




# “A longitudinal analysis of tax planning schemes of firms in East Africa”

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# A LONGITUDINAL ANALYSIS OF TAX PLANNING SCHEMES OF FIRMS IN EAST AFRICA

## Abstract

Taxes play a significant role in the social and economic development of counties. On the other hand, taxes represent a significant cost to firms; hence they devise legal ways to reduce their taxes through tax planning. In East Africa, the statutory tax rate of firms averages 30%, which is considered a major burden to the firms. As a result, this study aims to longitudinally examine the tax planning practices of listed firms in East Africa countries (EACs). The study used twelve-year annual reports of ninety-one firms from EACs. Both cash effective tax rate (CEFR) and accounting effective tax rate were employed as tax planning measures. Descriptive statistics together with Wilcoxon signed-ranked test were used to analyze the results. The study demonstrates the existence of corporate tax planning by the listed firms in EACs. The average CETR of the firms was 17% as opposed to the statutory tax rate of 30%, demonstrating that the firms actively engage in tax planning activities. The evidence further demonstrated a gradual decrease in the tax planning activities of the firms over the past twelve years. The study further found out that the rates of decline in the firms' tax planning were statistically insignificant. Despite the decrease in the firms' tax planning, the tax authorities in EACs should enforce tax laws to eliminate the tax planning problem.

## Keywords

tax aggressiveness, tax avoidance, cash effective tax rate,  
accounting effective tax rate, tax reforms

## JEL Classification

H21, H25, H26

## INTRODUCTION

Firms are increasingly finding ways to reduce costs, maintain more profit for investment opportunities and increase their values. Among the strategies to achieve these objectives, tax planning represents a major activity that takes a large part of management time and resources (Lee, 2020). This is because tax erodes a significant percentage of firms' income. This makes tax planning a crucial strategy employed by a business in the contemporary corporate environment (Hanlon & Heitzman, 2010; Heitzman & Ogneva, 2019); however, the question is, do firms effectively engage in corporate tax planning? The predominant assumption of shareholders is that they do because taxes represent a substantial burden to companies; hence any tax activity that reduces a firm's tax liabilities is considered to increase the value of the firm (Jacob & Schütt, 2020; Kirkpatrick & Radicic, 2020). Nevertheless, Jacob and Schütt (2020) contended that tax planning is not costless. It was stated that tax planning is associated with many costs and risks, which comprise potential punishments such as fines and penalties from tax authorities. Apart from the risk of a firm being fined or punished for engaging in tax planning, it can also create costs arising from its implementation, legal fees, and reputational loss, which can negatively influence the value of firms that engage in such practices.

Similarly, agency theorists argue that, due to agency costs that arise due to shareholders-management relationships, management may

misuse tax planning decisions (Graham et al., 2014; Maama & Mkhize, 2020; Putra et al., 2018). This is so because managers may have personal incentives to implement tax planning in ways that are different from the expectations or preferences of the shareholders, just to achieve their interests. Accordingly, Campbell et al. (2020) emphasized that tax planning is a complex activity that can create room for managerial rent diversion, which can eventually erode the value of shareholders' investment. The known advantage of tax, particularly in developing nations, is that it helps governments to implement various strategies to enhance their tax collection capacities (Armstrong et al., 2019). For instance, the East African governments, like most other developing nations, have implemented various tax policy reforms to boost their tax revenue. The tax reforms, which have been instigated, include the establishment of revenue authorities, the establishment of large taxpayers' departments, and the digitalization of the revenue collection. Apart from these, the information-sharing agreements among EACs, strong deterrence mechanisms, and taxpayers' education are among other strategies that EACs governments have implemented to increase tax revenue collection.

Despite the significant contribution of tax to the development of economies, it decreases firms' resources and investment opportunities. As a result, owners would want to see their companies pay the minimum amount of tax possible. Hence, they employ competent management to manage their businesses on their behalf. Managers are entrusted over the firms' resources to create value for the shareholders. One major strategy that management uses to improve shareholders' value is tax planning (Hanlon & Heitzman, 2010; Tang, 2019). Since tax represents an erosion of firms' value, investors would like to see the downward trend of the effective tax rate, suggesting that their firms would pay fewer taxes than what they would otherwise be. On the other hand, governments strive to increase their revenue collection to meet their activities because tax revenue is the main source of the funds that finance the social and economic activities of the government (Marimuthu & Maama, 2021). Thus, for the above-highlighted importance of tax, various governments and shareholders would like to see the trend of the effective tax rate.

This study examines the tax planning activities of listed firms in East Africa countries (EACs). Additionally, the study investigates the responsiveness of the tax planning activities to the tax policy reforms (administrative and technological tax reforms) implemented by EACs during the period under the study. This study alerts the governments on the existence of tax planning activities among listed firms in EACs. This will form a base for the governments and regulatory authorities to come up with the appropriate policies and regulations that will ensure governments collect their revenue and also ensure that investors are protected.

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## 1. EMPIRICAL LITERATURE REVIEW

Firms engage in tax planning strategies by using their complex group structures to reduce their tax burden. This is seen by many as morally reprehensible. However, such practices are not illegal because firms use the gaps in tax laws to reduce their tax liabilities (Lisowsky, 2010; Wilson, 2009; Hoopes et al., 2012). There is anecdotal evidence to show that multinational corporations and other local firms engage in extensive tax planning activities (Hakim & Omri, 2015; Garside, 2016). In the US, for instance, a statutory corporate tax rate of firms is about 40%, however, the firms in the technology sector, which has the third-largest market capitalization, has a tax rate of 2.4%, suggesting a

tax avoidance of 37.6% (Cooper & Nguyen, 2019). Similarly, Duhigg and Kocieniewski (2012) noted that firms' tax avoidance behavior soared in the first decade of the twenty-first century.

In Europe, studies show that firms cannot decrease their tax rates to minimal levels in contrast to their US counterparts (Boffey, 2017; Garside, 2016). Boffey (2017) investigated over time the tax avoidance behaviors of firms from 12 European countries. Results indicated the presence of tax planning activities among firms in EU countries, especially Germany and France. However, in contrast to observations for the US, the findings show that the difference between the statutory tax rate and effective tax rate decreased substantially over time for firms operating in the European Union

member countries. Boffey (2017) suggested that the tax planning activities of EU firms may have decreased over time. This decline in tax planning activities is the result of efforts made by the European countries. For instance, the European Commission established a system to capture into its tax nets firms that do not pay taxes by exploiting their lack of physical offices in a particular jurisdiction. The issue of using the lack of physical presence to avoid paying tax is particularly worrying because Barrera and Bustamante (2018) reported that between 2003 and 2004, Apple lowered its effective tax rate in Ireland from 1% to 0.005%. Upon detection of this tax avoidance practice. Thus, the European Union ordered Apple to pay \$14.3 billion to the Irish government. This case and many others have pushed France to table a proposal to tax technology firms on their turnover instead of on their corporate profits (Faulhaber, 2019).

In a similar study in Kenya, Ouma (2019) reported that the level of tax planning responded negatively to each of the tax reforms. On average, Kenya loses around \$1.22 billion annually due to tax planning activity which is approximately 3% of their GDP (Cobham and Janský, 2018). However, Ouma's (2019) findings showed a gradual decrease in tax planning activities over the last decade. Furthermore, it was argued that government effectiveness, together with other tax policy reforms aimed to control corruption, also promoted revenue generation.

Markle and Shackelford (2012) examined the level and trend of tax planning activities of firms in 832 countries from 2005 to 2009. The evidence demonstrated that the tax planning activities of firms in many countries decline over time. However, it was highlighted that the tax planning activities of firms in the US were still high. This result suggests that firms in some countries can employ the loopholes in the tax laws in their favor. It can also be a case that some specific features of a country influence its firms' tax planning behaviors. In a related study, Dyreng et al. (2017) examined the trend of tax planning activities among local and multinational firms in the US over 25 years. The evidence showed that the firms' tax planning activities decreased significantly over the period. It was further reported that the cumulative decrease

in the cash effective tax rate of the firms was 5.0 percentage points, decreasing from 32% in 1998 to 27% in 2012. This tax planning strategy resulted in a decline of about \$109 billion in taxes paid to the government in 2012, comparable to the actual amount that would have been paid had there be no decrease in ETRs.

The contribution of this study is twofold. First, the study extends preliminary findings of Dyreng et al. (2017), which explained observed changes in ETR of US firms over 25 years; however, it was limited to the US, as well as failing to determine the level of significance of the ETR variations across the years. This study incrementally contributes to the taxation and accounting literature by providing evidence to show the extent to which firms in EACs practice tax planning and whether the practice has significantly changed over time. The paper further advances the study of Markle and Shackelford (2012) provided evidence of a falling trend of ETR among local and multinational corporations. However, that study failed to consider the potential longitudinal variations in STRs.

Furthermore, previous studies failed to statistically test whether the changes in firms' tax planning were statistically different over time. This study fills this gap in the literature by employing Wilcoxon signed-rank test to examine the significance of the changes in the tax planning activities of firms in EACs.

## 2. AIM OF THE STUDY

This study aims to examine the longitudinal tax planning strategies of firms in EACs. Therefore, the study provides empirical evidence of the existence of tax planning practices in EACs. The following are the specific objectives of the study:

1. To examine the level and trend of tax planning activities of the firms in East Africa
2. To investigate the extent of change in the tax planning activities of the firms over twelve years.
3. To examine the effect of tax reforms on the tax planning activities of the firms in East Africa.

### 3. METHODOLOGY

#### 3.1. Data and data source

This study uses the sample of listed firms in East African countries (EACs), comprising Kenya, Tanzania, and Uganda. The data used in this objective are firms' tax expenses and other taxation information. The firms' taxation data were obtained from the financial statements of the firms. The financial statements were obtained from the financial stock markets and the annual reports from the companies websites. The data was collected on the variables of interest for 12 years, from 2008 to 2019. The year 2008 reflects the year where all EACs adopted their code of corporate governance, while the year 2019 reflects the most currently available data. Consequently, total annual reports of 1,092 were targeted. Annual reports are widely used firms documents because they are audited and widely distributed to shareholders (Maama, 2020; Mensah et al., 2017). However, some of the annual reports were not available, resulting in a shortage of 71 annual reports. As a result, 1,021 annual reports were used for the study.

Tax planning data can be obtained from either tax returns or financial statements of firms (McGill & Outslay, 2004; Lee et al., 2015). However, these two sources of tax data are highly correlated since they are drawn from the firms' profit (Graham & Mills, 2008). However, Plesko (2004) views tax returns as the source that provides accurate tax planning data but is confidential and not easily accessible. Given this, the tax planning data for the study were sourced from the financial statements of the firms. Financial statements are also a good source of tax planning data because they are easily accessible and reliable as they are audited by independent and competent auditors.

#### 3.2. Definition and measurement of variables

Tax planning is the main variable of interest in this study. Hanlon and Heitzman (2010) argued that there is no agreement among scholars regarding what constitutes tax planning. The term tax planning is very broad and involves various activities that might be legal or illegal. Prior studies do not use a single metric to measure tax

planning because each measure has its limitations. Following Chen et al. (2010), Armstrong et al. (2012), Lennox et al. (2013), and Dyreng et al. (2017), this study used more than one measure of tax planning. Due to the shortfall of the measures of the tax planning, the use of more than one measure ensures the capture of a broad range of the activities that are symptomatic of tax planning (Hanlon & Heitzman, 2010; Lisowsky et al., 2013).

This study used an effective tax rate (EFR) to measure tax planning. The ETR was measured as the ratio of a firm's tax expense to its income before tax (Hanlon & Heitzman, 2010). Therefore, the effective tax rate measures the ability of a company to minimize its tax liabilities. This is indicative of the relative tax burden across firms. The firms with lower effective tax rates are said to be more tax aggressive compare with the firms with a higher effective tax rate. The effective tax rate can be categorized into cash effective tax rate (CETR) and accounting effective tax rate (AETR). As a result, this study uses both CETR and AETR to measure tax planning.

The CETR is computed as the ratio of cash taxes paid to pre-tax accounting income (Dyreng et al., 2007; Chen et al., 2010). On the other hand, the AETR was computed as the ratio of total tax expense to pre-tax accounting income (Chen et al., 2010; McGuire et al., 2012).

#### 3.3. Data analysis method

The study employed descriptive statistics together with Wilcoxon signed-ranked test to analyze the results. The descriptive statistics tests such as mean were used to present the results of the trend and level of tax planning activities of the firms in EACs. In addition, the Wilcoxon signed-ranked test (WSRT) was used to check if there was any significant change in the level of tax planning activities of the firms. Thus, the trend in the firms' tax planning practices was analyzed based on the moving average score for every year to demonstrate whether there was any variation in the tax planning levels. In addition, the p-values were obtained from the WSRT to explain whether there were significant changes in the tax planning across the years.

## 4. RESULTS AND DISCUSSION

### 4.1. The level and trend of tax planning in East Africa

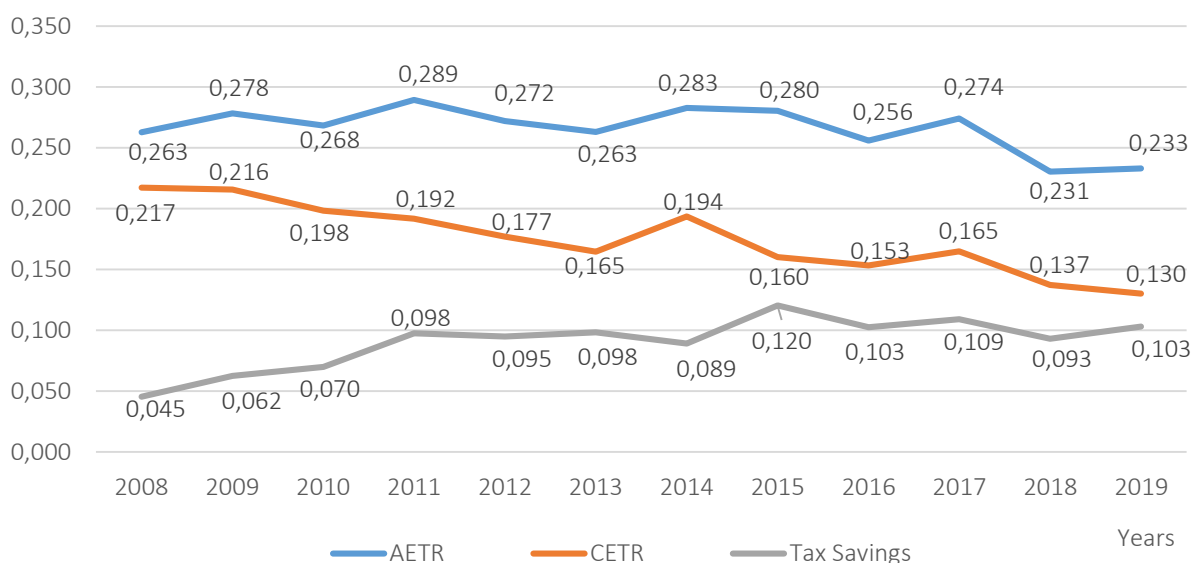
This section presents the results of the level and trend of tax planning activities by the firms listed in EACs. The study uses both CETR and AETR as tax planning measures. The study used a line graph to demonstrate whether the tax planning activities of the firms increased, decreased, or remained constant over the twelve years. The line graph depicts the firms' tax savings, which is the difference between the AETR and the CETR, which provides an accurate measure of the actual benefit emanated from the tax planning activity. Besides, a Wilcoxon signed-ranked test was used to examine whether the difference in the tax plan-

ning activities of the firms changed significantly over the years. Figure 1 presents the result of the level and trend of tax planning activities by the firms in EACs. Table 1 also presents the WSRT results of the level of significance of the changes in the firms' tax planning over the years.

The results show a gradual increase in tax planning activities in EA for the past twelve years. This is demonstrated in all the two measures of tax planning. Both effective tax rates have been slightly increasing over the past twelve years, which indicates an increase in tax planning activities. The descriptive statistics results in Figure 1 show that the mean value of cash effective tax rate (CETR) in 2008 was 21.7% whilst the accounting effective tax rate (AETR) was 26.3%. The results indicate that, on average, the listed firms in EA pay almost

**Table 1.** Wilcoxon signed-ranked test results

Years	Cash effective tax rate (CETR)		Accounting effective tax rate (AETR)	
	Z-Value	Asymp. Sig. (2-tailed)	Z-Value	Asymp. Sig. (2-tailed)
2008–2009	-0.393b	0.694	-1.579b	0.114
2009–2010	-2.292c	0.022	-1.412b	0.158
2010–2011	-2.656b	0.008	-0.652c	0.514
2011–2012	-1.158c	0.247	-1.364c	0.173
2012–2013	-2.161b	0.031	-1.358c	0.174
2013–2014	-0.426c	0.67	-0.485b	0.627
2014–2015	-2.163c	0.031	-1.426b	0.154
2015–2016	-0.025b	0.98	-0.508c	0.611
2016–2017	-1.364c	0.173	-1.347b	0.178
2017–2018	-3.016b	0.003	-1.158c	0.247
2018–2019	-1.646c	0.108	-2.121b	0.034



**Figure 1.** Tax planning trend (2008–2019)

one-quarter of the pre-tax earnings to the governments as taxes. Furthermore, both tax planning measures indicate that there is the existence of tax planning activities in EA. The statutory tax rate for all the three EA countries (Kenya, Tanzania, and Uganda) has been 30% over the study period. Therefore, the respective CETR and AETR of 21.7% and 26.3% show that there are tax planning activities in EA. An interesting observation is that the companies saved about 8.3% and 3.7% of CETR and AETR, respectively. Figure 1 shows that the first paid less tax (4.5%) than what they were required to pay, which further emphasize tax planning in 2008.

The evidence further shows that the CETR and AETR were 21.6% and 27.8%, respectively, in 2009. This suggests an increment in AETR and a decrease in CETR. This result indicates that the firms' tax liabilities on their profits marginally increased in 2009; however, the percentage of tax paid decreased. Once again, an average tax savings of 8.4% and 2.2% were recorded by the firms, given that the average tax rate in these countries is 30%. The WSRT results show that although there were changes in both CETR and AETR, they were statistically insignificant.

In 2010, the CETR and AETR of the firms further decreased to 19.8% and 26.87%, respectively. These results estimate the tax savings by the firms in EA firms. Concerning the AETR, the results indicate that, on average, the listed firms in EA saved 3.2% of the pre-tax earnings to the governments in 2010. However, in the same year, the tax savings by the firms concerning CETR was 10.2%, which was far more than that of AETR. Figure 1 further shows that the difference between the CETR and AETR was 7.0%, which indicates a further tax planning activity. The Wilcoxon signed-rank test results show that the change in the tax planning activities of the firms was statistically significant for AETR ( $p < 0.05$ ) and statistically insignificant for CETR ( $p > 0.05$ ).

In 2011, the tax planning activity of the firms decreased, in respect of AETR (28.8%) method, in which the tax savings decreased to 1.1% whilst the CETR tax savings increased to 10.8%. Once again, the level of change was statistically significant for the AETR ( $p = 0.008$ ), as opposed to the CETR

( $p = 0.514$ ). Moreover, in 2012, the CETR of the firms decreased to 17.7%, which resulted in a tax savings of 12.3%. Again, the AETR in 2012 was 27.2%. This also resulted in a tax savings of 2.8%. This result suggests that the firms increased their tax planning activities. However, the WSRT result shows that the increment level in the firms' tax planning was statistically insignificant ( $p > 0.05$ ) for both methods.

Similarly, the firms increased their tax planning activities in 2013, evidenced by the decline in CETR and AETR of 16.5% and 26.3%, respectively. This results in tax savings for CETR (13.5%) and AETR (3.7%). This suggests that the firms increased their tax planning activities in 2013. The WSRT results further indicate that the change in the AETR in 2014 was statistically significant ( $p = 0.031$ ), whilst the change in the AETR was statistically insignificant ( $p = 0.17$ ). The result further demonstrates that in 2014, the AETR and CETR increased to 28.3% and 19.4%, respectively. Nonetheless, the tax savings for AETR and CETR were 1.7% and 10.6%, respectively. However, the Wilcoxon signed-rank test results show that the level of increment in the tax planning activities for both methods was statistically insignificant ( $p > 0.05$ ).

Furthermore, both tax planning measures indicate that there was the existence of tax planning activities in EA in 2015. In fact, the CETR (16.0%) and AETR (28.0%) tax savings of the firms increased in 2015 to 14.0% and 2.0% respectively. It can further be ascertained from Table 1 that the level of increment was statistically significant for the AETR ( $p < 0.05$ ) and statistically insignificant for the CETR ( $p > 0.05$ ). The firms further increased their tax planning activities in 2016, demonstrated by the decline in the CETR and AETR of 16.3% and 25.6%, respectively. In addition, the AETR and CETR savings in 2016 were 4.4% and 14.7%, respectively. The substantial increase in the tax savings of the firms in 2016 suggests that the firms were not happy with their tax savings in the previous year, hence put in place policies and strategies that decreased their tax burdens. Despite the increment in the tax planning activities by the firms in 2016, the WSRT results show that the level of increment was statistically insignificant ( $p > 0.05$ ) for both methods.

Surprisingly, the tax savings for both methods of measuring tax planning decreased in 2017, suggesting that the tax planning activity of the firms was ineffective in that year. The results show that the CETR for 2017 was 16.5%, whilst the AETR for the same year was 27.4%. Figure 1 further indicates that the CATR tax savings of the firms in 2017 decreased to 13.5% whilst that of the AETR decreased to 2.6%, although the levels of decline were statistically insignificant ( $p > 0.05$ ) in both methods. However, the firms marginally increased their tax planning activities in 2018, evidenced by a decrease in the CETR and AETR to 13.7% and 23.1%, respectively. These tax rates represented a tax savings of 16.3% and 6.9% for CETR and AETR, respectively. The Wilcoxon signed-rank test results further show that the increment level for the CETR method was statistically significant ( $p = 0.03$ ), as opposed to that of the CETR ( $p = 0.247$ ).

In 2019, the CETR of the firms was 13.0%, as opposed to the AETR of 23.3%. This resulted in a tax savings of 17.0% and 6.7% for CETR and AETR, respectively. Once again, the difference between the tax liability and the tax paid by the firms was 10.3%. This represents significant tax savings in 2019, which is a testament to tax planning among the firms. These results demonstrate that the increments in the tax savings in 2019 for CETR were statistically significant ( $p = 0.034$ ) whilst that of the AETR was not ( $p = 0.108$ ).

The results have shown that there was an increasing trend in tax planning by the firms in EACs. This suggests that the firms aggressively deploy means to reduce their tax liabilities. This result demonstrates that the governments in the EACs have failed to institute pragmatic measures that would minimize tax planning or tax avoidance. This suggests that the tax policy reforms established by the various governments have not achieved their desired objective of reducing tax planning. For instance, the East African governments implemented various tax policy reforms in 2012 to boost their tax revenue. The tax reforms included the establishment of revenue authorities, the establishment of large taxpayers' departments, and the digitalization of the revenue collection. Apart from these, the EACs agreed to share information to reduce tax avoidance and evasion. It

must be admitted that the objective of these tax policies was not solely to minimize tax planning; however, since corporate tax represents a major component of tax income, it is expected that such policies would curb the incidence of tax planning.

The possible reason for the inability of the tax reforms and policies to reduce the level of tax planning by the firms is that the firms may have also developed strategies to reduce their tax planning. The reforms may have motivated the firms to engage the services of professional and expert tax consultants to assist them in their planning. One point to note is that if the governments in EACs are unable to use tax reforms to reduce the firms' tax planning, they must enact laws that would severely punish firms and their management that would engage in tax evasion. Such laws would deter them from aggressively engaging in tax planning. Such measures have worked in Europe; for instance, the European Commission punished Apple for lowering its effective corporate tax rate from 1% to just 0.005% (Barrera & Bustamante, 2018). This view is consistent with those of Hanlon and Heitzman (2010) and Tang (2019), who explained that owners and shareholders employ competent individuals to help them to reduce their burden and increase their value. This result further confirms the findings of Ouma (2019), who reported that the level of tax planning responded negatively to each of the tax reforms.

Once again, the results show that the management of the firms was more concerned about increasing their financial performance and increasing the value of shareholders' investment at the expense of their image. This is because firms that pay the required tax are regarded as responsible and receive public acceptance. These results suggest that the firms in EACs considered that there was no reputation loss from tax planning. This shows that legitimacy theory is not significant to explain the planning activities of firms in EACs. Agency theory can be used to explain the tax planning activities of the firms because the management of the firms used tax planning as a tool to prove to management that they work to pursue their interests. This is plausible because tax represents an erosion of firms' value; investors would like to see the downward trend of the effective tax rate, suggesting that their firms would pay fewer taxes than



what it would otherwise be. These results confirm the findings of previous studies such as those of Drucker (2010) and Duhigg and Koscienski (2012). These studies found that the tax planning of firms in the US has increased over the years.

However, the result contradicts the findings of Boffey (2017) and Garside (2016), whose evidence demonstrated that firms in Europe are unable to use tax planning to significantly reduce their tax burden.

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## CONCLUSION AND RECOMMENDATIONS

The study used both moving averages and the Wilcoxon signed-ranked test to examine the level and trend of tax planning of listed firms in East Africa countries (EACs). The study found that there was the existence of corporate tax planning among listed firms in EACs. The results further show that there was a gradual decrease in the trend over the past twelve years. However, the level of decline was not statistically significant. The evidence showed that the tax planning activities of the firms decreased from 2008 to 2019. As the EACs are eager to become middle-income countries in between 2025–2030 years, the practices of tax planning among big and multinational companies may impede government efforts to collect domestic revenue to meet their developments goals. Though study results evidenced the decrease in the trend of tax planning, the study recommends that tax authorities should implement additional tax enforcement mechanisms which may eliminate the tax planning problem. However, the factors that influence these firms were not addressed, which provides an opportunity for further research. The study recommends other studies to investigate the factors that influence the tax planning activities of the firms in EACs.

## AUTHOR CONTRIBUTIONS

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