

Measuring Tax Avoidance using Effective Tax Rate: Concepts and Implications

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Abstract: Lack of consensus on the multifaceted concept of tax avoidance has caused us to witness a plethora of proxies that have been developed to measure and capture tax avoidance for the purpose of empirical analysis. Therefore, this study contributes to the literature on tax avoidance as it seeks to find out the similarity or differences between tax avoidance measures, with specific emphasis on effective tax rate based measures. Conducting the ANOVA and the Games Howell multiple comparison tests on a sample of 673 unbalanced firm-year observations, the study found that there is a significant difference between the examined measures, while the Games Howell test further showed that the H & S measure differs significantly from the ETR based measures. The implication of the findings for researchers is that they are to consider their research objectives before deciding on the measure of tax avoidance to use in their study, as there are significant differences between these measures.

Keywords: Corporate Tax Avoidance; Effective Tax Rate; Henry and Sansing Measure; Annual ETR; Long-run ETR

JEL Classification: H25; M41

1. Introduction

Tax avoidance has been at the forefront of academic research in recent times, especially as a result of the increasing awareness amongst stakeholders and government of the threat associated with tax avoidance, such as, loss of revenue and public benefits to the society. It is a known fact that the government relies on the revenue generated from the taxpayers to fund its activities, such as, providing the necessary infrastructural facilities for the citizenry. Therefore, activities that reduce the tax burdens of the taxpayers make it difficult for the government to get sufficient fund to provide its mandate to the citizens.

Tax avoidance is practiced globally with events such as the Luxembourg leaks in 2014, the Panama papers in 2016, and the recent Paradise leak in 2017 (Fitzgibbon & Starkman, 2017) further reiterating enormous tax avoidance by individuals and corporate taxpayers. In the developed countries, the issue of tax avoidance has taken a center stage especially with the loss of tax revenue needed by the government to execute its mandates. In the United States of America for instance, the loss of tax revenue is reported to be close to 70 billion dollars annually, which is close to 20% of the corporate tax revenue collected annually (Zucman, 2017). Also, in developing economies, tax avoidance is not a new trend with an estimated amount of up to 9.6 billion dollars a year being lost by the West African region in general and Nigeria losing an estimated 2.9 billion dollars in particular (Action Aid and Tax Justice Network, 2015).

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Despite the attention in the media, academia, and research environ, there seems to be no generally agreed definition for tax avoidance (Dunbar, Higgins, Phillips, & Plesko, 2010; Gebhart, 2017; Hanlon & Heitzman, 2010) and this may account for the numerous proxies and measurements for tax avoidance (Salihu, Obid, & Annuar, 2013). Put differently, conceptualizing tax avoidance is riddled with bottlenecks and disagreements. This may be as a result of the multidimensional nature of tax avoidance. Dunbar et al. (2010) opined that the challenge of a lack of a generally accepted definition for tax avoidance makes its measurement challenging for empirical researchers. In addition, Blouin (2014:875) asserts that this lack of consensus also creates confusion and inconsistency in tax avoidance measurements by researchers such that “ad-hoc approaches to developing and testing any hypotheses” bothering on tax avoidance has to be employed.

The commonly cited definition in literature for tax avoidance is that it is an act aimed at reducing explicit tax liability (Hanlon & Heitzman, 2010). Such an act may broadly include investment in bonds, use of tax reliefs and exemptions, lobbying activities, and other uncertain tax positions (Hanlon & Heitzman, 2010). Slemrod and Yitzhaki (2002) assert that when tax avoidance is aggressively done, it can be described as employing a wide range of reporting practices whose real intent is to reduce tax liability without any real business activity. In addition, Chen, Chen, Cheng, and Shevlin (2010) portray tax avoidance as any arrangement to reduce tax liability and these arrangements when scrutinized, form a continuum of legitimate, grey, or unlawful activities. They also opine that those arrangements that are grouped as grey arrangements better portray the aggressive practice of tax avoidance. Therefore, tax avoidance however legitimate, could end up being unlawful when it is done aggressively, which in the words of Hanlon and Heitzman (2010:137) is “pushing the envelope of tax law”.

The opinion of Chen et al. (2010) may account for why various concepts have been introduced in literature to explain the act of reducing tax liability. These terms as used interchangeably include tax avoidance; tax minimization; tax planning; tax aggressiveness; tax management; and tax sheltering (Boussaidi & Hamed, 2015; Graham, Hanlon, Shevlin, & Shroff, 2014; Richardson, Taylor, & Lanis, 2013). Also, Hanlon and Heitzman (2010) observed that aggressiveness is a very relative term and the real research interest is usually on excessive exploitation of loopholes in the tax system (aggressive tax avoidance, evasion, sheltering, and haven).

Based on the foregoing, there is obviously a debate on the concept of tax avoidance as deduced from the various related terms used in literature. This debate also confirms the position of Dunbar et al. (2010) and Blouin (2014) on the lack of consensus on the definition of tax avoidance and inconsistency in tax avoidance measurements. Furthermore, there are numerous measures developed and used by researchers in exploring tax avoidance practices and according to Hanlon and Heitzman (2010), these measures are largely similar in that they capture non-conform tax avoidance although their assertion was not backed by empirical analysis. Conversely, Salihu et al. (2013) using Malaysian data found that effective tax rate based measures are significantly not the same based on the outcome of the ANOVA. In addition, Gebhart (2017) investigate tax avoidance measures in terms of their similarities using data available on Compustat and found that “although the different measures of corporate tax avoidance do exhibit differences and those differences persist over time; measures based on the same rationale (such as Effective Tax Rate measures) are subject to large correlation among one another”. In other words, his findings reveal differences between the broad categories of tax avoidance measures but similarities within each category. These further buttresses the measurement issue

associated with researches on tax avoidance and the findings on the similarities and differences of tax avoidance measures are inconclusive and largely under-researched, especially in developing countries.

Also, in conducting empirical researches, it is important that the variables of interest are properly measured because failure to ensure this may lead to poor inferences, which are most likely to be biased. Nachmias and Nachmias (2009) explained that to properly measure a concept, both the operational and conceptual definitions must be correctly spelled out. While the conceptual definition involves defining a concept based on what is generally agreed, operational definition involves defining a concept with reference to the procedures or processes that are conducted in order to relate an abstract concept to reality. We believe that the link between these two definitions is that if a concept can be conceptualized properly, providing an operational definition should not be difficult.

Therefore, it is against the above backdrop that this study seeks to find out the similarity or differences between tax avoidance measures with specific emphasis on effective tax rate based measures. In actualizing the objective of the study, three ETR based measures and the Henry & Sansing measure [argued to be superior to ETR based measure as it avoids data truncation bias and is proposed by Henry & Sansing (2014) to capture conforming tax avoidance] were compared using the ANOVA and the Games Howell multiple comparison test. The result of the ANOVA revealed a significant difference between the examined measures while the Games Howell test further showed that the H & S measure differs significantly from the ETR based measures. Thus, this study contributes to knowledge on the issue of measuring tax avoidance in this regards. It is also relevant as it provides empirical evidence to show that ETR based measures are largely similar except for ETR derived by dividing cash tax by cash flow from operations. Therefore, it may just likely capture a different aspect of tax avoidance not captured by the other ETR based measures.

The structure of this study is as follows: section 2 captures the review of literature and hypotheses formulation; section 3 provides information on the methodology; section 4 bothers on the discussion of findings; section 5 harps on the conclusion, recommendations, and limitation of the study.

2. Literature Review and Hypotheses Formulation

2.1. Operationalizing Tax Avoidance

Most studies on tax avoidance have focused more on the non-conforming aspect than the conforming due to the relative ease of measurement and source of information (Badertscher et al., 2016). Non-conforming tax avoidance involves reducing taxable income without reducing accounting income while conforming involves a reduction in both incomes. In addition, studies that have investigated the practice of tax avoidance can be grouped into three (Annuar, Salihu, & Obid, 2014). These three groups are (1) those that measure tax avoidance using the ratio of tax to income (effective tax rate), (2) those that measure tax avoidance using the gap between book and taxable income (book-tax gap), and (3) those that used other measures asides these first two measures. However, this study focuses on just the first group (effective tax rate) due to the availability of data, and the high frequency of its usage in literature.

2.2. Effective Tax Rate (ETR) Measure of Tax Avoidance

This measure is used to capture tax avoidance practices by dividing the tax expense in the financial statement by pre-tax accounting income or cash (Hanlon & Heitzman, 2010). This gives a figure which ordinarily should lie between 0 and 1. In performing this calculation, the intention of the researcher is paramount. When the researcher is interested in the distribution of tax burden across companies and industries, or the fairness of the tax system, the average ETR should be calculated; while if the interest is on an evaluation of new investment, the marginal ETR should be calculated (Gupta & Newberry, 1997). In addition, from a time perspective, if the researcher is interested in a yearly rate of tax avoidance which is usually susceptible to time variations, the annual ETR should be calculated. However, if the interest is on several years, the long-run ETR is the more appropriate rate (Gebhart, 2017). The long-run measure of ETR was propounded by Dyreng, Hanlon, and Maydew (2008) to address the issue of volatility. It is more or less the same with the annual measure except that it is measured as the cumulative tax expense/current expense/cash tax over a period of years divided by pre-tax accounting income over the same number of years (Zeng, 2010).

Aside from the above-mentioned broad categories of the ETR, specific variants of the ETR include accounting ETR, current ETR, cash ETR, and cash flow ETR. They are subsequently discussed below.

2.2.1. Accounting ETR

Accounting ETR is the ratio of tax expense to pre-tax income as reported in the income statement (Hanlon & Heitzman, 2010). As a result of the accrual concept, tax expense is usually a combination of both current and deferred tax liability. Current tax is the portion of tax payable by applying the current tax rate on the profit for the year while deferred tax is the portion of tax expenses resulting from temporal timing difference (the difference between the carrying amount and tax base of an asset/liability).

One of the limitations of this measure is that it fails to capture deferral tax strategies [strategies by a company to minimize tax liability using management discretion and choice of accounting policies] (Hanlon & Heitzman, 2010). The reason for this is not farfetched since deferred tax is a portion of total tax expense and increases [decreases] in the current tax expense are offset by corresponding decreases [increases] in the deferred tax expense. Another limitation is that it does not capture conforming tax avoidance and it suffers from truncation bias in a situation where the pre-tax accounting income is negative [loss] (Henry & Sansing, 2014).

2.2.2. Current ETR

This is a variant of the accounting ETR developed to capture deferral tax strategy which is the reason for its superiority over the accounting ETR (Oyeleke, Erin, & Emeni, 2016). It is derived from the ratio of current tax expense to pre-tax accounting income. Despite being able to capture deferral tax strategy, it suffers other limitations. For example, if computed as an annual measure, it is subject to yearly volatility (Salihu, Obid, & Annuar, 2014). Also, it is likely to understate the level of aggressive tax avoidance if uncertain tax benefits are included in the pre-tax accounting income (Dunbar, Higgins, Phillips, & Plesko, 2010). Uncertain tax benefits are tax positions upheld by a company that is likely to be disallowed by the relevant tax authority upon conducting a tax audit.

2.2.3. Cash ETR

Financial reporting is done in line with Generally Accepted Accounting Principles (GAAP). One of such principle is the accrual principle that allows for the recognition of expenses (incomes) when they

are incurred (earned) and not when payment is made (received). This principle, therefore, makes any ETR derived from the tax expense recorded in the income statement prone to accrual management such as valuation allowance and management discretions (Lee et al., 2015).

To remedy the aforementioned issue of accrual management, the cash ETR was introduced. The cash ETR is gotten by dividing the actual amount of tax paid (tax expense recorded in the cash flow statement) by pre-tax income. Thus, it measures the actual tax avoided per unit of income. Nonetheless, it suffers from a mismatch between the numerator and the denominator. The numerator (cash tax expense) is devoid of accruals and is the actual tax paid while the denominator (pre-tax accounting income) is sourced from the income statement prepared in line with the accrual principle. Therefore, the ratio derived is reflective of both accrual management and tax avoidance schemes. In addition, since cash basis deals with movement of cash when it is received or spent notwithstanding the originating period (Hanlon & Heitzman, 2010), the cash tax paid may be payment relating to current tax liabilities and liabilities deferred from previous years, thus, making the resulting ETR not necessarily an annual or long-run measure of tax avoidance. Be that as it may, to address the mismatch issue, the use of net cash flow from operating activities has been suggested (Hanlon & Heitzman, 2010; Salihu et al., 2013).

2.2.4. Cash flow ETR

As pointed out above, the use of cash ETR creates a mismatch issue that may affect the interpretation of findings. This issue can be easily be solved by comparing a numerator and a denominator that are both cash based. Hence the use of cash flow ETR. The cash flow ETR is derived by dividing tax expense by net cash flow from operating activities (Zimmerman, 1983) or by dividing cash tax paid by net cash flow from operating activities. According to Gebhart (2017), the cash flow variants of ETR is a recent measure while Hanlon and Heitzman (2010) suggest that it differs from all other ETRs because of its capability to measure conforming tax avoidance. The suggestion by Hanlon and Heitzman (2010) is however opposed by Badertscher et al. (2016:10) who argue that cash flow ETR would not suffices in capturing conforming tax avoidance as it “excludes book-tax conforming tax strategies involving the acceleration of expenses or deferral of revenue that affect cash flow from operations”. In our opinion, Hanlon and Heitzman (2010) may be right as inferences based on the analysis carried out in this study to compare cash flow ETR with other variants of ETRs revealed a significant difference.

Furthermore, aside from the issue of the capability of the cash flow ETR in capturing conforming tax avoidance, it is equally possible for the cash flow ETR to lead to data truncation bias in a situation where the net operating cash flow is negative. According to Henry and Sansing (2014), data truncation bias occurs when a denominator is negative and consequently, yields a negative quotient that has to be assumed as zero for the purpose of analysis. This bias may create ambiguity in interpretation though; it may be avoided if the focus is on just companies with positive cash flow.

2.2.5. Henry and Sansing's Measure

To address the issue of truncation bias especially when the focus goes beyond profitable companies, Henry and Sansing's Measure (H & S) has been developed. According to Henry and Sansing (2014), discarding loss years during analysis, when the focus goes beyond profitable companies, is usually not random and this can lead to spurious findings. Also, they noted that comparison is to be made across companies and industries when making inferences and that the use of pre-tax accounting income as the denominator does not effectively achieve this objective. According to them, using pre-tax accounting income as the denominator especially when the companies have different sizes creates an exaggerated effect on companies with low but positive pre-tax accounting income. To remedy this, they suggest the use of a cash tax non-conformity measure (hereafter referred to as H & S measure).

The H & S measure is derived by performing two basic operations. First is to get the difference between the cash tax paid and the product of pre-tax income and the statutory rate. Second, the answer from the first operation is then divided by the market value of assets (Henry & Sansing, 2014). The final answer is what is referred to as the H & S measure. Its value is either positive, zero or negative. Companies that pay exactly what is expected by the tax authority will have a value of zero (no tax avoidance); those that paid higher will have a positive H & S value; while companies that pay lower will have a negative H & S value (Henry & Sansing, 2014; Gebhart, 2017). In addition, Badertscher et al. (2016) document that the H & S measure captures more than just non-conforming tax avoidance practices. This study aligns with this summation as it was observed based on the analysis done that the H & S measure significantly differs from the other ETR measures that are generally agreed to capture non-conforming tax avoidance.

2.3. Hypotheses Formulation

So far, we have seen that various measures for tax avoidance have been used by various researchers. However, the extent to which these measures converge or disperse may account for differences in findings. Hanlon and Heitzman (2010), Gebhart (2017), Lisowsky et al. (2013) and Salihu et al. (2013) all opine that the various measures of tax avoidance have similarities and differences with respect to the nature of tax avoidance they capture. This leads us to hypothesize that:

1. There is a significant difference between the ETR based measures
2. There is a significant difference between the ETR based measures and the H & S measure.

3. Methodology

Using a descriptive research design to test the hypotheses raised, a total of 673 unbalanced firm-year observations of 88 companies quoted on the Nigerian Stock Exchange between 2008 and 2015 was used. Both annual and 3 years long-run variants of cash ETR, cash flow ETR, pre-tax cash flow ETR and H & S measures were computed.

Table 1. Descriptive statistics

	N	Minimum	Maximum	Mean	Std. D
Cash ETR	673	0	1	0.1436	0.20817
Cash flow ETR	673	0	1	0.1189	0.20912
Pre Tax Cash flow ETR	673	0	1	0.1009	0.17438
H&S	673	-0.19	0.19	-0.0107	0.02736
Long-run Cash ETR	517	0	1	0.154	0.19124
Long-run Cash flow ETR	517	0	1	0.1447	0.21825
Long-run Pre Tax Cash flow ETR	517	0	1	0.1169	0.16795

Source: Researcher's computation (2018)

Table 1 depicts the descriptive statistics of the measures of tax avoidance. Based on the annual measures, cash ETR has the highest mean of 14.36%. This is followed by cash flow ETR, pre-tax cash flow ETR, and H & S having means of 11.89%, 10.09%, and -1.07% respectively. As expected, cash flow based ETRs have lower means than cash ETR because of the absence of accrual management in both the numerator and denominator and its possible ability to capture conforming tax avoidance. Pre-tax cash flow ETR (another variant of cash flow ETR) is also lower than cash flow ETR as expected since cash tax paid is added back to the denominator to account for its presence in the numerator. The H & S measure has a negative mean revealing that companies have a negative tax preference. The standard deviation which measures variability is a bit high and lies between 17% and 21% for the annual measures. This supports the argument that annual measures are subject to yearly volatility. Looking at the long run measures, it is observed that the means for all the long-run measures increased, thus, giving a better picture of tax avoidance. The increase as time progresses show that companies tend to be less tax avoidant as time passes. However, since the means of the ETRs are well below the statutory rate of 30%, it suggests a low tax burden by companies.

Table 2. Correlation matrix

		Annual measures				Long-run Measures		
		Cash ETR	Cash flow ETR	Pre Tax Cash flow ETR	H&S	Cash ETR	Cash flow ETR	Pre Tax Cash flow ETR
Cash ETR	Correlation	1	.457**	.558**	0.032	1	.444**	.414**
	Sig.		0.000	0.000	0.405		0.000	0.000
Cash flow ETR	Correlation	.457**	1	.740**	0.036	.444**	1	.798**
	Sig.	0.000		0.000	0.357	0.000		0.000
Pre Tax Cash flow ETR	Correlation	.558**	.740**	1	0.022	.414**	.798**	1
	Sig.	0.000	0.000		0.575	0.000	0.000	
H&S	Correlation	0.032	0.036	0.022	1			
	Sig.	0.405	0.357	0.575				

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

Source: Researcher's computation (2018)

Focusing on both the annual and long-run measures, on one hand, it is observed from Table 2 that all the ETRs have strong associations with one another and this is equally significant and positive. This is not surprising as they share similarities in computation and logical argument. However, cash flow ETRs have a stronger association than cash ETR as predicted in extant studies due to the argument of the nature of tax avoidance it captures. On the other hand, there is a weak association between the ETR measures and the H & S measure although the association is positive. This may be based on the difference in computational approach and rationale as H & S is argued to capture a higher level of conforming tax avoidance.

Table 3. Test for Equality of Variance

	Levene Statistic	df1	df2	Sig.
Annual	182.189	3	2688	0.00
Long-run	10.515	2	1548	0.00

Source: Researcher's computation (2018)

Apart from similarities shared by the measures of tax avoidance, there is also the possibility of dissimilarity. Therefore, testing for differences in measures beyond mere reliance on the standard deviation is required. Before the analysis of the difference, Table 3 depicts the test for homogeneity of variance. Both annual and long-run measures have significant probability values $F(3, 2688) = 0.00$ and $F(2, 1548) = 0.00$ respectively suggesting that the condition for equality of variance is violated.

Table 4. Robust Tests for Equality of Means

		Statistic	df1	df2	Sig.
Annual	Welch	284.652	3	1162	0.000
	Brown-Forsythe	105.959	3	1992	0.000
Long-run	Welch	6.049	2	1021	0.002
	Brown-Forsythe	5.149	2	1481	0.006

Source: Researcher's computation (2018)

The robust test for means is normally carried out when there is a violation of equality of variance. For the use of ANOVA, it is expected that the variances are equal or at least, one of the means of the groups is different. Based on Table 4, due to the significant p-values obtained from the Welch test $F(3, 1162) = 0.00$ and Brown-Forsythe test $F(3, 1992) = 0.00$ for the annual measures, and the Welch test $F(2, 1021) = 0.002$ and Brown-Forsythe test $F(2, 1481) = 0.006$ for the long run measures, we can conclude that for both measures, at least one (two) of the group means is (are) different. The post hoc test (Games Howell) in Table 6 substantiates this conclusion.

Table 5. Analysis of Variance (ANOVA)

		Sum of Squares	Df	Mean Square	F	Sig.
Annual	Between Groups	9.395	3	3.132	105.959	0.000
	Within Groups	79.445	2688	0.03		
	Total	88.84	2691			
Long run	Between Groups	0.386	2	0.193	5.149	0.006
	Within Groups	58.004	1548	0.037		
	Total	58.39	1550			

Source: Researcher's computation (2018)

ANOVA is used to investigate the possibility of a significant difference between three or more groups. The annual measures statistics $F(3, 2688) = 0.00$ and the long run measures statistics $F(2, 1548) = 0.006$ show that there is a significant difference between the various measures as seen in Table 5. Consequently, as expected and documented in literature, we accept the first alternate hypothesis that there is a significant difference between the ETR measures. We can also infer from the Nigerian context that these measures capture various aspects of tax avoidance. However, to determine which of the measures differs, a multiple comparison is done in Table 6.

Table 6. Multiple comparison (Games Howell Test)

Annual	(I) Group	(J) Group	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval Lower Bound	Upper Bound
		Pre Tax Cash flow ETR	0.018	0.010	0.316	-0.009	0.045
		Cash ETR	-0.025	0.011	0.133	-0.054	0.005
		H&S	.129*	0.008	0.000	0.109	0.151
	Pre Tax Cash flow ETR	Cash flow ETR	-0.018	0.010	0.316	-0.045	0.009
		Cash ETR	-0.004*	0.010	0.000	-0.070	-0.016
		H&S	.111*	0.007	0.000	0.094	0.129
	Cash ETR	Cash flow ETR	0.025	0.011	0.133	-0.005	0.054
		Pre Tax Cash flow ETR	.0426*	0.010	0.000	0.016	0.070
		H&S	.1543*	0.008	0.000	0.133	0.175
	H&S	Cash flow ETR	-0.129*	0.008	0.000	-0.151	-0.109
		Pre Tax Cash flow ETR	-0.111*	0.007	0.000	-0.129	-0.094
		Cash ETR	-0.154*	0.008	0.000	-0.175	-0.133
Long run	Long run Cash flow ETR	Long run Pre Tax Cash flow ETR	0.028	0.012	0.057	-0.001	0.056
		Long run Cash ETR	-0.009	0.013	0.745	-0.039	0.021
	Long run Pre Tax Cash flow ETR	Long run Cash flow ETR	-0.028	0.012	0.057	-0.056	0.001
		Long run Cash ETR	-0.003*	0.011	0.003	-0.063	-0.011
	Long run Cash ETR	Long run Cash flow ETR	0.009	0.013	0.745	-0.021	0.039
		Long run Pre Tax Cash flow ETR	-0.003*	0.011	0.003	0.011	0.063

*. The mean difference is significant at the 0.05 level.

Source: Researcher's computation (2018)

Beginning with the annual measures, it is observed from Table 6 that cash ETR is significantly different from pre-tax cash flow ETR and H & S measure; cash flow ETR is significantly different from H & S measure; pre-tax cash flow is significantly different from cash ETR and H & S measure; while H & S measure is significantly different from all the measures. This makes us accept the second alternate hypothesis that H & S is significantly different from the ETR measures. This finding is not surprising as it confirms casual empirics that H & S distinctively measures conforming tax avoidance. For the long run measures, long run pre-tax cash flow ETR significantly differs from long-run cash ETR as expected since the latter has elements of accrual management in its denominator.

4. Discussion of Findings

As expected and documented in literature, we found based on the analysis in Table 5, that there is a significant difference between the ETR measures. This finding agrees with studies like Gebhart (2017); Salihu et al. (2013); and Dunbar et al. (2010) who have investigated the similarities or differences associated with measures of tax avoidance within the broad classifications. Salihu et al. (2013) focused on Malaysian firms and conducted an Analysis of Variance amongst the individual members of the ETR based measures and discovered that the various measures are different and thus, capture various aspects of tax avoidance. They also found that the ratio of cash tax paid to cash flow from operations as a measure of tax avoidance differs significantly from the other ETR based measures. We can also infer from the Nigerian context that these measures capture various aspects of tax avoidance.

Based on the second hypothesis, we found that H & S measure is significantly different from all the ETR measures (see Table 6). This finding is not surprising as it confirms casual empirics that H & S distinctively measures conforming tax avoidance. It also supports the findings of Gebhart (2017) who extended his investigation to include book-tax-difference and Henry and Sansing's measure. He found that the effective tax rate based measures that are calculated with either cash tax paid and/or operating cash flow have higher variability than the other ETR based measures. He also found that cash tax paid to cash flow from operations has the lowest mean of the ETR based measures and most likely is the only ETR based measure that captures conforming tax avoidance. The analyses done in this study further confirms the observations of these researchers on the similarities and differences associated with the broad classifications.

5. Conclusion, Recommendation, and Limitations

The study examined various effective tax rate measures of corporate tax avoidance in order to see if there is a significant difference between the measures and provide a guide on the selection of measures for future studies to prevent wrong inferences. In achieving this, secondary data were sourced from companies listed on the Nigerian Stock Exchange (NSE) for the period 2008 – 2015 for 673 unbalanced firm-years observation of 88 companies. The estimates from the ANOVA tests suggests that there is a significant difference between the various variants of the effective tax rate measures which implies that each measure captures different aspects of tax avoidance and also, the estimates found that there is a significant difference between the H & S measure and the effective tax rate based measures of tax avoidance implying that the H & S distinctly measures conforming tax avoidance.

Based on these findings, we recommend that researchers consider their research objectives before deciding on the measure of tax avoidance to use in their study. For instance, the effective tax rate variant measures might be most appropriate when considering tax avoidance of only profitable firms since company tax cannot be computed on losses, while the H & S measure would be appropriate when the study considers tax avoidance of profitable and non-profitable companies and when interested in conforming tax avoidance. The study also recommends that further study is carried out using other measures of tax avoidance different from the ETR based measures.

This study excludes firms in the financial sector as well as the oil and gas sector. Therefore, this finding may not be applicable to them due to differences in the regulatory environment for both financial and tax purposes.

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