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Determinants of tax audit effectiveness in Tanzania

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Abstract

Purpose – This paper aims to explore factors influencing the effectiveness of tax audit in Tanzania. The study organized factors into four categories: organizational-related, tax auditors-related, taxpayers-related and regulatory-related factors.

Design/methodology/approach – The study used an explanatory approach, whereby data from 225 auditors in 23 tax regions in Tanzania were collected using a mailed questionnaire. The questionnaire had 25 statements representing factors and 5 statements representing the tax audit effectiveness. The collected data were analysed using both descriptive and inferential statistics. In the case of descriptive statistics, the study used frequency, percentage, mean and standard deviation. For the inferential statistics, the study used exploratory factor analysis (EFA) and multiple regression analysis.

Findings – The study findings showed that there were five main critical factors for tax audit effectiveness. The first factor, which is the implementation of tax auditors' recommendations by management, was found under the organizational category. The second factor, which was adequacy of tax audit unit, was found under the tax auditors' category, while the third factor was taxpayers' attitude, found under the taxpayers' category. The fourth and fifth factors, which were availability and application of regulations and standards for tax audit, and leadership and tax policies for tax audit, respectively, were found under the regulatory category.

Research limitations/implications – Despite the contributions of this study, there are some limitations which need to be acknowledged. First, data were collected from tax auditors only. Second, only 25 statements for factors were used. Third, the study has used only primary data. Last, the study has used perceptual measures of tax audit effectiveness. The authors consider that if other approaches were used, they could have reached different conclusions. Therefore, future studies could be conducted in the areas where limitations have been identified.

Practical implications – From a practical perspective, tax authorities may be relying heavily on tax auditors, as well as regulations and policies, for tax audit effectiveness. The study shows that taxpayers, management, as well as tax audit standards, are critical factors too. However, the study also has practical implications for governments, tax authorities, tax auditors as well taxpayers.

Originality/value – This paper extends prior research in the area of tax audit and is the first paper to use four categories of factors to analyse the influence of tax audit effectiveness, taking into consideration both tax authorities and taxpayers. It also used EFA, which helped to generate variables with multiple prior theories (i.e. theoretical triangulation). Hence, new theories were combined with old theories to produce findings which take into consideration the context of the country.

Keywords Tax compliance, Tax audit, Tax auditors, Tax evasion and avoidance, Taxpayers' attitude

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1. Introduction

This paper aimed to explore factors influencing the effectiveness of tax audit in Tanzania, by addressing the main question: What can make tax audit effective in Tanzania? This question is important because Tanzania, like many other developing countries, uses a tax audit programme to ensure that satisfactory revenues are submitted by taxpayers, so as to minimize tax avoidance and tax evasion, as well as ensuring a high degree of compliance (Okello, 2014). Because different types of measurements of tax audit effectiveness have been identified by different studies (Ayalew, 2014; Beron *et al.*, 1988; Drogalas *et al.*, 2015; Hasseldine and Bebbington, 1991; Isa and Pope, 2011; Kastlunger *et al.*, 2009), in this study, we used a broad definition of tax audit effectiveness, which considered both direct and indirect effects, which was consistent with Birskyte (2013), Gemmell and Ratto (2012), as well as James and Alley (2002). These studies advocate broadness in addressing tax audit effectiveness. Birskyte (2013) and Gemmell and Ratto (2012) considered that tax audit has two types of effect: a direct effect and an indirect effect. The direct effect is concerned with additional revenue collected as a result of the tax audit, while the indirect effect refers to a deterrence effect, whereby tax auditing is considered to deter potential tax evaders. These views are consistent with earlier views provided by Wickerson (1994) that taxpayer audit programmes are identified as playing not only a deterrence role, but also a wider compliance-enhancing role. As such, our measurement of tax audit effectiveness included transparent procedures to minimize complaints from taxpayers, improvements relating to voluntary tax compliance, proper documentation of tax audit findings, a decline in tax evasion and well-presented tax audit reports.

We believe that this study is important for the following reasons. The first, and most important, is that tax audit has been quietly ignored, despite the importance of tax for government service provision, particularly in developing countries. In developing countries, the governments play a larger role than the private sector because of the limited contribution of the private sector to service provision. Prior research on tax collection in developing countries has concluded that the effectiveness and efficiency of revenue authorities are still very low and that there is a high degree of non-tax compliance (Lubua, 2014). One explanation of this is that tax audits are ineffective, as argued by many previous studies that tax audits are ineffective because they fail to reduce loss of revenue to governments or to increase tax compliance (Biber, 2010; Kassera and Sserebe, 2007; Jayalakshmy *et al.*, 2012; Zulkifl *et al.*, 2014), hence creating the need to study the reasons behind their ineffectiveness (Rablen, 2014). While prior research suggests the need to study the reasons for tax audit ineffectiveness, we consider that doing the opposite, that is to say, studying factors which can make tax audit effective, will not only help us understand the current situation, but will also help us to identify the critical factors for tax audit effectiveness.

The second reason for this study is that, while a few studies have been conducted on tax audit effectiveness in developing countries (Al Frijat, 2014; Ayalew, 2014; Getie Mihret and Wondim Yismaw, 2007), we are not aware of any empirical study conducted in Tanzania. The extant literature suggests that tax audit effectiveness is a function of a number of factors, including information systems, tax legislation, tax payers' capabilities, attitude and cooperation, tax audit unit positioning, types of businesses paying taxes, audit quality, top management support, as well as tax policies. However, these studies have not considered other factors, such as adequacy of the tax audit unit, tax audit standards or the implementation of tax auditors' recommendations by management, which we consider to be relevant in the Tanzanian context. In the Tanzanian context, the tax authority (called the Tanzania Revenue Authority, in short, the TRA) has been using a tax audit programme based on reform from an administrative assessment to a self-assessment system, which assumes that taxpayers have adequate knowledge and skills to fulfil their tax legal obligations (James and Alley, 2002; Loo *et al.*, 2010). However, according to Okello (2014), tax audit is facing a number of challenges, such as using manually based risk analysis, limited access of information for third parties, dominance of examination of all tax returns, audit selection based on the judgement of senior officials, as well as having a national strategy and plan without a headquarters for the tax audit function.

Finally, our study complements and extends prior research on tax audit effectiveness. In this aspect, prior studies have provided conflicting results. According to Mahangila (2014), while many studies reported a positive relationship between tax audit and tax compliance, there are other studies which observed a weak or negative relationship. One possible explanation could be the use of different variables, both independent and dependent variables. In some cases, independent variables of one study are treated as a dependent variable in other studies, as well as a different measurement of tax audit effectiveness. In this study, we combined independent factors into four categories: organizational factors, tax-auditor related factors, taxpayers and regulatory factors. In that aspect, this study developed and tested four hypotheses relating to these four categories. Likewise, the measurement of tax audit effectiveness combined both direct and indirect effects. In our view, using these categories helped the application of contingency theory, agency theory, deterrence theory and game theory, as well as the theory of economic regulation in tax audit effectiveness in Tanzania. While deterrence and game theories have been widely used in a number of studies, contingency and agency theories and the theory of economic regulation have been ignored. The use of contingency theory helped in digesting organizational-related factors, while the use of agency theory helped us to analyse the effect of the relationship between tax auditors as agents of the government and the government as a principal on one side and taxpayers on the other side. The use of the theory of economic regulations helped us to assess the influence of regulatory factors on tax audit effectiveness, considering the conflicting interests between taxpayers and tax auditors. These three theories complemented other theories which have been widely used (deterrence theory and game theory).

We analysed data collected using structured questionnaire from 225 tax auditors from 23 tax regions in Tanzania. Using tax auditors helped to get the perceptions of the actors who have adequate knowledge of tax audit issues, which is consistent with Fatt and Ling (2009). We used exploratory factor analysis (EFA) to generate both independent and dependent variables, which were subjected to multiple regressions. Our analysis yielded four key findings. First, we found that under organizational-related factors, only implementation of tax auditors' recommendations by management of the tax authority was associated with tax audit effectiveness. Specifically, this factor was positively associated with tax audit effectiveness. This has not been covered by the extant literature, but it can be a subset of management support. This suggests that, in this case, management was more concerned with the implementation of auditors' recommendations. Second, under tax auditor-related factors, only one factor, the adequacy of tax audit unit, was positively related to tax audit effectiveness. This suggests that the more the tax audit unit is strengthened, the greater the tax audit effectiveness. Third, under taxpayer-related factors, we found that taxpayers' attitude was positively related to tax audit effectiveness, which is consistent with most prior studies. Lastly, in the case of regulatory-related factors, we found that availability and application of regulations and tax auditing standards had a strong, positive influence on tax audit effectiveness, while leadership and tax policies were found to have a weak influence on tax audit effectiveness. Similarly, these regulatory factors, which we used in this study, have not been explored by previous studies.

Our findings' contribution can be grouped into two categories: academic and practical. In the case of academic contribution, this study contributes to the body of literature about tax audit effectiveness by extending prior studies through comprehensive measures of both factors and tax audit effectiveness. Also, the study has generated variables which have not been explored by other studies. To achieve this, the study used theories which have been extensively applied in the tax audit area and others which have not been utilized in this area. The practical contribution of this study is that its results are useful to policymakers, tax authorities and tax auditors. For policymakers, the results should be of interest when designing tax audit policies, regulations and standards. For tax authorities, the results should be of interest when implementing auditors' recommendations and ensuring the adequacy of the tax audit unit. For tax auditors, the results offer an objective assessment of issues that will make them more effective, particularly for the application of regulations and standards for tax audit, as well as conducting a tax audit.

2. Prior research and hypotheses development

2.1 Measurements of tax audit effectiveness

Measuring tax audit effectiveness is complicated by the lack of consensus on the indicators/dimension of effectiveness and the methodology for assessing it. In some cases, subjective dimensions have been used, for example, Drogalas *et al.* (2015) used indicators measured on a five-point Likert scale as per tax infringements, tracking form in Greece. The subjective questions captured items such as the difference between turnover submitted and that given on financial statements, differences in expenses, in stock quantity, as well as differences in the inventory valuation methods. Moreover, it included tracking fake invoices, differences in customer and supply records, differences in net profits, differences in value-added tax (VAT) values, differences in transfer amounts, differences in bad debt provision, differences in expenses, which are not deducted from the total turnover and differences in other current taxes. Kastlunger *et al.* (2009) measured tax audit effectiveness in terms of influencing taxpayers' behaviour towards tax compliance. They recognized that there are debates about the effect of tax audit on deterring tax evasion, with some studies suggesting that tax audit can deter evasion, while others show only a weak relationship. From this perspective, Kastlunger *et al.* (2009) considered compliance (no tax evasion) as an indicator of tax audit effectiveness. Kastlunger *et al.* (2009) are supported by views provided by Devos (2014) that in a self-assessment tax system, it is important for tax audits to operate effectively because they are drivers of compliance behaviour of taxpayers. Tax audits are believed to convince taxpayers to be more careful in the preparation of returns and to reduce risks (Devos, 2014). Devos (2014), then, argued that an effective tax audit is one which can improve deterrence measures by increasing the probability of apprehension, rather than imposing sanctions.

Ayalew (2014) argued that one measurement of tax audit effectiveness has sufficient specific deterrent effect to enhance voluntary compliance. For Ayalew (2014), an effective tax audit is one which can not only allow tax auditors to educate taxpayers on the application of tax laws as well as improving record keeping, but also detect tax, recover more tax and penalize noncompliance. Isa and Pope (2011) conducted a study to examine the extent of taxpayers' perceptions of the tax audit experience and argued that if a tax audit is carried out effectively, it can improve the administration of a tax system, hence increasing voluntary compliance.

Isa and Pope (2011) argued that effective tax audit can be measured in terms of enhanced voluntary compliance, by ensuring that tax payers comply with current tax laws and regulations, allowing tax conditions to educate tax payers, as well as identifying areas of improvement for record-keeping, and tax laws needing clarification. However, based on Isa and Pope's (2011) arguments, it can be observed that tax audit effectiveness can be measured by correct perceptions possessed by taxpayers. This can be considered to be psychological and economical because the taxpayers' perceptions are influenced by both psychological and economic factors. The views provided by Isa and Pope (2011) complement the earlier views provided by Hasseldine and Bebbington (1991). According to Hasseldine and Bebbington (1991), many tax administrators review their tax audit procedures in areas such as case selection and improved information systems (in this study, these two can be considered as factors), to examine a taxpayer's propensity to evade tax due to personal characteristics.

Hasseldine and Bebbington (1991) investigated whether, if tax audit is effective, undetected evasion should decline, that is to say, the "ripple effect" may occur and compliance may increase. This effectiveness on tax compliance will be a function of a carefully designed tax audit for specific taxpaying groups. While Hasseldine and Bebbington (1991) looked at psychological measurement of tax audit effectiveness, Beron *et al.* (1988) expressed effective tax audit in terms of accurate reporting of deductions reflecting proper matching principles, as well as checking for errors. Using taxpayers' financial statements as a measure of effective tax audit is also seen in the study conducted by Samuel and De Dieu (2014), which assessed the impact of financial statements audit on tax revenue growth in Rwanda. They found that tax audit helped to increase revenue in the country.

Based on the reviewed literature, it can be argued that although measuring the effectiveness of tax auditing may be considered to be a simple task, there is little consensus about which type of measurements to apply. In this study, we used different types of measurements to express tax audit effectiveness. As such, we combined items such as transparency in the tax audit to minimize complaints from tax payers, promotion of voluntary tax compliance, proper documentation of tax audit findings, a decline in the number of taxpayers evading tax, as well as producing reports which are clear, concise and well presented.

2.2 Factors for tax audit effectiveness

Based on the extant literature about factors influencing tax audit effectiveness, it can be observed that there are mixed results and different variables which express factors for tax audit effectiveness. We, therefore, separated the factors into four categories, namely, organizational, tax auditor, taxpayer and regulatory.

2.2.1 Organizational-related factors influencing tax audit effectiveness. The first category of factors in this study related to organizational settings, i.e. tax authorities themselves. The organizational factors which are linked to organizational theories are important to ensure that performance of the organization is improved. As argued by Hansen and Wernerfelt (1989), organizational factors which are internal to organizations are major determinants of organizational success. Hansen and Wernerfelt (1989) considered that, for the organization to succeed, there is a need to match organizational factors to the organizational environment. In this aspect, the organizational factors are linked to contingency theory, which states that there is no universal way to manage organizations, and that an effective organization must have a proper fit between its environment and its subsystems (Emmanuel *et al.*, 1990; Galbraith, 1973; Lawrence and Lorsch, 1967). The application of contingency theory in this study assumed that, for tax authorities to be successful in conducting a tax audit, there would be some internal and external factors which have to be taken into consideration.

However, one limitation of contingency theory is the availability of many variables, hence reducing consistency (Weill and Olson, 1989). Tax authorities, when designing and developing tax audit functions, need to consider the relationship between internal and external organizational variables. As such, contingency theory regards a tax audit as task-oriented and loosely structured, depending on a number of factors, such as an adequate financial budget for the tax audit unit, top management giving significant importance to the audit function, as well as providing support in terms of training, clear division of labour, sufficient manuals and so on.

While we found no work which had applied contingency theory to tax audit effectiveness *per se*, there are a number of studies which have applied variables that can be found in contingency theory with regard to tax compliance (Collins *et al.*, 1992; Devos, 2014; Riahi-Belkaoui, 2004), as well as in the auditing literature (Gupta *et al.*, 1994; Jokipii, 2010). However, most of the studies on tax have conflicting results and different measurements of tax audit effectiveness. Likewise, these studies have a problem clearly distinguishing between independent and dependent variables. On the other hand, those focusing on auditing while taking into consideration organizational variables have ignored tax issues. In this study we take into consideration organizational variables, as identified by auditing studies. The use of organizational variables is consistent with various tax audit effectiveness studies, even though they have not applied contingency theory (Ayalew, 2014; Bendel, 2006; Biber, 2010; Drogalas *et al.*, 2015; Getie Mihret and Wondim Yismaw, 2007; Jayalakshmy *et al.*, 2012; Rablen, 2014).

According to contingency theory, the influencing factors can originate from culture, technology, environment, size and technology (Emmanuel *et al.*, 1990). Consistent with the contingency perspective, we reviewed studies, such as that by Drogalas *et al.* (2015), to include the contingent variable of technology when it was found that information systems help to improve tax audit effectiveness, while complexity and constant changes in tax legislation, which were found to reduce tax audit effectiveness, can be grouped under environmental variables. In addition, Drogalas *et al.* (2015) found other variables, such as education, experience and training, to have significant relationships with tax audit effectiveness. In our view, these variables are more consistent with the strategy component of contingency theory because they reflect strategic decisions and the direction of the tax audit function in the tax authorities. While Drogalas *et al.* (2015) results on organizational factors are relevant and consistent with other studies, such as Ayalew (2014), they have not used the contingent perspective. Their study combines internal organizational factors (i.e. information systems) and tax legislation at the same level without considering the level of influence. Combining them, in our view, reduces the identification of related regulatory factors, which are covered later in this study. In other words, an effective information system may fail to exert a positive influence if there is no appropriate tax legislation. In this study, we consider legislation to be part of regulatory factors and it was included in regulatory-related factors. Al Frijat (2014) found that accounting information systems used by tax authorities were positively related to tax audit effectiveness, but this depended on the existence of qualified human resources personnel and the application of advanced computer, and control, systems. The consideration of human resources by Al Frijat (2014) is consistent with the importance of management support on effectiveness of information system as well as effectiveness of any organizational function. The management support factor has been ignored by Drogalas *et al.* (2015) despite dealing with contingent factors. As argued by Ayalew (2014), management support is important for tax audit effectiveness because it goes with resources and the commitment by management to implement tax audit recommendations to attain tax audit effectiveness. A study by Mihret (2011) also focused on organizational factors and concentrated on those variables associated with tax audit function. These variables include appropriateness of the type of audit used, audit rate, the aptness of audit case selection methods, the audit examination techniques used, as well as the experience and capability of the tax auditing staff. Likewise, Melat (2016), on factors influencing the effectiveness of tax audit for large companies in Ethiopia, found that organizational factors (i.e. the audit quality of the department, management support) had a significant influence on the effectiveness of tax audit. Melat (2016) found the organizational factors to be associated with settings, structures, roles and responsibilities, to ensure that the tax audit was conducted as expected and produced the required results. This included providing support to the tax audit unit as well as increasing its status. As such, we expect organizational factors to make a positive contribution towards tax audit effectiveness. Hence, based on the theoretical foundation and the empirical evidence, the following hypothesis summarizes our expectations for organizational factors:

H1. Tax audit effectiveness is positively influenced by organizational-related factors.

2.2.2 Tax-auditor-related factors influencing tax audit effectiveness. The second category of factors in this study was related to tax auditors. The tax-auditor-related factors were grounded under agency theory, as recognized by Jackson and Milliron (1986). According to Jackson and Milliron (1986), tax preparers may be viewed as agents of the government, with the goal of maximizing revenue while minimizing effort. At the same time, taxpayers are considered to have the wish to minimize tax costs in terms of tax paid, the cost of time spent in record-keeping, the amount of preparation fees paid and the costs associated with tax audit. It is not easy to directly identify the tax auditors' and taxpayers' relationship in terms of agency theory (Pentland and Carlile, 1996) because agency theory is concerned with the principal–agent relationship, with reference to a management–owner relationship. However, using the traditional auditing perspective, agency theory can be useful to understanding the influence of tax auditor-related factors on tax audit effectiveness.

From the auditing perspective, agency relationship exists when one or more principals engage another person as their agent to perform a service on their behalf (ICAEW, 2005). This is necessitated by information asymmetries and self-interest because the principals will have limited trust in their agents, hence putting in some mechanisms to align their interests and reduce the scope of information asymmetries and opportunistic behaviour (ICAEW, 2005; Watts and Zimmerman, 1983). This brings in auditors as agents of the principals to ensure supply of reliable and relevant information. This situation is comparable to that of tax auditors, who are used as agents of the government to monitor the operation of taxpayers, who may have an incentive not to disclose the full information about their operations, to reduce tax liability.

According to Jackson and Milliron (1986), on the one hand, tax auditors are the primary agents of the government because they have a relationship with the government but, on the other hand, responsibilities also exist between tax auditors and tax payers. While this double relationship may seem to complicate the role of tax auditors in terms of independence and trust, in this study we have argued that this relationship can be strengthened to increase tax compliance by increasing the professionalism of tax auditors. It is our view that if tax auditors use professional scepticism, they can plan their auditing properly to ensure that they detect significant malpractices and deter future non-compliance. Muhammad (2013) stated that tax auditors need to understand taxpayers' businesses and use appropriate audit strategies to ensure that the correct amount of tax is paid by taxpayers. These views are also consistent with traditional auditing practices, as provided by the International Auditing and Assurance Standards Board (IFAC, 2015). International Standard on Assurance

Engagements (ISAE) 3000 states that professional judgement is concerned with the application of relevant training, knowledge and experience to provide assurance in making informed decisions. There are a number of tax auditing studies which have used these variables (i.e. education, experience and training) as factors for tax audit effectiveness (Drogalas *et al.*, 2015), as well as communication and independence (Ayalew, 2014; Devos, 2014). These studies assert that the tax auditor-related factors of education, experience, communication, independence, as well as training are required to improve the auditing process and overall deterrence of tax non-compliance. This will help to increase government confidence and, hence, solidify the principal–agent relationship between the tax auditors and the government, which expects more revenue to be collected. Despite the connections between government as principal and tax auditors as agents, very few studies have utilized agency theory as basis of their findings. Based on the preceding arguments, we theorized that tax auditors can improve the effectiveness of tax audits and, hence, we further theorized that tax auditor-related factors would have a positive influence on tax audit effectiveness, so we proposed the following hypothesis:

H2. Tax audit effectiveness is positively influenced by tax auditor-related factors.

2.2.3 Taxpayer-related factors. The third category of factors was related to taxpayers. Taxpayers are crucial for tax audit effectiveness because they are supposed to comply with tax laws and regulations. Al Frijat (2014) argued that if taxpayers provide accurate and correct information, it will help build and restore bridges of trust between taxpayers and tax authorities. The factors that Al Frijat (2014) identified to help taxpayers contribute positively towards improved effectiveness of the tax audit included expanding and increasing the support for group in charge of collecting information about taxpayers, and consolidating cooperation between tax authorities and other institutions. In our view, this can be achieved if tax auditors are able to understand the taxpayers' perspective, as well as the nature of their business operations, including their accounting systems (Muhammad, 2013).

Understanding the taxpayers' perspective will help tax authorities to understand those factors relating to taxpayers that may influence the effectiveness of the tax audit. We believe that understanding taxpayer-related factors for tax audit effectiveness can be appropriately achieved by using deterrence theory. The basic assumption of deterrence theory is that people choose to obey, or to violate, the law, based on the gains and consequences of their actions. In other words, deterrence theory assumes that people comply with laws after finding that the benefits of complying outweigh those of not complying. While this view has been supported by a number of proponents, there are others who have opposed it on the basis that it is not about the severity of punishment which forces people to comply, but the certainty of punishment when it is reasonably guaranteed (Onwudiwe *et al.*, 2005). While Onwudiwe *et al.* (2005) argued that the certainty of punishment is more effective than its severity, Earnhart and Friesen (2014), as well as Githige *et al.* (2014), found that the effectiveness of both severity and certainty depended on the enforcement mechanisms.

These perspectives of deterrence theory also have an influence on taxation issues, particularly tax compliance (Devos, 2014). According to Devos (2014), the deterrence measures include both aspects of certainty and severity, together with enforcement and the probability of detection, when investigated. Deterrence is understood to have two purposes: a general purpose (general deterrence), which is concerned with the deterrent effect of potential sanctions, and a specific purpose, which deals with the deterrent effect of the actual sanctions imposed (James, 2002). In a simplified form, general deterrence is concerned with discouraging potential offenders, while specific deterrence aims to dissuade actual offenders towards repeating their offences (Devos, 2014). Here, tax audit becomes crucial because it helps to detect and deter tax fraud to improve the economy, efficiency and effective administration of the tax system (Hopkins, 2011).

Tax audit in this situation is considered to be a mechanism to deter tax evasion and avoidance, thus increasing voluntary compliance (Birskyte, 2013). In this case, tax audit is considered to have all the measures of certainty, severity, enforcement and the probability of detection. However, studies using deterrence theory have assessed the influence of tax audit on compliance, and not on the influence of taxpayers' behaviour on tax audit effectiveness. As such, rather than using tax compliance as a measure of tax audit effectiveness, it has been treated as a dependent variable of the tax audit. In other words, tax compliance is one of the indicators of an effective tax auditing process; hence, using tax compliance as a dependent variable may create a problem in assessing the causal and effect relationships.

Considering tax compliance as a dependent variable of tax audit effectiveness, and not as a measurement of tax audit effectiveness, ignores the influence of taxpayers as well as assumes that the tax audit has limited impact on tax payers. This is not always the case, as argued by Fatt and Ling (2009), as tax audits have posed enormous challenges and costs for taxpayers and, hence, full cooperation from them is considered to be crucial for a tax audit to be effective. These views are consistent with the studies conducted by Kastlunger *et al.* (2009) and Dubin and Wilde (1988). Kastlunger *et al.* (2009), whose study assessed the effect of tax audit on compliance, by investigating audit positioning from the taxpayers' perspective, found that compliance was a function of the cost of being audited and fined. Dubin and Wilde (1988), using an economic approach (i.e. economic theory of tax compliance as popularized by Allingham and Sandmo, 1972), found that tax audit effectiveness was influenced by the type of taxpayers' businesses. Dubin and Wilde (1988) found that a low-income business tax audit was found to be more effective than a high-income business tax audit.

To address the challenges and costs of tax audit, the taxpayers may seek assistance of services from tax professionals to prepare tax returns and to represent them for the tax audit (Fatt and Ling, 2009; McKerchar, 2005). These efforts by taxpayers will contribute towards achieving an effective tax audit and promote voluntary tax compliance, which are considered as essential features of the modern taxation systems depended on by most tax authorities (Alm and McKee, 2006; Reinganum and Wilde, 1985; Snow and Warren, 2005). In addition to helping taxpayers in the preparation of returns and understanding the tax laws, the tax professionals also may help the taxpayers to have a positive attitude towards the tax audit, which can help them respond promptly to the audit query (Ayalew, 2014; OECD, 2006; Saad, 2014; Stalans and Lind, 1997). Because of this foundation, we, in this study, theorized that tax payers, as auditees, can influence the tax audit effectiveness because they will assess the probability of being audited and penalized. If taxpayers think that a tax audit is not likely to detect their malpractice, they are more likely to continue with non-compliance. An increase in non-compliance, however, will provide feedback to the tax authorities, who will revise their auditing approach so as to increase effectiveness. Gemmell and Ratto (2012) found that random audit programmes provided taxpayers with information that altered their subsequent reporting (i.e. deterrent spill over effect). As such, we theorized that taxpayer-related factors were very crucial for tax audit effectiveness and, hence, the following hypothesis was tested:

H3. Tax audit effectiveness is positively influenced by taxpayer-related factors.

2.2.4 Regulatory-related factors influencing tax audit effectiveness. The fourth, and final, category of factors in this study was regulatory-related factors based on the laws and regulatory frameworks for tax auditing. In our view, this category could be based on game theory and the theory of economic regulation. According to game theory, tax auditing has two types of players: tax authorities and taxpayers. Satpathi *et al.* (2013) argued that the players in tax auditing are the government and taxpayers, whereby the government has two options: to audit or not to audit. At the same time, the taxpayers have two options as well: to be honest or to cheat. Game theory helps in understanding the strategic interactions between the taxpayers and tax auditors (representing the tax authorities), as argued by Allen and Morris (2002), that game theory allows asymmetric information and strategic interaction to be used in the analysis. While the asymmetric information can be captured by agency theory, as we have seen in relation to tax auditors, in this case it is not about the information flow between the principal and the agent, or possession of it; rather, it is about the nature of interaction between the principal and the agent, given the information asymmetric settings. As put by Kanodia (2014), using a game theoretical perspective in accounting data helps us understand that the data affects, and is also affected by, the strategic interactions of organizations.

In this study, we believed that using a game theoretical perspective would help to understand how a tax audit represents the interactions between tax authorities and taxpayers, with both parties affecting each other and, at the same time, affecting the auditing process. Pentland and Carlile (1996) considered the tax auditing process to be like the generic tools which tax auditors and tax payers use to negotiate facts and to come up with results. While Pentland and Carlile (1996) were interested in the interaction between tax auditors and taxpayers *per se*, in this study the focus was more on the rules of the game which ensure that the negotiation between tax auditors and taxpayers is fair. This is consistent with Pentland and Carlile's (1996) argument, that uniform applications of laws during the auditing process, for tax authorities to catch cheaters, is considered to be essential. Hence, the focus here was the rules and standards for tax auditing to regulate the interactions.

To Pentland and Carlile (1996), the taxpayers seemed to have only one option, which was to be honest because in this interaction they tried as much as possible to make a show of honesty and compliance, and not a show of deception. However, the tax auditors had to appear to be competent, fair and dispassionate, as well as professional (Pentland and Carlile, 1996). In our view, this can be achieved if there are proper regulations and standards to be followed by all parties in the interaction process. This perspective is consistent with the argument provided by the OECD (2006), that tax audit, as one of the most sensitive contacts between taxpayers and tax authorities, needs a legal framework, as it is very important to ensure that tax auditors have power of access to information held by taxpayers, to ensure deterrence of non-compliance, and administration of punishment, whilst also ensuring that tax audits are carried out with integrity. Similarly, legal frameworks are important from the taxpayers' perspective to ensure that their rights are protected. Muhammad (2013) argued that regulatory mechanisms for tax audit help to achieve transparency and consistency, thus reducing the trend of tax auditors becoming interested in fault finding and penalizing taxpayers, as well as increasing public respect and confidence in tax management.

The importance of legal frameworks for tax auditing is consistent with the theory of economic regulation provided by Stigler (1971), who argued that regulations are put in place for the protection and benefit of the public, or in response to the demand of interested groups with conflicting goals. We theorized that tax auditors, as an agent of government, and taxpayers have conflicting goals, as per agency theory. As we have seen before, while the government's aim is to maximize revenue collection, taxpayers' aim is to reduce their tax liability. Quoting Pentland and Carlile (1996, p. 271), [. . .] *taxpayers are motivated to minimize their tax burden and the IRS is responsible for making sure they do so within the limit of the law. The question is, what kind of game is a tax audit and what insights can we gain about auditing (and similar kinds of interactions) from an analysis of game-like properties?* Pentland and Carlile (1996) agreed that tax audit is a game of two parties with conflicting objectives, but also recognized the importance of the law because the taxpayers can only minimize their tax burden within the limits of law. However, the difference between our study and that of Pentland and Carlile (1996) is that Pentland and Carlile (1996) focused on informal settings, by looking at expression games, but our study focused on formal ones because at the formal level it was where we expected most rules, regulations and standards to be because the nature of tax authorities requires the application of formal rules (Pentland and Carlile, 1996).

Other studies interested in the importance of regulatory factors for tax auditing include Melumad and Mookherjee (1989), which was a theoretical study focused on commitment to compliance policy and indicated the importance of policy on tax audit effectiveness. However, Melumad and Mookherjee (1989) differed from Chan and Lan Mo (2000) in their treatment of policy as one aspect of tax audit effectiveness. Chan and Lan Mo (2000) treated policy as one of the factors; hence, their study investigated the effect of tax holidays on foreign investors' tax non-compliant behaviour, expressed in terms of tax audit adjustments. Muhammad (2013), who conducted a study to explore tax auditors' enforcement regulatory styles, found that tax auditors used five enforcement regulatory styles, namely, explaining and educating, bargaining, firm enforcement, threatening and avoiding.

While Muhammad's (2013) study shows the importance of regulatory related factors to the effectiveness of tax audit, it focused on the enforcement strategies which auditors may adopt to achieve effective tax audit. In other words, the study focused on the laws and standards guiding the interactions between tax auditors and taxpayers which may prompt the tax auditors to opt for a certain enforcement regulatory style. Based on these limitations from the literature, we believed that it was important to identify the regulatory related factors and assess their influence on tax audit effectiveness. We thought that the regulatory related factors would take both aspects of legalistic (deterrence) and conciliatory (cooperation) styles, as found by Muhammad (2013). As such, our regulatory related factors were based on the obligations and responsibilities of taxpayers, tax auditors and tax authorities. Taxpayers are required to provide access to documents and explanations to tax auditors. Tax auditors are provided with the legal power to access documents and to determine the correct amount of tax; as such they have an obligation to conduct an audit in a professional manner, based on international standards. Tax authorities have an obligation to ensure that the audit is conducted in a transparent and consist manner, by providing appropriate policies and procedures. We theorized that having appropriate laws, standards and regulations to govern the interaction between tax auditors and taxpayers, the effectiveness of tax audit will be improved. As such, we tested the following hypothesis:

H4. The effectiveness of tax audit is influenced positively by regulatory related factors.

3. Study methods

The research design for this study was an explanatory one, in the sense that it was intended to explain the cause-and-effect relationship between different factors and tax audit effectiveness. This research design is consistent with a number of studies conducted on tax audit effectiveness, such as Drogalas *et al.* (2015), Kastlunger *et al.* (2009), as well as Chan and Lan Mo (2000). To achieve the objective of the study, a survey method was adopted, which was carried out in 21 tax regions, one large taxpayer department and a customs department. From these tax regions and two departments (large taxpayer and customs), 225 respondents were obtained. These respondents were obtained from the list of staff of tax audit units of the TRA. From each tax audit unit, we selected randomly ten respondents, hence, giving us a total of 230 respondents because there are 23 regions. Self-administered questionnaires were emailed to the randomly selected respondents. These respondents were required to fill in a self-administered questionnaire. The questionnaire had 25 items for the different factors and 5 items for tax audit effectiveness. The items were drawn from various studies and statements were created. These statements required respondents to rank them on a five-point Likert Scale. The Likert scale was both positively and negatively worded, ranging from 1, "strongly disagree", to 5, "strongly agree". The use of both positively and negatively worded questions, aimed at reducing errors (Colosi, 2005), forced the attention of the respondents, as well as reducing acquiescence bias (Sauro and Lewis, 2011; Little *et al.*, 2002). Acquiescence bias usually occurs when respondents tend to agree with all, or almost all, items in the questionnaire, while response bias is associated with a tendency to select extreme scales and to avoid the middle of the scale (Sauro and Lewis, 2011). The use of the Likert scale was considered to be appropriate because the study was analysing the perceptions of tax auditors and it has been widely used for both tax compliance and tax audit effectiveness (Oladipupo and Obazee, 2016; Drogalas *et al.*, 2015; Engida and Baisa, 2014; Niemirowski *et al.*, 2003).

For data analysis, the study used both descriptive and inferential statistics. Descriptive statistics, which were measures of central tendency and dispersion in this study, were used to describe the demographic details of the respondents, as well as the perceptions of respondents about individual items for both factors and tax audit effectiveness. For demographic details, descriptive statistics covered frequencies and percentages, while for the perceptions of respondents, apart from frequencies and percentages, the descriptive statistics also included means and standard deviations (SDs).

EFA was performed on 25 items for the factors and the five items relating to tax audit effectiveness. EFA was done to generate a new set of variables, which were fewer than original variables for further analysis, which included hypothesis testing (Conway and Huffcutt, 2003; Hair *et al.*, 2010; Stewart, 1981). According to Conway and Huffcutt (2003), EFA can be used for a large set of variables to reduce them into a small and manageable number, while, at the same time, maintaining the original variables as much as possible. Hair *et al.* (2010) argued that the objective of EFA is to condense the information contained in a number of original variables into a small set of varieties with minimal loss of information. In additional, EFA was performed to assess the unidimensionality of the variables. As per Hair *et al.* (2010), the underlying assumption for creating a summated scale was that the items were unidimensional, which means that they had a strong association with each other and represented a single concept. The EFA was conducted using the stages suggested by both Stewart (1981) and Hair *et al.* (2010), which include assessing the factorability of the correlation matrix, examination of communalities, computation for measure of sampling adequacy (MSA) for overall and individual indicators, using Bartlett's test of Sphericity and Kaiser–Meyer–Olkin (KMO). For KMO and MSA, the threshold below 0.5 is considered to be unacceptable.

To perform EFA, principal component analysis (PCA) and Varimax with Kaizer-nomalization rotation were used. PCA was used because as a tool for EFA and making a predictive model can reveal the internal structure of the data in a way that best explains the variance in the data. According to Smith (2002), PCA is a powerful tool for data analysis because it helps in generating patterns in the data and compresses that data without much loss of information. Likewise, Conway and Huffcutt (2003) argue that the purpose of PCA is to reduce the number of variables by creating linear combinations that retain as much of the original measures' variance as possible. While there are a number of studies on appropriateness of PCA compared to common factor analysis, such as Principal Axis Factoring, we agreed with the arguments provided by Velicer and Jackson (1990), Conway and Huffcutt (2003), as well as Goldberg and Digman (1994) that, despite the difference in assumptions, all approaches will arrive at the same results. For the rotation, Varimax was considered to be appropriate because it attempts to maximize the variance of squared loadings of a factor. This means that it will produce some high loadings and some low loadings for each factor and is generally considered as the best orthogonal rotation (Fabrigar *et al.*, 1999; Goldberg and Digman, 1994). To complete the process, items with an Eigenvalue equal to or greater than 1, factors loading above 0.40 and factors which contained at least two items were retained, while those with no loading were removed.

After EFA, the variables were generated for both factors and tax audit effectiveness. These variables were generated based on the criteria already discussed in the preceding paragraph. The variables generated were subjected to standard multiple regression analysis to test the main hypothesis of the study. Multiple regression analysis has the objective of predicting changes in the dependent variable in response to changes in the independent variables. Before multiple regressions analysis was performed, reliability and validity tests were tested. For reliability and validity, Cronbach's alpha and correlational analysis were performed. To assess multicollinearity, two measures, tolerance, which is a direct measure, and Variance Inflation Factor (VIF) (Hair *et al.*, 2010; Ho, 2006), were also performed.

4. Empirical results

4.1 Descriptive statistics

Descriptive results covering demographic details and respondents' perception on factors and tax audit effectiveness are presented in Tables I-III. According to the results shown in Table I, about 73.8 per cent of our sample consisted of males, while females formed only 26.2 per cent of the sample. Participants' ages ranged between 21 years (about 21.3 per cent) and 51 years (27.6 per cent). In terms of experience, it could be observed that the majority of respondents in our sample had more than 6 years' experience (approximately 57 per cent). This is consistent with the number of years respondents had been working with the tax authority (i.e. TRA), whereby those between 3 and 8 years formed 41.8 per cent, while those with more than 9 years formed 55 per cent. Another demographic characteristic obtained was that the majority of respondents had adequate qualifications, both professional (56.6 per cent) and academic (bachelor degree – 48 per cent and Masters – 47.6 per cent). Likewise, the results indicated that the majority of respondents had specialized in accounting as a field of study (about 72.9 per cent) and were working as tax auditors (about 85.8 per cent). In addition, the findings showed that those who had attended more than one training on tax audit issues were the majority, forming about 65 per cent. These demographic characteristics indicated that the sampled respondents had adequate experience and knowledge about tax audit-related issues.

Table II shows the descriptive statistics for independent variables concerning the perceptions of the respondents of factors influencing tax audit effectiveness. There were 25 statements indicating various factors for tax audit effectiveness in Tanzania. The results are a summary of a five-point Likert scale (i.e. summarized into three levels: disagree, neutral and agree). Likewise, the results contain mean and SD. As per Table II,

Type	Profile	Frequency (n = 225)	(%)
Gender	Male	166	73.8
	female	59	26.2
Year with TRA	0-2	7	3.1
	3-8	94	41.8
	9+	124	55.1
Age	Less than 20	0	0
	21-30	48	21.3
	31-40	65	28.9
	41-50	50	22.2
	51-60	62	27.6
	60+	0	0
Education level	Diploma	10	4.4
	Bachelor degree	108	48
	Master degree or above	107	47.6
Professional qualifications	Certified Public Accountant (CPA)/Association of Chartered Certified Accountants (ACCA)	125	55.6
	Chartered Institute of Management Accountants (CIMA)/ Certified Information Systems Auditor (CISA)	0	0
	Any other	25	11.1
	Don't have	75	33.3
Experience	Less than 2 years	27	12.0
	2-5	69	30.7
	6+	129	57.3
Field of study	Accounting	164	72.9
	Economics	19	8.4
	Tax management	33	14.7
	Other	9	4.0
Position	Manager	22	9.8
	Auditor	193	85.8
	Other	10	4.4
Did you attend any special training?	Preparation of audit findings	16	7.1
	Audit selection techniques	18	8.0
	Computer-assisted tax audit techniques	30	13.3
	Other	15	6.7
	More than one of the above	146	64.9

Source: Field Data

Table I.
Demographic profile of the respondents

items which received a majority "agree" included the existence of legal obligation to keep taxpayer records (with 95.6 per cent, $\bar{x}$ = 4.48 and SD = 0.598) and that there was a strong audit management team led by an autonomous manager (with 94.7 per cent, $\bar{x}$ = 4.45 and SD = 0.687). Items which received a low "agree" included: there is a sufficient number of employees in the tax audit section to undertake all tasks as per the audit plan (with 48.4 per cent, $\bar{x}$ = 3.52 and SD = 0.892), and taxpayer's moral is high about paying more tax than had been previously assessed (with 54.2 per cent, $\bar{x}$ = 3.29 and SD = 1.065).

Table III shows the results about perceptions of the items for tax audit effectiveness which indicate that all items had a large percentage of "agree", ranging from between 85.8 per cent ($\bar{x}$ = 4.1, SD = 0.731) for the number of culprits of tax evasion has been declining with increased tax audits, to 98.2 per cent ($\bar{x}$ = 4.54, SD = 0.55) for transparent tax audit procedures minimizes number of complaints from taxpayers. Generally, the agreement and

S/N	Item	Disagree F	Disagree (%)	Neutral F	Neutral (%)	Agree F	Agree (%)	Mean	SD
I1	Tax audit section has full autonomy to carry out its duties	9	4.0	24	10.7	192	85.3	4.26	0.805
I2	There is a clear division of labour in the audit section	13	5.8	24	10.7	188	83.6	4.29	0.878
I3	There are sufficient audit manuals to carry out audit professionally	9	4.0	12	5.3	204	90.7	4.31	0.768
I4	There is a strong audit management team led by an autonomous audit manager	5	2.2	7	3.1	213	94.7	4.45	0.687
I5	The leadership structure of the tax audit from headquarters to the regional level is very clear to allow easy flow of instructions	1	0.4	15	6.7	209	92.9	4.36	0.627
I6	New policies to carry out tax audit are transparently disseminated to the tax auditors	2	0.9	16	7.1	207	92.0	4.30	0.639
I7	There are quality management systematic procedures to carry out tax audit with ease, which all staff adhere to	5	2.2	12	5.3	208	92.4	4.40	0.694
I8	The organizational structure provides opportunity for staff to be flexible to adapt new changes for creativity	3	1.3	22	9.8	200	88.9	4.24	0.678
I9	There are a sufficient number of employees in the tax audit section to undertake all the tasks as per audit plan	24	10.7	92	40.9	109	48.4	3.52	0.892
I10	Taxpayer provides cooperation with the tax auditors	3	1.3	27	12.0	195	86.7	3.95	0.520
I11	Taxpayer reports are prepared in accordance with respective tax laws	7	3.1	30	13.3	188	83.6	4.10	0.758
I12	Taxpayers have good attitude towards tax audit	24	10.7	57	25.3	144	64.0	3.55	0.755
I13	Taxpayers respond promptly to tax audit query	17	7.6	57	25.3	151	67.1	3.67	0.738
I14	Taxpayer moral is high about paying more tax than previously assessed	49	21.8	54	24.0	122	54.2	3.29	1.065
I15	Those who are audited demonstrate a high level of satisfaction with tax audit work	10	4.4	48	21.3	167	74.2	3.80	0.675
I16	There is adequate financial budget allocated for tax audit	26	11.6	63	28.0	136	60.4	3.56	0.854
I17	Management is very serious about developing the tax audit staff regarding the audit profession	14	6.2	30	13.3	181	80.4	4.00	0.832
I18	Audit reports are valued by top management	5	2.2	17	7.6	203	90.2	4.47	0.750
I19	The management encourages by providing adequate support for professional education and training for staff in the tax audit	7	3.1	21	9.3	197	87.6	4.00	0.637
I20	Management provides necessary equipment to carry out tax audit, such as computer and vehicles	15	6.7	22	9.8	188	83.6	4.11	0.912
I21	Existence of legal obligation to keep taxpayer records is crucial	1	0.4	9	4.0	215	95.6	4.48	0.598
I22	The current laws to execute tax audit are very clear to the taxpayers	8	3.6	19	8.4	198	88.0	4.17	0.727

(*continued*)

Table II.
Descriptive statistics for individual items of factors

S/N	Item	Disagree F	(%)	Neutral F	(%)	Agree F	(%)	Mean	SD
I23	Tax audit has been conducted by adhering to the international standards (International Standards on Auditing (ISAs), International Accounting Standards (IASs), International Financial Reporting Standards (IFRSs)	1	0.4	13	5.8	211	93.8	4.38	0.616
I24	Tax auditors have appropriate legal power of access to get any document from taxpayer without restriction	11	4.9	14	6.2	200	88.9	4.29	0.792
I25	The recommendations provided by tax audit to amend laws that will ensure more improved tax audit work is taken into consideration by management	8	3.6	30	13.3	187	83.1	3.92	0.694

Source: Field Data

Table II.

S/N	Item	Disagree		Neutral		Agree		Mean	SD
I1	There are transparent tax audit procedures which minimizes number of complaints from the taxpayers	1	0.4	3	1.3	221	98.2	4.54	0.550
I2	Tax audit system is sufficiently promoting voluntary compliant taxpayers	3	1.3	17	7.6	205	91.1	4.47	0.714
I3	There is proper documentation of tax audit findings	1	0.4	13	5.8	211	93.8	4.44	0.646
I4	Number of culprits of tax evasion has been declining with increased tax audits	9	4.0	23	10.2	193	85.8	4.10	0.731
I5	Tax audit reports are clear, concise and well presented	3	1.3	6	2.7	216	96.0	4.52	0.620

Source: Field Data

Table III.
Descriptive statistics for tax audit effectiveness

means in the two sets of items are very high, which indicates that the majority of these statements were relevant.

4.2 Factor analysis

For EFA to assess the appropriateness, Bartlett's test of sphericity and the KMO MSA were performed. The results of the entire matrix using KMO were 0.825, and MSA for individual variables generated through anti-Image correlation ranged from 0.655 (for taxpayers provide cooperation with tax auditors) to 0.908 (for management provides necessary equipment to carry out tax audit, such as computers and motor vehicles). These values exceeded the threshold of 0.5 for the appropriateness of the factor analysis. As such, EFA was conducted and the results are presented in Table IV.

According to Table IV, EFA extracted seven (F1 to F7) factors, which accounted for 68.8 per cent of variance. The results presented in Table IV indicate that all factor loadings exceeded the threshold of 0.40, as suggested by Hair *et al.* (2010) for the sample size larger than 200 (our sample size was 225). In this situation, the results indicate a high correlation between the extracted factors and their individual items. For the

Items (n = 25)	Factors F1	F2	F3	F4	F5	F6	F7	Communalities
There is adequate financial budget allocated for tax audit	0.789							0.778
Audit reports are valued by top management	0.726							0.730
The management encourages by providing adequate support for professional education and training for staff in the tax audit	0.602							0.637
The current laws to execute tax audit are very clear to the taxpayers	0.493							0.532
Management is very serious about developing the tax audit staff regarding the audit profession								0.639
There is a clear division of labour in the audit section		0.818						0.718
There are sufficient audit manuals to carry out audit professionally		0.659						0.719
There is a strong audit management team led by an autonomous audit manager		0.628						0.703
Tax audit section has full autonomy to carry out its duties		0.553						0.679
Taxpayers have good attitudes towards tax audit			0.791					0.804
Taxpayer reports are prepared in accordance with respective tax laws			0.683					0.690
Taxpayers respond promptly to tax audit query			0.672					0.693
Taxpayer provides cooperation with the tax auditors			0.532					0.727
Existence of legal obligation to keep taxpayer records is crucial				0.776				0.759
Tax auditors have appropriate legal power of access to get any document from taxpayer without restriction				0.658				0.594
Tax audit has been conducted by adhering to the international standards (ISAs, IASs/IFRSs)				0.576				0.659
The organizational structure provides opportunity for staff to be flexible to adapt new changes for creativity								0.515
The leadership structure of the tax audit from headquarters to the regional level is very clear to allow easy flow of instructions					0.814			0.796
New policies to carry out tax audit are transparently disseminated to the tax auditors					0.762			0.789
There are quality management systematic procedures to carry out tax audit with ease, to which all staff adhere					0.559			0.636

(*continued*)

Table IV. EFA and reliability analysis results

Items (n = 25)	F1	F2	F3	F4	F5	F6	F7	Communalities
The recommendations provided by tax audit to amend laws that will ensure more improved tax audit work is taken into consideration by management						0.734		0.663
There are a sufficient number of employees in the tax audit section to undertake all the tasks as per audit plan						0.720		0.698
Taxpayer moral is high about paying more tax than previously assessed							0.859	0.769
Those who are audited demonstrate a high level of satisfaction with tax audit work							0.588	0.616
Management provides necessary equipment to carry out tax audit, such as computer and vehicles							0.547	0.662
Eigenvalue	7.993	2.091	1.892	1.733	1.337	1.119	1.040	17.205
% of variance	31.974	8.365	7.568	6.933	5.349	4.478	4.161	68.828
Cronbach's alpha	0.739	0.830	0.716	0.698	0.705	0.646	0.665	0.903
Number of items	4	4	4	3	3	2	3	

Table IV.

Source: Field data

communalities, the magnitude for the 25 items ranged between 0.515 and 0.804 which is greater than 0.5 threshold suggested by Hair *et al.* (2010). These results indicate that EFA extracted large amounts of the variance in the variables (Hair *et al.*, 2010). Furthermore, Cronbach's alpha coefficients were obtained for each of the extracted factors. The results of the Cronbach's alpha coefficients, presented in Table IV, show that the values ranged from 0.646 to 0.830, and that for the overall items, the coefficient was 0.903. These values are above the minimum acceptable level of 0.6. Hence, the results were considered to be reliable and with greater internal consistency of the extracted factors.

With the acceptable factor solution, the generated factors were labelled, as presented in Table V. The labelling followed the suggestions by Hair *et al.* (2010), that labels reflect the factor loadings. Based on the labelling, the extracted factors were named top management support (F1), tax audit unit adequacy (F2), taxpayer attitudes to tax audit (F3) and availability and application of regulations and standards for tax audit (F4). Other factors included leadership and tax policies for tax audit (F5), implementation of tax auditors' recommendations by management (F6) and taxpayer satisfaction with tax audit exercise (F7). The items for tax audit effectiveness, when subjected to EFA, produced only one factor; hence, they were added together to generate the variable for tax audit effectiveness as a dependent variable.

In addition to EFA, correlation analysis was performed (Table VI), which showed that all independent variables had significant relationships with the dependent variable (tax audit effectiveness), at the 1 per cent significance level. At the same time, the results indicated that correlation between independent variables ranged from 0.245 to 0.549. While these correlations are significant at the 1 per cent significance level, they did not exceed the limit of 0.90 provided by Hair *et al.* (2010). Hence, these correlations allowed for regression analysis.

Factor	Items loading for the factor	Loading	Label given
F1	There is adequate financial budget allocated for tax audit	0.789	Top management support
	Audit reports are valued by top management	0.726	
	The management encourages by providing adequate support for professional education and training for staff in the tax audit	0.602	
	The current laws to execute tax audit are very clear to the taxpayers	0.493	
	Management is very serious about developing the tax audit staff regarding the audit profession		*No loading, hence removed*
F2	There is a clear division of labour in the audit section	0.818	Tax audit unit adequacy
	There are sufficient audit manuals to carry out audit professionally	0.659	
	There is strong audit management team led by an autonomous audit manager	0.628	
	Tax audit section has full autonomy to carry out its duties	0.553	
F3	Taxpayers have good attitudes towards tax audit	0.791	Taxpayers attitudes on tax audit
	Taxpayer reports are prepared in accordance with respective tax laws	0.683	
	Taxpayer responds promptly to tax audit query	0.672	
	Taxpayer provides cooperation with the tax auditors	0.532	
F4	Existence of legal obligation to keep taxpayer records is crucial	0.776	Availability and application of regulations and standards for tax audit
	Tax auditors have appropriate legal power of access to get any document from taxpayers without restriction	0.658	
	Tax audit has been conducted by adhering to the international standards (ISAs, IASs/IFRSs)	0.576	
	The organizational structure provides opportunity for staff to be flexible to adapt new changes for creativity		*No loading, hence removed*
F5	The leadership structure of the tax audit from headquarters to the regional level is very clear to allow easy flow of instructions	0.814	Leadership and tax policies for tax audit
	New policies to carry out tax audit are transparently disseminated to the tax auditors	0.762	
	There are quality management systematic procedures to carry out tax audit with ease, to which all staff adhere	0.559	
F6	The recommendations provided by tax audit to amend laws that will ensure more improved tax audit work is taken into consideration by management	0.734	Implementation of tax auditors' recommendations by management
	There is a sufficient number of employees in the tax audit section to undertake all the tasks as per audit plan	0.720	
F7	Taxpayer moral is high about paying more tax than previously assessed	0.859	Taxpayers satisfaction with tax audit exercise
	Those who are audited demonstrate a high level of satisfaction with tax audit work	0.588	
	Management provides necessary equipment to carry out tax audit, such as computer and vehicles	0.547	

Source: Field data

Table V. Labels of identified factors

4.3 Regression analysis

Table VII presents the results of the Multiple Regression Analysis which showed that the regression model (overall) was significant at the 1 per cent significance level (p-value = 0.000). Likewise, the measures of multicollinearity showed that multicollinearity was

Table VI.
Correlation analysis

Variable	Tax audit effectiveness	Top management support	Tax audit unit adequacy	Taxpayer attitudes about tax audit	Availability and application of regulations and standards for tax audit	Leadership and tax policies for tax audit	Implementation of tax auditors' recommendations by management	Taxpayers satisfaction with tax audit exercise
Tax audit effectiveness								
Top management support	0.488***							
Tax audit unit adequacy	0.688***	0.549***						
Taxpayer attitudes to tax audit	0.471***	0.436***	0.343***					
Availability and application of regulations and standards for tax audit	0.693***	0.394***	0.541***	0.311***				
Leadership and tax policies for tax audit	0.480***	0.376***	0.356***	0.417***	0.423***			
Implementation of tax auditors' recommendations by management	0.422***	0.431***	0.339***	0.359***	0.306***	0.387***		
Taxpayers satisfaction with tax audit exercise	0.411***	0.374***	0.513***	0.362***	0.360***	0.245***	0.311***	

Note: ***Correlation is significant at the 0.01 level (2-tailed)
Source: Field data

Table VII. Regression results

Summary										
Multiple R										0.819
Coefficient of determination (R^2)										0.671
Adjusted R^2										0.661
Standard error of estimate										1.411
Dubson–Watson										2.192

Analysis of variance					
Sum of squares	df	Mean square	F	Sig.	
Regression	882.303	7	126.043	63.276	0.000
Residual	432.257	217	1.992		
Total	1314.56	224			

Variables entered into regression model

	Regression coefficients			*Statistical significance*		*Correlations*			*Collinearity*	
Variable entered	B	Std. error	Beta	t	Sig.	Zero order	Partial	Part	Tolerance	VIF
Constant	2.644	1018.000		2.597	0.010					
Top management support	−0.006	0.055	−0.006	−0.117	0.907	0.488	−0.008	−0.005	0.584	1.711
Tax audit unit adequacy	0.360	0.052	0.379	6.943	0.000***	0.688	0.426	0.270	0.508	1.967
Taxpayer attitudes to tax audit	0.193	0.055	0.164	3.513	0.001**	0.471	0.232	0.137	0.692	1.444
Availability and application of regulations and standards for tax audit	0.587	0.075	0.384	7.870	0.000***	0.693	0.471	0.306	0.636	1.572
Leadership and tax policies for tax audit	0.136	0.073	0.087	1.844	0.067*	0.480	0.124	0.072	0.686	1.459
Implementation of tax auditors' recommendations by management	0.170	0.081	0.096	2.098	0.037**	0.422	0.141	0.082	0.726	1.377
Taxpayers' satisfaction with tax audit exercise	−0.036	0.055	−0.030	−0.645	0.520	0.411	−0.044	−0.025	0.683	1.464

Notes: ***$p < 0.01$; **$p < 0.05$; *$p < 0.1$

unlikely to affect the inferences because all VIF values were less than 2 (ranging from 1.377 to 1.967). In addition, the tolerance values ranged from 0.508 to 0.726. As per Ho (2006), tolerance values greater than 0.10 and VIF values less than 10 are acceptable in the manner they indicate an unlikely occurrence of multicollinearity. From the model summary in Table VII, the results showed that the independent variables (seven independent variables) explained about 66.1 per cent of the changes in tax audit effectiveness (Adjusted R^2 = 0.661, F-statistic = 63.276, p-value = 0.000, i.e. $p < 0.001$). The results, therefore, suggest that the variables in this model represent a significantly more powerful set of predictors of the effectiveness of tax audit.

Looking at the variables entered into the regression, we see that all the variables were entered into the regression model. To identify the independent relationships, we used standardized regression coefficients (Beta Weights), as suggested by Ho (2006). Ho (2006) suggests the use of standardized regression coefficients because it enables making the regression coefficients more comparable, while unstandardized coefficients (B-values) are appropriate when the units of measurement are not different. In examining the Beta weights (standardized regression coefficients) for all seven independent variables, it could be observed that two factors top management support [Beta = −0.006, t = −0.117, $p > 0.05$ (0.907)] and taxpayers' satisfaction with tax audit exercise [Beta = 0.30, t = 0.645, $p > 0.05$ (0.50)] had a negative relationship with tax audit effectiveness, even though they were not statistically significant.

The remaining five independent variables were found to be significant and positive at different levels. Two independent variables, tax audit unit adequacy [Beta = 0.379, t = 6.943, $p < 0.001$ (0.000)] and availability and application of regulations and standards for tax audit [Beta = 0.384, t = 7.870, $p < 0.001$ (0.000)], were found to have a positive significant relationship with tax audit effectiveness at the 1 per cent significance level. Also, two factors, taxpayers' attitudes on tax audit [Beta= 0.164, t = 3.513, $p < 0.005$ (0.001)] and implementation of tax auditors' recommendations by management [Beta = 0.096, t = 2.098, $p < 0.05$ (0.037)], were found to have a significant positive relationship with tax audit effectiveness at the 5 per cent significance level. Only one factor, leadership and tax policies for tax audit [Beta = 0.087, t = 1.844, $p < 0.1$ (0.067)] was found to be positively related to tax audit effectiveness at the 10 per cent significance level, indicating a weak significant relationship. However, despite the positive influence of the five factors, it can be observed that some had more influence than others. Looking on the results, it could be observed that availability and application of regulations and standards for tax audit (with Beta = 0.384) and tax audit unit adequacy (with Beta = 0.379) had more influence than the remaining other factors. On the other hand, leadership and tax policies for tax audit were found to have the least effect, compared to other factors.

5. Discussion and conclusion

5.1 Discussion

The aim of this study was to assess the factors influencing tax audit effectiveness in Tanzania. The study used five theories, contingency, agency, deterrence, game and the theory of economic regulation (i.e. theoretical triangulation), to develop four categories of factors influencing tax audit effectiveness. The four categories were organizationally related factors supported by contingency theory, tax auditor-related factors supported by agency theory, taxpayer-related factors supported by deterrence theory and regulatory-related factors supported by game theory. Through these categories, four hypotheses were formulated and tested using multiple regression analysis after EFA. Regarding the factors, the initial phase comprised 25 statements generated from the four categories. After EFA, seven factors were obtained and grouped according to the four categories. The organizationally related factors comprised two factors: top management support and implementation of tax auditors' recommendations. The tax auditor-related factors comprised only one factor, which was the adequacy of tax audit unit. For the taxpayer-related factors, two factors were also identified by EFA, which comprised taxpayers' attitude to the tax audit and taxpayers' satisfaction with the tax audit exercise. The last category, regulatory-related factors, also had two factors: availability and application of regulations and standards for the tax audit, and leadership and tax policies for the tax audit.

The results from the multiple regression analysis indicate that, in the case of organizationally related factors, only one factor, implementation of tax auditors' recommendations by management, was found to have a significantly positive influence on tax audit effectiveness. On the other hand, top management support was found to be insignificant. These findings may seem not to be consistent with studies such as Ayalew (2014), but a closer look at the implementation factor shows that it may include top management support, since the implementation of recommendations is a sign of top management support. However, this point out that top management support is confined to the implementation of recommendations of tax auditors. One possible reason for the narrowness of top management support could be limited mainstreaming of tax audit by the tax authorities, as found by Okello (2014). From a contingency perspective, it is argued that the theory is supported only by internal factors and not by external factors. However, the advantage of the theoretical triangulation is that we can see that external factors can be explained clearly by other theoretical perspectives covered in other categories.

In the tax auditors' category, the findings show that the adequacy of tax audit unit has a positive significant influence on tax audit effectiveness. These findings support the earlier studies, such as Ayalew (2014), Drogalas *et al.* (2015), Devos (2014) and Kilgore and Martinov-Bennie (2014). These studies considered the tax auditor factors to include training, education, experience, communication and independence, as well as improving the relationship between taxpayers and tax auditors. The current study indicates that a tax audit with educated, experienced and trained auditors is able to enhance tax audit effectiveness. Likewise, when a tax audit unit is adequate, it will have clear division of labour, sufficient manuals to carry out the audit professionally, a strong audit management team and full autonomy to carry out its duties. The findings here are consistent with agency theory, which considers the principal–agent relationship between tax auditors and government. As we argued in the contingency theory, the government here is considered to be an environmental factor influencing the tax authority's work, including ensuring that the tax audit units are adequate. This will help the tax auditors to have a good business understanding, hence reducing information asymmetry between the government and taxpayers.

For the taxpayers' category, only one factor, the taxpayers' attitudes to tax audit, was found to be positively related to tax audit effectiveness. On the other hand, taxpayers' satisfaction with the tax audit exercise was not found to be significant. One possible reason for this could be that taxpayers' satisfaction is embedded in the attitudes. However, looking at the items about taxpayers' attitudes, it was more about taxpayers themselves and how they behave towards tax audit. On the other hand, taxpayers' satisfaction almost combines all other sources of factors and also the taxpayers' perception and experience of the tax audit. In this study, we can see that taxpayers had a positive attitude, but negative satisfaction (even though it was not significant). One plausible reason could be that the relationship between taxpayers and tax auditors has not been improved through communication (Devos, 2014), as the taxpayers did not understand or appreciate what the tax auditors were doing. The findings about taxpayers' attitudes are consistent with previous studies (Gemmell and Ratto, 2012; Marti *et al.*, 2010; Mponguliana, 2005; Mugoya and Chimilila, 2013) which have claimed that taxpayers' attitude can influence tax audit effectiveness. A positive attitude towards tax audit can be also explained using deterrence theory, in the sense that taxpayers consider tax audit to be more beneficial, which means that it can deter malpractices as well as promote compliance. These findings may also indicate that tax audit can help to achieve both general and specific deterrence effects.

The last category is regulatory-related factors, where only one factor, the availability and application of regulations and standards for tax audit, was found to have a strong significant positive relationship with tax audit effectiveness. On the other hand, leadership and tax policies for tax audit were found to have a weak positive relationship with the tax audit effectiveness. The findings for the first factor are consistent with a number of studies which have considered the importance of a regulatory framework because it clarifies the power and obligations of tax auditors, as well as the responsibilities of taxpayers. Also, it ensures that tax audits are conducted in adherence to international standards, including the standards for accounting and auditing, i.e. ISAs and IASs/IFRS. This clarification will help to reduce complaints and ensure that findings and recommendations are in line with standards and laws, both local and international (Biber, 2010; Drogalas *et al.*, 2015; OECD, 2006; Okello, 2014; Yoon *et al.*, 2011). Our findings are also supported by game theory and the theory of economic regulation. Game theory captures the interactive effect between tax auditors and taxpayers; hence, for this interaction to be beneficial, there is a need to have in place, and to apply, standards and regulations to ensure that audits are conducted in a professional manner, thus creating trust in both parties involved. Similarly, in relation to the theory of economic regulation, the findings support this theory because it is seen that having those regulations will minimize conflict, thereby reducing complaints. However, in the case of leadership and tax policies, the findings are consistent with the findings about top management support under the organizational settings, which means that there is a possibility that tax audit has not been given adequate attention by management and policymakers (Okello, 2014).

5.2 Conclusion

To conclude, it can be argued that tax audit effectiveness was affected by different factors. These factors can be grouped into organizational, tax auditor, taxpayer and regulatory factors. Specifically, it can be concluded that some factors had a strong positive relationship with tax audit effectiveness, namely, the availability and application of regulations and standards for tax audit and the adequacy of the tax audit unit. These were followed, in order of importance, by implementation of tax auditors' recommendations by management and taxpayers' attitudes towards tax audit. Only one factor, leadership and tax policies on tax audit, was found to have a weak positive relationship. The results of this study should be of interest to both tax authorities and governments because they not only show how the effectiveness of tax audit can be measured, but the study also identifies the critical factors for tax audit effectiveness.

In relation to tax authorities, the study shows that, apart from tax auditors and tax regulations, other factors, such as taxpayers, management of tax audit units and tax audit standards, are also critical. In that perspective the study results have implications to tax authorities and tax auditors by allowing them to gain a better understanding to strengthen capabilities and develop suitable strategies to enhance tax audit units. In addition, tax authorities and tax auditors can get a better understanding on taxpayers' attitude and satisfaction, hence helping them to change mindset about taxpayers. Tax audits ought to be considered as avenue for interaction between tax auditors and tax payers to establish relationship, build trust through cooperation and encourage compliance through assistance in preparation of reports as well as educating them about standards and regulations. For governments, the study shows that it is important to ensure that proper regulations and policies are put in place to ensure effective tax audit. There is a need for the governments to take into consideration recommendations provided by tax auditors when developing and putting in place tax audit regulations and policies. This will help to increase compliance and ensure that public interests are achieved.

Despite the contributions of this study, there were some limitations, which need to be acknowledged. First, the data were collected only from tax auditors; hence, the interpretation of the results should be limited to this group of respondents. It is possible that taxpayers and government officials would have different perceptions of tax audit effectiveness. Second, the statements of factors comprised only 25 statements and, even though these attributes were supported by previous studies, there could be other relevant attributes that are likely to influence tax audit effectiveness. Third, the study used primary data, and there is a possibility that the use of secondary data may draw different conclusions. Also, the study used perceptual measures of tax audit effectiveness, for example, we did not use a ratio of audited taxpayers to total taxpayers, which, if this were to be used, could reach different conclusions. Therefore, future studies could be conducted in the areas where limitations have been identified.

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