adopted in all its departments and operations across all its regional offices.

Since Kenya revenue authority rely on the analytical skills of the risk profiler to indicate areas of risk, especially from a financial interpretation perspective. In depth knowledge of the various tax acts and the ability to interpret financial statements are essential for any risk profiler. Access to third party data enhances the profile and can provide the profiler with valuable information on the taxpayer's actual income as well as his assets and liabilities. A general understanding of the economic environment will further assist the profiler to identify possible focus areas.

Finally, this project recommends risk profiling practice that is holistic in its approach, thus revenue authorities need to institute processes to detect tax fraud and, as it is not possible to audit the tax returns of every taxpayer for correctness or to discover every instance of persons who are not registered to pay tax who should be registered, a risk-based case selection methodology is an essential tool.

5.4 Limitations of the Study

The short period for research made it difficult to collect large data set that is appropriate for this study and thus the sample data used may be questionable whether it gives enough data for a credible judgment to be formed about a possible relationship between the risk level of taxpayers and the amount of tax collected. However information gotten from the purposefully sampled taxpayers was adequate to draw reasonable conclusion.

There was inadequate literature review material on risk profiling in Kenya. This limited the scope of knowledge on the subject in the Kenyan environment. However, improvements may be expected in future due to the emerging need to adopt this practice.

The study used regression analysis method which has known limitation that it cannot determine cause and effect relations, which means that correlation does not imply causation. Further it assumed a linear relationship while it may be possible that the relationship between the two variables studied might be non-linear. Advanced statistical models should be used in future studies.

5.5 Suggestions for Further Research

This research is not conclusive and as such it is recommended that further research be undertaken in this area to build costs effective methods of revenue collection. There is need to examine further the extend of use of risk profiling as a strategy in revenue collection in KRA.This is due to the fact that KRA is a big organization with various programs and operating within vast regions.

The study was a case study of KRA, and as such, the lessons learnt from the study may not apply to other revenue authorities or services in other countries since operating conditions and nature of taxpayers are different from country to country depending on the level of economic development and liberalization. This calls for a similar study in other countries in the region.

On other areas, future researchers need to investigate the other factors that contribute to the revenue performance since the study indicate that risk profiling explained almost a third of the revenue collections.

REFERENCES

Alexander, C. (2005). The Professional Risk Managers Hand Book; A Comprehensive Guide to Current Theory and Best Practices. PRMIA Publications.

Alink, M. (2004). The examination functions of the tax administration. Unpublished report for the 38th Inter-American Centre of Tax Administrations 38th general assembly.

Allingham, M.G. and Sandmo, A. (1972). "Income tax evasion: A theoretical analysis" Journal of Public Economics I, (4): p. 323-328

Bird, R.M., (1992), "Improving Tax Administration in Developing Countries", IMF, Washington DC.

Brigham, E.F. and Ehrhardt, M. C. (2008), Financial Management, Text and Cases, Indian Edition, Saurabh Printers Ltd, India.

Canada Revenue Agency, (2004). Policies for the allocation of financial and Human resources for the examination area. Unpublished report for the Anti-American Centre of Tax Administrations 38th general assembly

Canadian Government Publications. (2003). Annual report of the Canadian Revenue Agency. Canada. [On-line]. Available: www..cra-arc-gc.ca/agency/annual [accessed 10/09/2004]

Caragata, P.J. (1998). The economic and compliance consequences of taxation. A report on the health of the tax system in New Zealand. London. Kluwer Academic

Publishers.

Crichton,M. and Lyimo, T. N. , (2004)Technical Report : Building Risk profiling
     Capacity of MMTZ and SACU Customs administration. Chemonics
     international inc. Botswana.

Emmett, J.; Vaughan, P.; Therese, M. and Vaughan, I., (1995). Essentials of Insurance: A
     Risk profiling Perspective. John Wiley & Sons inc. Pg 5-17

Fiscalis Risk Analysis Project Group {FRAPG}, 2006, Risk profiling Guide for Tax
     Administrators, Version 1.02 (February 2006) European Commission's Taxation
     and Customs Union Directorate General.

Gallagher, M. (2004). Assessing tax systems using a benchmarking Methodology. [On-
     line] Available: http://www fiscalreform.net/research [accessed16/11/2004]

Gill, J.B.S, (2007), A Diagnostic Framework for Revenue Administration, World Bank
     Technical Papers. pg, 472.

Hull, J.C., (2007), Risk profiling and Financial Institutions. Pearson Education, inc.,
     Upper Saddle River, New Jersey.

IT Governance Institute, (2007): Framework Control Objectives. Management
     Guidelines, maturity Models, (COBIT 4.1), USA

Kabiru, J.M.G., (2002). The relationship between credit risk assessment practise and the
     level of non performing loans of Kenyan banks. Unpublished MBA project,

University of Nairobi.

Kaweesa, C. K. (2004). "Taxpayers service: A challenge". Paper presented to the first management meeting, Abuja, Nigeria.

Kenya Revenue Authority (2007) "Third Corporate Plan 2006/07 - 2008/09" Volume I, Nairobi: KRA

Kenya Revenue Authority (2009) "About Kenya Revenue Authority" information bulletin retrieved on 18th August 2010 from http://www.kra.go.ke/kra/aboutkra.html

Kieleko, P., (2006). The effects of tax reforms on tax productivity in Kenya. Unpublished MBA project, University of Nairobi.

Kimeu, T.K, (2008). A Survey of Credit Risk, Management Techniques of Unsecured KRA Risk Profiling Manual, (2009), Risk Based Audit Cases Selection Framework

McCrae, M., (2005). Behavioral Factors in client risk profiling by financial planners. Unpublished MBA thesis, University of Wollongong

McKerchar, M., (2003), "The impact of complexity upon tax compliance", A study of Australian Personal Taxpayers, Research Study no.39, ATRF, Sydney.

Morgan M.G. (1993), 'Risk Analysis and Management' Scientific American, p 24 to 30.

Mugenda M. O., and Mugenda,G. A.,(1999) "Research Methods : Quantitative and Qualitative Approaches" ACT press, African Centre for technology

Studies (ACTS), Nairobi, Kenya.

Muriithi, M. K. and Moyi, E. D. (2003) "Tax reforms and revenue mobilization in Kenya." African Economic research Consortium, (AERC), Nairobi Kenya.

Nel, M.J., (2004), "An Analysis of the Compliance Approach Used by Revenue Authorities with Specific Reference to Case Selection and Risk Profiling", Unpublished Work, Masters in Commerce, University of South Africa.

Njiru, G. M., (2003). Credit Risk profiling by Coffee Cooperatives in Embu District. Unpublished MBA project, University of Nairobi

OECD Report, (2004), "Compliance Risk profiling: Managing and Improving Tax Compliance", OECD, Paris. Found in; - *http://www.oecd.org/dataoecd*

OECD Report, working paper 5, (2007), Risk profiling. OECD, Paris. Found in; - *http://www.oecd.org/dataoecd*

Osoro, N.E. (1993). Revenue Productivity Implications of Tax Reform in Tanzania. Research paper no. 20, African Economic Research Consortium, Nairobi.

Oludele,M. and Kinfack, G. , (2009), Benchmarking Tax Compliance Efficiency Among South African Retail Firms. Technical Report, South Africa.

Pandey, I.M., (1999), Financial Management, Eighth edition, UBS Publishers, New Delhi, India.

Samuels, J. M., Wilkers, F.M. and Brayshaw, R.E., (1938). Management of Company

Finance. Fifth edition, Chapman and Hall, London.

Slemrod, J. (2003). Small business and the tax system. Unpublished report for the conference "The crisis in tax administration". Michigan: University of Michigan.

Wagacha, M. (1999). "Fiscal policies and their macroeconomic implications for Kenya". In P. Kimuyu, M. Wagacha and O. Abagi, eds., Kenya strategic policies for the 21st Century: Macroeconomic and sectoral choices. Nairobi: Institute of Policy Analysis and Research (IPAR).

Weru, S. G. (2008), An Assessment of Information Systems Risk profiling practices; A case of Practical Action (International), Unpublished Work, Masters in Business Administration, University of Nairobi.

AUTHORITY TO CARRY OUT RESEARCH

Dorothy Mbithe Ngui
P.O Box 16700-00100
Nairobi.
Domestic Taxes Department
Large Taxpayers Office

24th August, 2010.

The Senior Deputy Commissioner,
Human Resources
Kenya Revenue Authority
P.O Box 48240-00200
Nairobi.

Dear Madam,

RE: AUTHORITY TO CARRY OUT RESEARCH

I am a student at Nairobi University taking Masters in Business Administration – Finance option. Am currently undertaking my research project entitled **"The relationship between risk profiling and revenue performance in KRA".**

Kindly permit me to carry out the project by collecting data from the revenue data for purposefully sampled taxpayers in regard to this research.

The information sought is purely for academic purposes and will be treated with utmost confidentiality.

Thank you for your co-operation.

Yours Sincerely,

Dorothy Mbithe Ngui

APPENDIX II

Secondary Data Collection Form

	Taxpayer Code	Amount of self declared tax (Kshs.)	Level of risk score after risk profiling %	Additional amount of tax collected after audit/compliance/ investigation (Kshs.)
1	A			
2	B			
3	C			
4	D			
5	E			
6	F			
7	G			
8	H			
9	I			
10	J			
11	K			
12	L			
13	M			
14	N			
15	O			
16	P			
17	Q			
18	R			
19	S			
20	T			
TOTAL				

TAX PAYER CATEGORIES/ SECTORS

	SECTOR
A	Construction
B	Ministries and Government Departments
C	Excise
D	Manufacturing and Processing
E	Wholesalers and Retailers
F	Agriculture
G	Banks
H	Insurance
I	Oil
J	Top 25
K	Allied
L	Parastatals
M	Universities and Tertially colleges
N	Transport and Distribution
O	Hotels and Restaurants
P	Hospitals
Q	Entertainment
R	Non profit making and Non governmental organization
S	Other services
T	Other – Not classified as above

APPENDIX IV

Taxpayers Revenue Data

			additional tax	self declared	% increase in tax
1	A	86	1,811,410,075.00	3,260,538,135.00	56%
2	B	71	58,131,545.00	122,076,244.50	48%
3	C	55	9,280,171.00	29,696,547.20	31%
4	D	74	65,759,875.00	170,975,675.00	38%
5	E	58	18,822,537.00	35,762,820.30	53%
6	F	52	5,091,463.00	23,420,729.80	22%
7	G	67	37,494,303.00	73,113,890.85	51%
8	H	56	13,555,428.00	75,910,396.80	18%
9	I	61	22,452,644.00	83,074,782.80	27%
10	J	84	371,964,611.00	1,078,697,371.90	34%
11	K	79	170,899,739.00	905,768,616.70	19%
12	L	83	302,845,306.00	390,670,444.74	78%
13	M	69	55,174,061.00	82,209,350.89	67%
14	N	61	26,025,400.00	59,858,420.00	43%
15	O	58	18,188,701.00	74,573,674.10	24%
16	P	54	6,668,544.00	61,283,919.36	11%
17	Q	44	3,142,871.00	25,457,255.10	12%
18	R	56	15,644,245.00	61,012,555.50	26%
19	S	60	19,032,211.00	30,451,537.60	63%
20	T	62	22,929,853.00	63,744,991.34	36%
		Total	3,054,513,583.00	6,708,297,359.48	46%

Data Source: KRA revenue reports

Taxpayer	business owners hip	existence of regulatory framewor k	auditors /tax agents	past tax performance record	financial performance	complexity of company operations	others	total
A	11	12	13	18	13	15	4	86
B	2	10	9	19	13	15	3	71
C	3	4	12	19	5	10	2	55
D	11	8	13	16	9	14	3	74
E	14	13	8	10	8	3	2	58
F	5	8	8	19	6	6	0	52
G	8	2	10	18	10	14	5	67
H	5	2	10	18	9	11	1	56
I	11	5	11	10	12	9	3	61
J	12	10	12	19	15	12	4	84
K	11	11	10	16	14	13	4	79
L	10	12	12	19	14	13	3	83
M	10	11	9	17	11	9	2	69
N	8	9	10	13	9	9	3	61
O	9	12	9	14	10	4	0	58
P	8	9	7	10	11	8	1	54
Q	6	6	7	11	9	5	0	44
R	8	12	8	9	8	9	2	56
S	9	10	10	12	9	8	2	60
T	10	11	8	14	14	4	1	62
Maximum score	15	15	15	20	15	15	5	100

Title: Risk factors percentage score

Data Source: KRA Working files