Fiscal Policy, Economic Uncertainty and Tax Avoidance Behavior: Evidence from Pakistan Stock Exchange

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Abstract
This study adds novelty in extending the tax literature by examining the fiscal policy's government spending and economic policy uncertainty and their impact on the tax avoidance behavior of Pakistan's non-financial listed firms from 2011 to 2020. The panel regression is used to analyze the sample size of 295 non-financial listed firms in the Pakistan stock exchange (PSX). The results show that economic policy uncertainty has a significant positive relationship with the tax avoidance measures of accounting effective tax rate, current effective tax rate, and long-run accounting effective tax rate respectively. This indicates that the increase of uncertainty in economic policy surges the tax payments of the listed Pakistani non-financial firms. The Government spending measured by Government size has a significant negative relationship with the long-run accounting effective tax rate. The study also consists of the control variables including cash, firm leverage, firm age, and firm size. Cash, leverage, and firm age have a significant positive relationship with tax avoidance measures. The study provides the policy implications for the policymakers that they should analyze the different economic policies with respect to different firms and how their effective tax rates are affected by these policies. Furthermore, the government spending which is regulated by the fiscal policy, the policy makers when setting it should keep this in their consideration that the increase in the Government spending in the long run can potentially promote the tax avoidance behavior of the firms. This study has significance for the policymakers and the academicians in understanding the tax avoidance behavior of firms concerning the fiscal and uncertainty of the economic policy in Pakistan.
Keywords: corporate tax avoidance, fiscal policy, economic uncertainty

1. Introduction

Tax is defined as a compulsory and unrequited payment to the state (Stewart, 2022). Numerous studies have been done in the tax literature, importantly its compliance. However, in the tax literature, the area of tax avoidance has been gaining wide attention from academicians, lawmakers, and practitioners (Zhong et al., 2023). Its significance has been largely attributed due to its good establishment in the corporate culture of different business entities. Tax avoidance is considered to be a legal practice through the use of legal loopholes in reducing tax liabilities (Taylor & Richardson, 2012). Tax avoidance despite being legal is considered to be an immoral act, where the law is followed, however, the spirit of the law is violated (Barker, 2008). The outcome of tax avoidance brings with it significant economic loss to the state (Wang et al 2020). The tax revenues that could have been spent on public welfare are often lost due to tax avoidance. Therefore, tax avoidance is considered to be a major challenge for state authorities (Stewart, 2022). There have been studies on tax avoidance; however, there is a limitation

concerning the multidisciplinary perspective, mainly from the accounting, finance, and economics fields. The multidisciplinary aspect of tax avoidance besides having its importance also makes it interesting (Hanlon & Heitzman, 2010). Similarly, in the corporate tax avoidance area, there are research limitations; therefore, there is a further need to explore it (Ginesti et al., 2020).

To examine the multidisciplinary perspective of tax avoidance, it is pertinent to see that most of the studies such as Ginesti et al. (2020) have focused on the company-level aspects of corporate tax avoidance. However, tax avoidance is a multi-facet area with other factors also congruent towards it. Concerning tax avoidance behavior, previous literature has clarified that, despite appearing to be based on minor and microeconomic levels, however, taxpayer behavior falls under the macroeconomic level. Due to the reason that tax avoidance is heavily influenced by the macroeconomic context (Stewart, 2022). The fiscal policy apart from being one of the components of the macroeconomic framework, the taxation is also largely set by it (Dewett, 2005; Pami et al., 2000). The Governments of different countries devise fiscal policies to mitigate the tax avoidance practices of the companies because they need tax revenues (Mocanu et al., 2021). Moreover, fiscal policy also has a large role in explaining financial transparency (Stewart, 2022). To better understand tax avoidance through a multi-facet perspective, fiscal policy has its importance. The study by Kogler & Kichler (2020) argued that it is the tax payer's attitudes in how they consider tax avoidance practices. Importantly, these taxpayers' behaviors are also largely subject to the fiscal policy set by the Government authorities.

Apart from fiscal policy, another important area that affects tax avoidance is economic policy uncertainty. The taxpayers evaluate their decisions regarding tax compliance with respect to economic policies. The uncertainty in the economic policy largely affects tax compliance (Katz and Owen, 2013). Economic policy uncertainty consists of the uncertainty in the policies such as fiscal and regulatory policies, which directly and indirectly affects the firm's decision-making (Al Thaqeb & Algharabali, 2019). Economic policy uncertainty may affect the manager's judgments. Moreover, the relationship between economic policy uncertainty and tax avoidance is different among countries (Benkraiem et al., 2022). There is a limitation with respect to how the uncertainties in economic policies impact tax avoidance, particularly in developing countries. Therefore, this study apart from the fiscal policy also focuses to examine how the uncertainty in economic policy impacts the tax avoidance behavior of the firms.

Taxation is one of the major sources of revenues for the Government of any country. It is also one of the drivers of growth and employment in the economy. Tax compliance is widely practiced in the developed world. The problem persists in the developing world, where tax compliance is largely ignored. Tax avoidance exists more in developing countries mostly due to weak institutions. Moreover, developing countries also do not have strong investigations concerning taxation (Besley & Pearson, 2014). These all make tax avoidance much more prevalent in developing countries. On the contrary, the developed countries, they are relatively different when it comes to tax avoidance. The developed countries have much stronger governance and institutions which make it much more difficult to cheat the tax system. Tax avoidance behavior is much more common in developing nations as compared to developed nations (Beer et al., 2020).

In a country like Pakistan, which is a developing country, it has one of the lowest taxes to GDP ratios (Munir & Sultan, 2018). The main reason for its low compliance is due to its narrow tax base, legal complexities, and inefficient tax administration (Ahmed & Rider, 2013). Moreover, the governance and institutions in Pakistan are weak (Sheikh et al., 2017). This makes Pakistan

more prone to the problems of tax avoidance, which is responsible for huge revenue loss (Rontoyanni 2019; Faraz et al 2021). The previous literature has documented that in Pakistan there is not only a problem of low tax compliance, but equally, the problems of tax avoidance also exist, which is a concern for huge revenue loss (Rontoyanni 2019; Faraz et al., 2021). In Pakistan, the managers of the firms are often engaged in tax avoidance practices to increase their profits. Tax avoidance is a huge revenue loss for Pakistan's tax authorities (Marwat et al 2021). The problem of tax avoidance exists in Pakistan which needs necessary policy interventions (Soomro et al., 2020).

Importantly, as per the empirical evidence the taxation in Pakistan is not fiscally handled properly (Bukhari & Haq, 2020). Considering that fiscal policy has a large role in tax avoidance (Mocanu et al., 2021). Therefore, the current study investigates how the fiscal policy of its spending can impact the tax avoidance of the listed firms of Pakistan. Moreover, considering that economic policy uncertainty also has importance in explaining tax avoidance (Benkraiem et al., 2022). Therefore, this study also takes into account the uncertainty of economic policy and its effects on the tax avoidance behavior of the listed firms of Pakistan. Similarly, the firm characteristics which have a significant effect on tax avoidance are also taken as control variables in the study (Ginesti et al., 2020). Importantly, the study adopts the definition set by Dyreng et al. (2008), which defined tax avoidance as the activity that reduces the firm's tax liability.

The background of the study is based upon the problem concerning the tax avoidance rationale of the firms, particularly in developing countries; in this area, there exists also a research gap (Wang et al., 2020). It is mentioned that Pakistan is also a developing country. The role of economic policies, mainly the economic policy uncertainty and its impact on the firm's tax avoidance has become active (Nguyen & Nguyen, 2020). Furthermore, fiscal policy is one of the key policies; it's also been paramount for understanding tax avoidance behavior. Additionally, the firm characteristics have unique attributes which can affect tax avoidance (Taylor & Richardson, 2012; Ginesti et al., 2020). Therefore, the study has its objectives in examining the impact of fiscal and economic policy uncertainty on the tax avoidance behavior of the listed firms of Pakistan. Additionally, the study also has its aims in taking the firm characteristics into account. Specifically, how these firm characteristics can impact tax avoidance behavior. The study has significance for the policymakers in understanding how the fiscal and uncertainty of the economic policy can impact the tax avoidance behavior of the firms. Above all, this study contributes by extending the field of accounting and taxation concerning the tax avoidance behavior of firms, concerning fiscal and economic policy uncertainty.

2. Operational Definitions and Hypothesis Formation

2.1 Theory of Tax Avoidance

The notable economist Joseph Stiglitz introduced the general theory of tax avoidance in his paper (Stiglitz, 1985). The general theory of tax avoidance is a theory that declares that in the perfect market, tax avoidance behavior exists. Individuals and firms try to legally reduce their tax payments. The theory established principles of tax avoidance. The theory is based upon the principles mandated in various ways where the tax is avoided, for example through the deferment of taxation, tax arbitrage, etc. This study examines the problems of tax avoidance behavior in the context of the general theory of tax avoidance. The premise of the theory is concerning the tax avoidance behavior of the listed firms in Pakistan. Tax avoidance is widespread in Pakistan. The firm managers use tax avoidance to increase their profitability

(Marwat et al., 2021). In reference to the theory of tax avoidance, the study uses effective tax rates to measure tax avoidance (Hanlon & Heitzman, 2010). Importantly, to examine how the fiscal and the uncertainty of the economic policies affects the tax avoidance behavior of the listed firms of Pakistan.

2.2 Cost-Benefit Analysis Theory

The cost-benefit analysis theory is another important theory that assesses the Government's decisions and policies. Importantly, cost-benefit analysis theory studies the decisions in terms of their implications, or costs and benefits. Furthermore, Government policies are also assessed concerning their taxation (Dreze & Stern, 1987). In other words, the cost-benefit analysis theory is referred to as the methodology that weighs the benefits and costs of a certain Government policy or action from the public perspective. The cost-benefit theory has also been used by Shen et al. (2021) in their study to examine how economic policy uncertainty affects tax avoidance behavior. About the previous empirical evidence, this study also adopts the cost-benefit theory in its examination of fiscal policy and economic policy uncertainty and how they respond to tax avoidance. Due to the reason that premise for the cost-benefit theory lies in policy evaluations, which also consist of the fiscal and the uncertainty of the economic policy. Particularly, how the policy is linked to the tax avoidance practices of the listed firms. Importantly it is due to the reason that fiscal and economic policy uncertainty has policy ramifications for the Government for taxation.

2.3 Tax avoidance

It is widely accepted that the problems of tax avoidance and evasion have existed in almost all countries. It can be due to the weakness of the tax structures. However, despite this, the countries haven't done much about that (Slemrod & Yitzhaki, 2002). There are also inherent limitations in the standard models of taxation. These models aren't able to capture tax evasion and avoidance. The tax enforcement authorities try their best to decrease tax avoidance and evasion practices; however, they still face problems. The area of tax evasion is outside the purview of this research. This study looks into examining the problem of tax avoidance. The area of tax avoidance has gained its gravity (Mocanu et al., 2021). It's of wide interest not only to academia but also to policymakers. Apart from different problems in the economy, policymakers are also concerned with the challenges of tax avoidance and how to overcome them (Stewart, 2022). It is to be noted that the area of tax avoidance despite being of huge significance, is relatively difficult to measure the tax avoidance practices, especially whether the legal parameters are violated or not (Wang et al 2020). However, despite the inherent difficulties in measuring tax avoidance, effective tax rates have been commonly used to capture tax avoidance. The effective tax rates for measuring the tax avoidance practice are useful, due to the reason their values can be easily extracted from the financial statements (Ginesti et al., 2020). This study looks into examining the problem of tax avoidance, which is the reduction of tax, irrespective if the laws were violated or not (Dyreng et al., 2008). There is a research gap concerning the multifaceted approach. The need to examine tax avoidance from the accounting, finance, and economics perspective has been previously discussed (Hanlon & Heitzman, 2010). Therefore, this study carries out a multifaceted approach to address the research gap. It takes the perspective of economics, finance, and the accounting field.

2.4 Fiscal Policy and Tax Avoidance

The fiscal policy is an important tool of the macroeconomic framework of the Government. According to Otto Eckstein, fiscal policy is defined as nothing more than changes in taxes and spending aimed at short-run objectives such as job creation as well as price level equilibrium (Dewett, 2005). The government uses fiscal policy to regulate its taxation and spending. The Governments can apply expansionary or stimulus fiscal approaches (Stewart, 2022). Fiscal policy that directly raises aggregate demand by increasing government expenditure (spending) is commonly referred to as expansionary (loose). Fiscal policy, on the other hand, is generally regarded as contractionary (tight) if it decreases demand through lowering spending (Horton and Ganainy 2009). The determinants of the fiscal policy also consist of government size which is the government expenditure or spending, the Government size affects the tax evasion (Persson, 2002; Li & Ma, 2015). The Government's size can influence tax compliance, (Sritharan & Salawati, 2019). Furthermore, as suggested by Sritharan & Salawati (2019) the Government size, which is the Government spending is linked to tax compliance, is largely dependent upon the country's economic factors. It is argued that every country has its distinctive economic factors. The study of Sritharan and Salawati (2019) is based on Malaysia, which has different economic factors. Therefore, it is imperative to see how fiscal policy impacts other countries' tax compliance, such as tax avoidance. In this study's case, the sample is based in Pakistan. Additionally, the fiscal policy is responsible for controlling taxation, therefore an increase in Government spending or size causes the Government to also increase the tax rates which ultimately can induce the taxpayers to evade taxation (Islam et al., 2020). The problem of tax nonpayment is also considered to be fiscal disobedience (Deak, 2004).

Some studies considered the fiscal policy not only an important metric for increasing tax revenues but equally responsible for controlling tax avoidance (Malik et al., 2018). Moreover, the study by Malik et al. (2018) also acknowledged the limitations in measuring the variables. This according to the researchers could cause major challenges to establish causal relationships. Therefore, to extend the accounting and tax literature, it's necessary to focus on other variables and their measures concerning samples from different countries. Therefore, this study looks in examining the effects of fiscal policy on tax avoidance from the perspective of Pakistan. The importance of fiscal policy concerning taxation has been well documented in the previous literature; however, there are still limitations in the area of tax avoidance, particularly in developing countries. This study looks to examine how the fiscal policy affects the tax avoidance of the listed firms of Pakistan. It is expected that the increase in government spending which is regulated by the fiscal policy, causes the Government to substantially also increase the tax rates, which can escalate tax avoidance (Islam et al., 2020). Therefore, the following hypothesis is developed;

***H_1:* There is a significant positive association between fiscal policy and tax avoidance.**

2.5 Economic Policy Uncertainty

The area of uncertainty in economic policy is gaining importance. The uncertainties of the economic policies such as fiscal and monetary, it has been documented that they are highly influential, especially concerning how they affect the firm's decision-making (Al Thaqeb & Algharabali, 2019). There have been studies that have examined how other areas such as corporate governance affect tax avoidance practices (Minnick and Noga, 2010). However, there

is a limitation concerning how economic policy uncertainty influences tax avoidance. Admittedly, few studies examined the consequences of economic policy uncertainty and tax avoidance; however, they are on economically advanced countries. For example, the study by Nguyen & Nguyen (2020) examined the impact of economic policy uncertainty on the corporate tax avoidance of firms in the United States. According to the findings, there is a considerable positive association between economic policy uncertainty and tax avoidance of US firms. Additionally, Nguyen and Nguyen (2020) mandated that the relationship is less pronounced with the firms having higher levels of liquidity. Furthermore, it was also suggested by Nguyen and Nguyen (2020), that the relationship is weak in the cases where the firms have a stronger corporate governance mechanism. Importantly, the institutional settings in the USA are much different than those in developing countries, for example, Pakistan.

Another study by Shen et al. (2021) based in China found a significant negative relationship between economic policy uncertainty and corporate tax avoidance. Nevertheless, the findings of the study by Shen et al. (2021) were different than the previous study by (Nguyen & Nguyen, 2020). The difference in the findings can be due to many reasons, but one of the primary reasons is that the institutional and regulatory frameworks are different in both countries. Similarly, Pakistan being a developing country has a unique institutional and governance setting (Sheikh et al., 2018). Moreover, the economic policy uncertainties are different in the developing country, Pakistan. There is a limitation in the tax and accounting literature concerning the developing country Pakistan, especially how the economic policy uncertainty impacts the tax avoidance behavior of the listed firms. Therefore this study looks forward to addressing the research gap in this area. In line with the previous evidence by (Shen et al., 2021), it is expected that economic policy uncertainty decreases tax avoidance activity. Nguyen & Nguyen (2020) in their study argued that economic policy uncertainty can either decrease or increase the risk concerned with tax. Potentially during a period of high economic policy uncertainty, there would be more changes in the tax policies. This could cause the tax authorities to increase their tax audits, causing the firms to engage in fewer tax avoidance activities. Therefore, in line with the previous empirical evidence, the following hypothesis is formulated;

***H_2:* There exists a significant negative relationship between economic policy uncertainty and tax avoidance.**

The previous studies such as Ginesti et al (2020) when examining tax avoidance have also taken the firm characteristics as control variables. The control variables are representative of firm characteristics, which are highly subjective in how they impact the tax avoidance activity of the firms (Wilson et al 2009). The following variables are taken as control variables, age, leverage, cash, and size of the firm. Ginesti et al (2020) argued that the firm size was controlled due to the reason that larger firms relatively pay much higher taxes, therefore they have different effective tax rates. This was also mandated by Taylor and Richardson (2012) that the firm's size affects the effective tax rates differently, which can make the results less accurate. Moreover, leverage is also taken as a control variable, based upon the arguments by Ginesti et al (2020) that a firm's organizational goals are highly influenced by its capital structures. e.g. leverage. The firm age, cash, and size were found to have a statistically significant and negative relationship with the GAAP effective tax rate. On the other hand, the leverage was found to be insignificant (Ginesti et al 2020). Additionally, cash is taken as a control variable due to the reason that it also affects the relationship between economic policy uncertainty and tax avoidance (Nguyen and Nguyen,

2020). The firm age is taken as a control variable following the previous literature (Richardson et al 2015). Richardson et al (2015) suggested that it is probable that a newly formed firm with less age, in its management could be inclined to avoid more taxation to increase its earnings.

2.6 Conceptual Framework

Figure 1 depicts the study's conceptual framework; it is a graphical representation of the variables and their relationship (Hair et al 2020). The independent variables are fiscal policy and economic policy uncertainty. The first characteristics are leverage, cash, firm age, and size. The firm characteristics are also the control variables in the study (Taylor and Richardson, 2012; Ginesti et al 2020). The dependent variable is tax avoidance. It can be seen how the independent variables are linked to the dependent variable. The fiscal and economic policy uncertainties have an impact on tax avoidance. Importantly, the firm characteristics which are the control variables also have an effect on tax avoidance. The conceptual framework provides an understanding of the study, with respect to its variables.

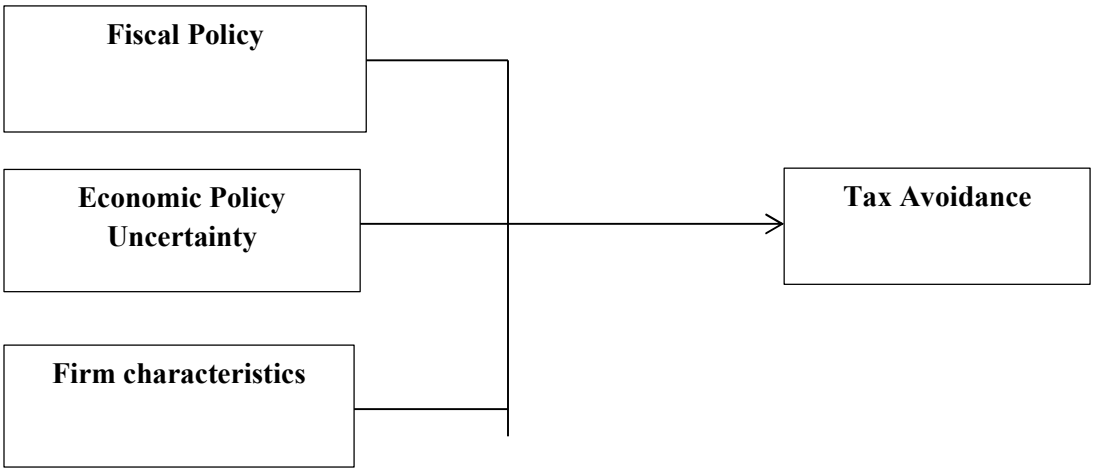

Figure 1. Model of the Study

3. Methodology

3.1 Sample and Procedure

It is important to conduct the study in this area of tax avoidance due to the reason that it provides a multidisciplinary approach (Hanlon & Heitzman, 2010). Macanu et al. (2021) documented the importance of economic policies in explaining tax avoidance. Importantly, it was also suggested by the researchers that future studies concerning economic policies and tax avoidance should be carried out in other countries, particularly in a corporate setting. The sample size includes non-financial firms which are a total of 295 listed on the Pakistan stock exchange (PSX), from 2011 to 2020 respectively. The financial firms are excluded from the study. The reason for exclusion is due to their different structures (Gebhardt, 2012). Additionally, financial and insurance firms have been removed from the sample due to considerable disparities in the implementation of accounting standards and the development of accounting estimates, as well as the distinct regulatory limitations these firms face (Richardson et al., 2015). The data is hand collected from the company's annual reports. Furthermore, it is also collected from the state bank of Pakistan

and the Pakistan Bureau of Statistics database. The company data such as tax avoidance proxies and firm characteristics have been collected from the company's annual reports. The data concerning economic policy uncertainty has been collected from the State bank of Pakistan. Moreover, the data on the fiscal policy is collected from the Pakistan Bureau of Statistics. The final sample size consists of 295 listed firms.

3.2 Description of variables

3.2.1 Dependent variable

The effective tax rates are used as the dependent variables in the study. The effective tax rates (ETR) are measured through the proxies of accounting effective tax rate (ACCTETR), current effective tax rate (CURRENTETR), and long-run effective tax rate (LONGRUNETR). In their study, Ginesti et al. (2020) mandated that effective tax rates are an efficacious means of capturing tax avoidance activity. The ACCTETR is measured by tax expenses (including the current and deferred tax) divided by the accounting income before taxes. Moreover, CURRENTETR is calculated by the current taxes divided by the accounting income before taxes (Hanlon & Heitzman, 2010; Tandean & Winnie, 2012). The LONGRUNETR is calculated by the sum of four-year tax expenses (including current and deferred tax)/ divided by the sum of the four-year pretax accounting income (Dyreng et al., 2008; Taylor & Richardson, 2012). Furthermore, the effective tax rates are winsorized to the 0 and 1 value range. The negative values are set at 0. Furthermore, the minimum and maximum values are set to 0 and 1, respectively. This is done in line with the literature of Dyreng et al. (2008). Lower effective tax rates suggest greater tax avoidance activity (Ginesti et al., 2020).

3.2.2 Independent variables

This study employs several independent variables. To measure the fiscal policy, the government size is used. Since fiscal policy refers to Government spending, this is also measured through the Government size. It is calculated by government expenditures divided by gross domestic product, (Li & Ma, 2005). The higher the Government spending is, the greater would be the size and vice versa (Nyasha & Odhaimbo, 2019). In the context of Pakistan, the more Government spending it is, the larger would be the size of the Government. Moreover, the increase in Government spending (measured by the size of the Government) should be equally matched with the increase in taxes. Government spending in Pakistan has increased (Javid & Arif, 2009). The independent variable is the Economic Policy Uncertainty Index. Baker et al. (2016) established the Index. This index is a weighted average measurement of the number of articles in newspapers that use key terms associated with policy uncertainty, (Nguyen & Nguyen, 2020). The two newspapers selected for measuring the economic policy uncertainty index in Pakistan, are business recorder and express tribune (Choudhary et al., 2020).

3.2.3 Control variables

This study also takes into account the firm characteristics that affect the tax avoidance, (Liu and Cao, 2007). These variables are taken as control variables. The variables such as leverage, liquidity, size, and firm age are used in line with the previous empirical evidence, (Minnick & Noga 2010; Taylor & Richardson, 2012; Ginesti et al., 2020). The leverage is calculated by total liabilities (debt) to total assets. The firm age is measured as the age of the firm since its incorporation, (Amidu et al., 2019). The firm's size is calculated by taking the logarithm of its

total assets. The cash represents liquidity it is measured through the current ratio, which is by dividing current assets by current liabilities (Dhawan et al., 2020).

3.3 Equations

The study forms the following regression equations;

$$ACCTETRi,t = \beta0 + \beta1GSi,t + \beta2EPUi,t + \beta3LEVi,t + \beta4FAGEi,t + \beta5SIZEi,t + \beta6CASHi,t + \varepsilon i,t \quad (1)$$

$$CURRENTETRi,t = \beta0 + \beta1GSi,t + \beta2EPUi,t + \beta3LEVi,t + \beta4FAGEi,t + \beta5SIZEi,t + \beta6CASHi,t + \varepsilon i,t \quad (2)$$

$$LONGRUNETRi,t = \beta0 + \beta1GSi,t + \beta2EPUi,t + \beta3LEVi,t + \beta4FAGEi,t + \beta5SIZEi,t + \beta6CASHi,t + \varepsilon i,t \quad (3)$$

Where;

ACCTETR= Accounting effective tax rate

CURRENTETR= Current effective tax rate

LONGRUNETR=Long run effective tax rate

β0= Constants

β1, 2, 3, 4, 5, 6= Coefficients

GS= Government Size

EPU= Economic Policy Uncertainty

LEV= Leverage

FAGE= Firm Age

SIZE= Firm Size

CASH= Cash

E= Error term

3.4 Estimation

The study uses the statistical estimations of the models through panel regression. The panel regression has been well suited for analysis because it includes the cross sections and time periods. Considerably, panel regression provides better estimates, (Asteriou & Hall, 2021). Three tests can be run on panel data, pooled OLS (common effect), fixed effect, and random effect model. Further two tests can be run to select more appropriate models i.e., Likelihood tests and Hauseman Test. The Hausman test is used to select between the two models. If the Hausman test is significant, the fixed effects model is appropriate for the study; otherwise, if insignificant, the random effects model is appropriate.

3.5 Operational Definition

The table 1 contains the variables that are included in this study in a tabulated form.

Table 1. Variable definitions and sources

Variable/Proxy name	Measurement of the variables	Sources of the data	Authors
ACCTETR /Accounting effective tax rate (ETR)	Tax expenses (current and deferred taxes)/ pretax accounting income.	Annual reports of sample firms	(Hanlon & Heitzman, 2010; Taylor & Richardson, 2012)
CURRENTETR/ Current effective tax rate (ETR)/	Current taxation payments divided by pretax accounting income	Annual reports of sample firms.	(Hanlon & Heitzman, 2010; Tandean & Winnie, 2016)
LONGRUNETR/Long run accounting effective tax rate	Four years sum of tax expenses (current and deferred taxes)/ Four years sum of pretax accounting income	Annual reports of sample firms	(Dyreng et al., 2008; Taylor &Richardson, 2012)
GS (government Size)	It denotes the fiscal policy variable, government size. It is calculated by dividing the government expenses to the total yield of an economy, this yield is calculated by the gross domestic product.	The data is taken from the Pakistan bureau of statistics, (PBS).	(Li & MA, 2015)
EPU/Economic policy uncertainty	Baker et al. (2016) established the Economic Policy Uncertainty Index.	The State Bank of Pakistan.	(Nyugen & Nguyen, 2020)
LEV/ Leverage	It denotes the firm's leverage. It's calculated by dividing the total liabilities (debt) to total assets.	Annual reports of sample firms	(Welch, 2011)
FAGE	Age of the firm since its incorporation	Annual reports of sample firms	(Amidu et al., 2019)
SIZE	The size of the firm is measured by taking the logarithm of total assets of the firm.	Annual reports of sample firms.	(Ginesti et al., 2020)
CASH	It represents liquidity; It is calculated using the current ratio, which is calculated by dividing current assets by current liabilities.	Annual reports of sample firms	(Dhawan et al., 2020)

4. Results

4.1 Descriptive Statistics

Table 2. Descriptive statistics

Variable	N	Mean	Std Dev	Maximum	Median	Minimum
ACCTETR	295	0.220	0.232	1.000	0.203	0.000
CURRENTETR	295	0.224	0.255	1.000	.1708	0.000
LONGRUNETR	295	0.278	0.210	1.000	0.275	0.000
GS	295	0.114	0.007	0.128	0.113	0.105
EPU	295	1.971	0.121	2.184	1.975	1.778
FAGE	295	39.165	16.970	78.000	36.000	1.000
LEVERAGE	295	0.590	0.738	23.406	0.542	0.000
CASH	295	2.053	8.904	257.929	1.119	0.000
SIZE	295	8.064	1.402	16.048	7.907	0.399

Table 2 shows the results of the statistical descriptions. The tax avoidance measured by the proxy of ACCTETR, CURRENTETR, and LONGRUNETR has mean and standard deviation values of 0.220(0.232), 0.224 (0.255), and 0.278 (0.210). The statutory tax rate of Pakistan was 29% in 2020. Moreover, throughout the sample period, the highest corporate (statutory) tax rate was 35%. The comparison of average effective tax rates with the statutory tax rate, especially the highest statutory tax rate during the sample period is a useful measure of tax avoidance (Liu and Cao, 2007). The lesser value of effective tax rates than the corporate (statutory) tax rate indicates tax avoidance. It is to be noted that the mean values of all the effective tax rates are significantly lower not only from the highest corporate (statutory) tax rate of 35% but also from the statutory tax rate of 29% for the year 2020. This indicates that tax avoidance is widespread among the listed firms of Pakistan. The independent and control variables such as GS, EPU, AGE, LEV, CASH, and SIZE have mean (standard deviation) values of 0.114 (0.007), 1.971 (0.121), 39.165(16.970), 0.590(0.738), 2.053 (8.904), and 8.064 (1.402) respectively.

The mean value of Government Size (GS) is 0.114, which is 11.4%. It is relatively low consistent with Li and Ma (2015). The Economic Policy Uncertainty (EPU) has a mean of 1.971. This is relatively high; this suggests that in recent years, policy-associated problems have grown into a major cause of economic uncertainty in Pakistan, consistent with Davis (2016). The firm age has a mean of 39, thus indicating that average firms are 39 years, these are not so old relatively. The leverage (LEV) has a mean of 0.590; this indicates that the average leverage of the firms is stable. On average the firms have a lower debt; the firms are managing their resources properly (Welch, 2011). The cash measured by the current ratio indicates liquidity its mean value 2.053. This is generally a higher current ratio, indicating that companies on average have more current assets than current liabilities. The companies on average can meet their obligations (Masrizal et al 2020). The firm size has a mean of 8.06; this is consistent with Ginesti et al (2020). This shows that on average most of the firms in the study's sample are small-sized.

The differences between the mean and median values are not so high which indicates the normality of the data (Taylor and Richardson, 2012).

4.2 Analysis of correlation

Table 3. Correlation Analysis

	1	2	3	4	5	6	7	8	9
(1)ACCTETR	1								
(2)CURRENTETR	0.694***	1							
(3)LONGRUNETR	0.414***	0.389***	1						
(4)GS	0.024	0.041**	0.016	1					
(5)EPU	0.068***	0.046**	0.042**	0.559***	1				
(6)LEV	0.031*	0.050***	0.056***	0.028	0.032*	1			
(7)SIZE	-0.008	-0.019	-0.023	-0.012	-0.022	0	1		
(8)FAGE	0.065***	0.050***	0.107***	0.028	0.009	-0.015	-0.005	1	
(9)CASH	0.121***	0.078***	0.017	-0.007	-0.005	-0.035*	-0.015	0.015	1

Notes: **, ** and *** shows the significance levels at 1%, 5% and 10% respectively.*

Table 3 indicates the Pearson correlation analysis. The correlation is used to measure the degree (strength) of association between two variables (Hair et al 2020). According to the Pearson correlation statistics, there is a statistically significant (positive) association between ACCTETR and EPU ($p<0.01$), LEV ($p<0.10$), FAGE ($p<0.01$), and LIQ ($p<0.01$), respectively. The positive correlation between the ACCTETR and EPU implies that higher economic policy uncertainty will result in fewer tax avoidance activities. This is consistent with the prior literature (Shen et al 2021). Furthermore, the increase in leverage, firm age, and liquidity causes firms to avoid less taxation. Similarly, CURRENTETR has a significantly positive correlation with FS ($p<0.05$), EPU ($p<0.05$), LEV ($p<0.01$), FAGE ($p<0.01$), and LIQ ($p<0.01$), respectively. Furthermore, the LONGRUNETR has a significantly positive correlation with EPU ($p<0.05$), LEV ($p<0.01$), and FAGE ($p<0.01$) respectively. The positive correlation of leverage with the effective tax rates is consistent with the study of Ginesti et al (2020). This implies that the higher the leverage the more tax the firms would pay. Meanwhile, the positive correlation of firm age with the effective tax rate is per the study by Salehi et al (2020). The older the firms get the more tax they pay. Importantly the correlation between the variables is also of moderate levels, which indicates the absence of multicollinearity (Taylor and Richardson, 2012). Furthermore, the VIF (variance inflation factor) values of the explanatory variables were less than 5. Moreover, the mean (the VIF (variance inflation factor) of the explanatory variables was 1.01. This indicates the absence of the multicollinearity problem in the data. A value of VIF (variance inflation factor) of more than 5 indicates the problem of multicollinearity (Hair et al 2012). Since most of the independent (explanatory) variables are statistically correlated with the dependent (response) variables, this in a way makes the independent variables reasonable to take into account in the study.

4.3 Regression analysis

To find out the empirical relationship between the variables such as fiscal policy, economic policy uncertainty, and tax avoidance behavior this study carried out a panel regression analysis.

Table 4. Panel Regression Results

Variable	ACCTETR	CURRENTETR	LONGRUNETR
Intercept	0.008	0.022	0.086
	(0.088)	(0.229)	(1.161)
GS	-9.859	-0.571	-1.328*
	(-1.149)	(-0.641)	(-1.933)
EPU	0.195***	0.153***	0.133***
	(3.990)	(3.011)	(3.413)
LEV	0.000**	0.001***	0.000***
	(2.109)	(2.363)	(3.275)
SIZE	0.000	0.000	0.000
	(-0.317)	(-0.451)	(-0.931)
FAGE	0.001***	0.002***	0.000***
	(2.632)	(3.203)	(5.613)
CASH	0.045***	0.042***	0.008
	(6.542)	(5.331)	(0.123)
R Square	0.024	0.259	0.0192
F Statistics	12.087	3.087	9.607
Prob F Stats	0.000	0.000	0.000

***Notes**: *, ** and *** shows the significance levels at 1%, 5% and 10% respectively; t values are in the parenthesis.*

The tax avoidance was calculated by using the proxies of Accounting effective tax rate (ACCTETR), Current effective tax rate (CURRENTETR), and Long run effective tax rate (LONGRUNETR), (Dyreng et al., 2008; Hanlon & Heitzman, 2010; Tandean & Winnie, 2016). The lower value of effective tax rates (ETR) indicates the higher activity of tax avoidance practice (Ginesti et al., 2020). The GS and EPU denote Government Size and Economic policy uncertainty respectively. The LEV, SIZE, FAGE, and CASH denote the firm's leverage, size, firm age, and liquidity. Panel regression is used. The panel model estimation is further chosen based on the Hausman test. If the Hausman test is significant this implies that the fixed effects model is suitable for the study. Otherwise, if the Hausman test is insignificant this indicates the appropriateness of the Random effects model (Asteriou & Hall 2021). Table 4 shows the panel regression results. There are three dependent variables; ACCTETR, CURRENTETR, and LONGRUNETR. Table 4 shows the regression results for the relationship between Government Spending (GS), Economic Policy Uncertainty (EPU), firm characteristics, and tax avoidance from 2010 to 2020. In the first model, ACCTETR is the dependent variable. The ACCTETR is calculated by tax expenses (including deferred and current taxes) divided by pretax accounting income. The random effects model has been used due to the reason that the Hausman test is

insignificant chi2= 5.737 (p=0.453). The F statistics value is 12.086, which is highly statistically significant (p<0.01). This indicates that the independent (explanatory) variables jointly influence the dependent (response) variable; moreover, the model is fit. The uncertainty in economic policy (EPU) has a significant positive relationship with the ACCTETR, (p<0.01). This is in line with the findings of Shen et al (2021) that the higher the economic policy uncertainty the less tax avoidance activity would be undertaken. This can be explained that the economic policy uncertainty often evolves during the period of economic recessions.

The local Governments are highly motivated to come out of the recessions and increase their tax collections, this ultimately leads to a decrease in tax avoidance (Dang et al 2019). This significant relationship provides support for the second hypothesis H2. The fiscal policy's government size (GS) was found to be statistically insignificant (p>0.01). The firm characteristics which are also the control variables, the firm's leverage (LEV), liquidity (CASH), and firm age (FAGE) had a significant positive relationship with the accounting ETR (ACCTETR), (p<0.01) respectively. On the other hand firm size (SIZE) was found to be statistically insignificant, (p>0.05). The positive relationship between Firm age (FAGE) and accounting effective tax rate (ACCTETR) is consistent with Richard et al (2015). Richard et al (2015) suggested that the older the firms get, the more they comply with the rules and regulations, and they avoid less taxation. Importantly, the results provide implications that the policymakers should assess and evaluate the different impacts of the uncertainty of economic policies on corporate behaviors. Similarly, the firm characteristics, when weighing the macroeconomic effects are also to be kept into consideration.

In the second model (Table 4) the current effective tax rate (CURRENTETR) is used as a proxy to measure tax avoidance. The current effective tax rate (ETR) is calculated by current taxes divided by earnings before tax (Hanlon & Heitzman, 2010; Tandean & Winnie, 2016; Ginesti et al., 2020). The fixed effects model has been used due to the reason the Hausman test was significant chi2= 20.376 (p=0.002). The significance of F statistics (p <.01), shows that the model is fit. The results indicated that economic policy uncertainty has a significant positive association with the current effective tax rate (ETR). This indicates that the higher the uncertainty in economic policy, there will be less tax avoidance activities. The results are not in line with the findings of Nguyen and Nguyen (2020). However, the results support the empirical findings of the previous study by Shen et al (2021). This significant relationship provides support for the second hypothesis H2. Nguyen & Nguyen (2020) argued that the increase in uncertainty of the economic policy can either increase or decrease tax avoidance activity. The increase of uncertainty in the economic policy could also lead to changes in tax laws, which can increase the tax audit. This would result in lesser tax avoidance behavior. The fiscal policy's variable Government size (GS) has an insignificant relationship with the current effective tax rate (ETR). The insignificant relationship doesn't provide support for the first hypothesis H1. The control variables such as liquidity; leverage and firm age have a significant positive association with the current effective tax rate (ETR). This indicates that the higher the cash and leverage in the firm, it will make more tax payments. The positive relationship between the cash with the current ETR doesn't support the study of Ginesti et al. (2020). However, the positive relationship of leverage with the current effective tax rate (ETR) is in line with the study of Ginesti et al. (2020). The firm age has a statistically positive relationship with the current effective tax rate (ETR). This indicates that older firms can make more tax payments (Salehi et al 2020). The size of the firm has an insignificant relationship with the current effective tax rate (CURRENETR). The earlier study by Tandean & Winnie (2016) also found an insignificant relationship between firm size

with the current effective tax rate (CURRENTETR). Importantly the firm characteristics have their effects on the firm tax avoidance behavior. The firm's capital structure plays an important role in influencing the tax avoidance rationale. This brings implications for the managers that they should organize their firm's capital structure in an effective way, which should not only be effective in tax payments but also be tailored to meet the organizational goals.

The third model (table 4) the LONGRUNETR is used as a proxy to measure tax avoidance. The LONGRUNETR is used consistent with the study of Dyreng et al. (2008), to overcome the potential limitations in the annual tax avoidance measures. Such as the significant variations that could arise in the annual tax avoidance measures. It is measured as the sum of four years of tax expenses (compromising both the current and deferred tax expenses) divided by the sum of four years of pretax accounting income (Taylor & Richardson, 2012). The random effects model has been used due to the reason that the Hausman test was insignificant chi2= 0.000 (p=1.000). In Table 4 the random effects model's results are shown where the dependent variable is LONGRUNETR. The F statistics are significant, ($p < .01$) this implies that the model is suitable and the independent variables jointly impact the dependent variable LONGRUNETR. The Economic policy uncertainty (EPU) had a significant positive relationship with the LONGRUNETR, ($p < .01$). This is in line with the findings of Shen et al (2021). The findings support the second hypothesis, H2. On the other hand, a significant negative relationship ($p < .10$) was found between fiscal policy's spending measured by Government size with the LONGRUNETR. This shows that with the increase of Government spending the tax avoidance activity also increases. This is mainly due to the reason that an increase in Government spending or size causes the Government to also increase the tax rates, which can lead to an increase in tax avoidance (Islam et al., 2020: Persson, 2002; Li & Ma, 2015). This provides empirical support to the first hypothesis H1. The control variables which also represent the firm characteristics, the leverage (LEV) and firm age (FAGE) had a significant positive association with the LONGRUNETR, ($p < .01$). This indicates that higher the leverage (LEV) and age of the firm (FAGE) the less tax avoidance activity would be undertaken. On the other hand, the liquidity (CASH) and firm size (SIZE) were found to be statistically insignificant, ($p > .05$). The significant relation of the Government size with the long-run effective tax rate provides important implications for the policymakers. As argued by Javid & Arif (2009) that any increase in Government spending in Pakistan should be proportionally matched with the increase in tax rates. Therefore, policymakers when increasing Government spending, should also keep this into consideration that in the long run by proportionally matching the Government spending with the increase in tax rates, this could potentially also increase the tax avoidance behavior among firms. The increase in tax avoidance could bring adverse repercussions for the economy. The Government spending (GS) value in the correlation (table 3) is positive, whereas in the regression table (table 4) it's negative. This is due to the reason that Correlation and regression both are different statistical techniques. If there is an association between two variables, in the correlation, this doesn't mean that one variable causes another variable. The correlation doesn't imply causality. On the other hand, the relationship in the regression analysis provides the causal inference (Hair et al., 2020).

5. Discussion

The study was based upon the quantitate analysis of the listed non-financial firms of Pakistan. The study investigated the impact of fiscal policy and uncertainty of economic policy on the tax avoidance behavior of the listed non-financial firms of Pakistan. The panel regression was

applied which has its advantages with relatively better inferences (Asteriou and Hall, 2021). The three tax avoidance measures were used accounting effective tax rates (ACCTETR), current effective tax rate (CURRENTETR), and the long run effective tax rates (LONRUNETR), following the previous literature (Dyreng et al., 2008; Hanlon & Heitzman, 2010). The firm characteristics were also used as control variables, which were liquidity (CASH), leverage (LEV), firm size (SIZE), and firm age (FAGE) (Ginesti et al., 2020). The panel regression provided empirical support to the study. It was found that the economic policy uncertainty had a positive effect on all three tax avoidance measures of accounting effective tax rates (ACCETR), cash effective tax rates (CASHETR), and long-run effective tax rates (LONGRUNETR). This indicates that when there is a rise in policy uncertainty the firm avoids less taxation, consistent with the study of Shen et al. (2021). Tax avoidance tactics could be ineffective as a result of failing to adapt to the new laws as economic policy uncertainty rises, and the likelihood of being investigated rises as a result (Lu & Zhang, 2016). Moreover, Nguyen & Nguyen (2020) argued that the increase in the economic policy uncertainty can potentially lead to less tax avoidance behavior of the firms. This is the reason that an increase in economic policy uncertainty can create changes in the regulations and tax laws that are not expected; this could lead to the state authorities increasing their tax audit and scrutiny. This causes the firms to avoid less taxation. Due to this, the firms decrease their tax avoidance activities when there is economic policy uncertainty. This provides substantial empirical support to hypothesis 2.

The previous literature documented that the fiscal policy's tool, government spending can influence the tax avoidance behavior of the firms (Persson, 2002; Li & Ma, 2015). This study examined the impact of Government spending on tax avoidance. The panel regression results of the study indicated that the fiscal policy's government spending measurement by Government size had an insignificant relationship with the accounting effective tax rates (ACCTETR) and the current effective tax rates (CURRENTETR) respectively. On the contrary, the fiscal policy's Government spending measured by Government size was found to have a significant (statistically) negative effect on the long-run effective tax rate (LONGRUNETR). The increase in Government spending has to be financed with the increase in taxes (Javid & Arif 2009). Therefore, the increase in Government spending causes the policymakers to also increase the taxes which can in response trigger tax avoidance behavior, (Islam et al 2020). The results provided significant implications for the policymakers, concerning tax rationalization. The policymakers, in the long run, should evaluate the fiscal policy, especially Government spending and its link with tax revenues. Arguably, there is weak evidence in favor of hypothesis 1, however given the limitations of the annual tax avoidance measures. The long-run effective tax rate carries its weightage in explicitly explaining tax avoidance (Dyreng et al., 2008). Therefore, hypothesis 1 is empirically supported.

Furthermore, the firm characteristics are also control variables such as firm age (FAGE), firm's leverage (LEV), liquidity (CASH), and firm size (SIZE). They all had a significant positive relationship with tax avoidance, except for the firm size (SIZE) which was found to be insignificant. The firm characteristics and their statistically significant relation provide the lawmakers with important justifications that each and every industry is distinctive. When devising the rules and regulations, lawmakers should asses and form the regulations to the industry's specifications. The results of the study provided important insights that how fiscal policy can be linked to the tax avoidance behavior of the firms. Especially, the increase in the Government's size motivates the authorities to also increase tax rates which in turn can lead to

higher tax avoidance (Islam et al., 2020). Similarly, economic policy uncertainty can be highly crucial not only for the policymakers but equally important for the firm manager's corporate decisions. The firm characteristics add their significance to also take them into account in terms of tax rationalization. Overall, the study provides a contribution to understanding how the different macroeconomic policies, particularly the fiscal and uncertainty of the economic policy can impact the tax avoidance behavior of the listed firms of Pakistan.

5.1 Conclusion

This study analyzed the impact of Government spending (a tool of fiscal policy) and the uncertainty of economic policy on tax avoidance activity. The study used the tax avoidance calculations of accounting effective tax rates (ACCTETR), current effective tax rates (CURRENTETR), and long-run effective tax rates (LONGRUNETR). The study also used the control variables which also represented the firm characteristics. The study based upon the panel regression came up with the empirical findings. The economic policy uncertainty had a significant positive relationship with all three tax avoidance measures. This suggested that in the period of economic policy uncertainty, there is also economic/financial recession, due to which the Government raises its tax collections, which leads to a reduction in tax avoidance. The fiscal policy's Government spending measured by Government size (GS) was insignificant concerning the tax avoidance measures of accounting effective tax rate (ACCTETR) and the current effective tax rate (CURRENTETR). Whereas, the fiscal policy's Government spending, measured by Government size (GS) had a significant negative relationship with the Long run effective tax rate (LONGRUNETR). This indicates that an increase in Government spending or size causes the Government to also increase the tax rates, which can lead to an increase in tax avoidance activity. The control variables such as leverage (LEV), cash (CASH), and firm age (FAGE) have a significant positive relationship with the accounting effective tax rate (ACCTETR) and current effective tax rate, (ETR). The study found that tax avoidance does exist in the firms of Pakistan. This study provides a distinctive contribution to the tax and accounting literature. It focuses on how the fiscal and the uncertainty of the economic policy affect the tax avoidance behavior of the firms. At the same time, it also took into account the firm characteristics and how they can affect tax avoidance. This provides an improved understanding in the area of tax avoidance concerning the fiscal and the uncertainty of the economic policy. Moreover, the results of the study provide insights into how policymakers can improve their policymaking concerning the macroeconomic framework. Furthermore, it also provides the firm managers the information related to their firm's tax management.

5.2 Theoretical Implications

The study is based on the general theory of tax avoidance. This theory sets out the principles of tax avoidance, particularly how in the market taxpayers tend to avoid paying their taxes. This study concerning the results and findings concluded that the general theory of tax avoidance also holds true for the developing country, Pakistan. The tax avoidance problem exists in Pakistan. This study, therefore, provides empirical support regarding the general theory of tax avoidance. Moreover, the results and findings are not only in line with the general theory of tax avoidance; however, they also support the theory. One of the important theoretical implications that this study draws is that a single type of tax cannot be ignored from the other types of taxes. For example the general theory of tax avoidance documents that the corporate tax is also influenced

by other taxes such as the individual's income taxes. However, for the firm's tax avoidance analysis, the corporate tax provides a reasonable analysis.

5.3 Practical Implications

When policymakers should be formulating tax policies, they should also consider the firm characteristics which affect tax avoidance. Moreover, economic policy uncertainty has implications for the policymakers that they should assess and weigh the economic policies with the conjunction of the different firms and how they are affected by these policies. Importantly, the fiscal policy's government spending can trigger tax avoidance activity among the firms in the long run. Therefore the policymakers when referring to increasing government spending, should keep in mind that increasing tax rates simultaneously can also increase the tax avoidance activities by the firms over the period. Government spending should therefore be increased with respect to the availability of tax revenues. Moreover, policymakers should also devise future tax revenue projections concerning their fiscal policy. Above all, tax avoidance does matter for economic growth. Therefore, the policymakers should pay due attention to the tax avoidance behavior of the firms and make necessary steps to mitigate it. One of the important steps would be for policymakers to encourage financial transparency for the firms. Furthermore, besides the transparency of the firms, the transparency concerning the macroeconomic policies should also be endorsed by the policymakers. Through financial transparency, tax avoidance could be reduced.

There are practical implications for firm managers that when they are facing economic policy uncertainty. They should keep in consideration that when making any financial decision the uncertainty in the economic policy should also kept in mind. Timely corporate decisions can save the adversities of economic policy uncertainty for the firms. The financial planning for the future should be well planned with the different macroeconomic scenarios; the expected deviations should also be kept on record. The financial blue print of the organization should be tailored in a way that provides a reasonable forecast for the tax costs and how the uncertainty of the economic policy could affect it. Moreover, the firms when they want to avoid the adverse effects of the uncertainty of the economic policy they should have a good tax management along with an efficient corporate governance mechanism.

5.4 Limitations and Future directions

This study isn't free from limitations, such as firm characteristics variables, which are limited to only four control variables namely cash, leverage, firm size, and firm age. Furthermore, the study is limited to the developing country, Pakistan. Moreover, the study is limited to only three tax avoidance measures. Another limitation is that economic policy uncertainty doesn't capture the other kinds of the uncertainty of policies that are specifically subjective to individual firms or industries. Furthermore, generally, the panel data often possess endogeneity issues. This is a big concern of the researchers when using panel data analysis. The other forms of statistical technique such as the GMM can be used to overcome the problem of endogeneity issues.

This study has some limitations, which come up with recommendations for future researchers. The researchers should look for other fiscal policy tools and see how they impact tax avoidance. Moreover, the fiscal policy tools could be examined with other variables through their moderating effects. Similar studies can be taken in other South Asian countries. As for the firm characteristics, more control variables such as sales and growth can be added. Importantly, the macroeconomic framework consists of both fiscal and monetary policy. Future research could

investigate how the two, fiscal and monetary policies interact together in explaining the tax avoidance behavior of the firms.

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