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Tax avoidance and geopolitical risk: evidence from Turkey

Vergiden kaçınma ve jeopolitik risk: Türkiye'den kanıt

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ABSTRACT

The objective of the study is to identify how geopolitical risk (GPR) influences tax avoidance behavior in Turkey over the period of 2007-2022. The findings of the study, which integrates financial and GPR data and runs panel data analysis, reveal that GPR has a detrimental effect on firms' tax avoidance activities. The negative relationship between tax avoidance and GPR is consistent with the agency theory view of tax avoidance. According to the agency theory view of tax avoidance, this finding suggests that Turkish firms do not prefer to engage in tax avoidance activities when GPR arises since saving cash through tax avoidance increases agency costs. A series of robustness tests with alternative measures of tax avoidance and GPR also provide evidence that an increase in GPR leads to lower engagement in tax avoidance both in the short run and long run. According to the findings, policymakers should evaluate the economic impacts of GPR and promote good governance practices to improve tax system efficiency and reduce tax avoidance costs, while managers should address agency problems to maximize the value-enhancing benefits of tax avoidance.

ÖZET

Çalışmanın amacı, 2007-2022 döneminde jeopolitik riskin Türkiye'de vergiden kaçınma davranışını nasıl etkilediğini belirlemektir. Finansal ve jeopolitik risk verilerini entegre eden ve panel veri analizi uygulayan çalışmanın bulguları, jeopolitik riskin işletmelerin vergiden kaçınma faaliyetleri üzerinde olumsuz bir etkiye sahip olduğunu ortaya koymaktadır. Vergiden kaçınma ile jeopolitik risk arasındaki negatif ilişki, vergiden kaçınma konusundaki vekalet teorisi görüşüyle tutarlıdır. Vergiden kaçınma konusundaki vekalet teorisi görüşüne göre, bu bulgu, vergiden kaçınma yoluyla nakit tasarrufu yapmanın vekalet maliyetlerini artırması nedeniyle, Türk işletmelerinin jeopolitik risk ortaya çıktığında vergiden kaçınma faaliyetlerinde bulunmayı tercih etmediklerini ortaya koymaktadır. Vergiden kaçınma ve jeopolitik riskin alternatif ölçümleriyle yapılan bir dizi güvenilirlik testi de, jeopolitik riskin artmasının hem kısa hem de uzun vadede vergiden kaçınmaya daha az dahil olunmasına neden olduğuna dair kanıt sağlamaktadır. Bu bulgular çerçevesinde, politika belirleyiciler jeopolitik riskin ekonomik etkilerini değerlendirmeli ve vergi sisteminin verimliliğini artırarak vergiden kaçınma maliyetlerini azaltmak için iyi yönetim uygulamalarını teşvik etmelidir. Öte yandan yöneticiler de vergiden kaçınmanın değer artırıcı faydalarını en üst düzeye çıkarmak için vekalet problemlerini dikkate almalılardır.

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1. Introduction

Geopolitical risk (GPR) is an important kind of risk that is associated with the escalation of wars, political tensions, disruption of international relations, terrorist attacks or strikes, and contributes to a type of uncertainty in the economic environment (Yilanci & Kilci, 2021; Khraiche et al., 2023). Events like climate change, the Israel-Hamas war, Brexit, or the invasion of Ukraine by Russia lead to geopolitical risk. “The risk related to wars, terrorist acts, and tensions between states that affect the normal and peaceful course of international relations” is the definition of GPR (Caldara & Iacoviell, 2022). It is different from economic uncertainty, which is related to economic downturns, inflation uncertainties, and concerns about unemployment (Pástor & Veronesi, 2012) and implies an unpredictable outlook for the national economy (Drobetz et al., 2018). GPR may result in interruptions to global supply chains, a decline in foreign direct investments, and a rise in international transaction costs (Gupta et al., 2019). It has a detrimental effect not only on the interstate trade activities also on the financial markets, business climate, and corporate policies of firms. Additionally, when faced with GPR, firms and financial institutions become more apprehensive about future expectations (Lee et al., 2023).

Previous contributions showed that GPR has influence on domestic credits (Lu et al., 2020), commodity prices (Gkillas et al., 2020), stock returns (Bevilacqua et al., 2020), and stock market development (Khraiche et al., 2023). Extensive literature also investigated the effect of GPR at the firm-level, including dividend payout policy (Adra et al., 2023), M&A (Shen, Liang, et al., 2021), capital structure (Kotcharin & Maneenop, 2020), cash holding (Aksoy-Hazır & Tan, 2023; Guizani et al., 2023; Behera & Mahakud, 2024; Wang et al., 2024), and corporate innovation (Jia et al., 2022). Even though firms pay taxes to the government, which is the largest and most significant contribution they make, limited information exists regarding the effect of GPR on the tax avoidance policy of firms. Understanding how firms alter their tax avoidance strategies in reaction to economic uncertainties, which can be the results of GPR, is essential, even if they persist in utilizing tax management tactics on the condition that the marginal gains of avoiding tax exceed the marginal costs in a stable economy (Athira & Ramesh, 2024). Due to increased GPR, firms are inclined to generate additional internal funds as a buffer against potential adverse impacts of GPR and for future investment opportunities (Nguyen & Nguyen, 2020; Haque et al., 2023). Since heightened GPR exacerbates information asymmetry and financial friction, which raise the cost of external funds, firms will use more aggressive tax tactics in an effort to boost their cash resources. However, from the standpoint of agency concerns, managers may mishandle cash for personal interest, such as overinvesting or for private managerial benefits, rather than using cash saved from tax avoidance wisely to increase the firm value (Harford, 1999). During high GPR, firms may be more inclined to cut back on tax avoidance activities to minimize the agency costs, which derive from managerial rent extraction (Shen, Hou, et al., 2021; Haque et al., 2023).

Thus, the goal of this study is to explore how GPR influences tax avoidance in Turkey. Given that Turkey’s economy is quite susceptible to external conflicts, analyzing the firm-level influence of GPR on Turkish firms is essential. Turkey’s advantageous location between Eastern Europe and the Middle East sets it apart from traditional economies, and numerous economic and political crises have affected Turkey, demonstrating the country’s continued sensitivity to outside shocks and financial crises (Tan & Aksoy-Hazır, 2022). Based on this background, figuring out how GPR affects tax avoidance in Turkey is an intriguing area of study. Additionally, none of the current research has examined how GPR affects tax avoidance in Turkey. This study analyzes the impact of GPR on tax avoidance, utilizing a sample of firms listed on Borsa Istanbul (BIST) from 2007 to 2022. The baseline research, which utilizes GPR as the main independent variable and the cash effective tax rate as the outcome variable, found that firms avoid taxes less when GPR arises. According to the agency theory, the agent may choose a different degree of tax avoidance than the principals do due to agency conflicts, and consequently, in times of high GPR, the principals in Turkey decide to lower the degree of tax avoidance, which lowers the firm

risk. (Kovermann & Velte, 2019; Shen, Hou, et al., 2021; Athira & Ramesh, 2024).

This study adds to the literature in two ways. Firstly, examining the association between GPR and tax avoidance added to the expanding corpus of research on the consequences of GPR. Second, the first evidence was provided in this research, that Turkish firms participate in tax avoidance less when GPR heightens in order to decrease the agency costs. This study clarified how geopolitical unpredictability affects tax strategies for firms operating in a vulnerable market, Turkey.

The rest of the study is organized as follows: The prior literature and development of hypothesis are presented in Section 2. Section 3 provides the data, variable description, and research design. In Section 4, the main findings and robustness outcomes are reported. The last section concludes the study and discusses policy implications.

2. Prior Literature and Hypothesis Development

2.1. Tax Avoidance from the Perspective of Agency Theory

Risk management and restructuring corporate decisions, dividend payout policy, financing choices, or compensation policy of firms encourage managers to participate in tax avoidance transactions. Practically, encompassing any activity that minimizes the firm's tax expenses in relation to its pre-tax income is considered tax avoidance (S. D. Dyreng et al., 2010). Conceptually, it involves a spectrum of transactions to take advantage of deficiencies in tax regulations, from intentional tax compliance to tax evasion or tax sheltering (Hanlon & Heitzman, 2010; Kovermann & Velte, 2019). Since tax avoidance tactics result in a considerable reduction in the government's fiscal revenue, it is also regarded as a strategy to shift wealth from the government to firms. (Khuong et al., 2020). Given that corporate income taxes are major expenses for shareholders, they are required to balance the advantages of avoiding tax against the potential costs of enforcement, penalties, and damage to the firm's reputation if the tax authorities discover the tax planning strategy (Hanlon & Heitzman, 2010).

The traditional principal-agent conflict can arise when managers have the potential to abuse shareholders' wealth due to a misalignment in their objectives, according to agency theory (Fama & Jensen 1983). Since tax avoidance raises cash flow levels and firm value, complex tax avoidance transactions can create agency costs and offer instruments, protection, and justifications for related parties transactions, earnings manipulation, and other management opportunistic acts (Desai & Dharmapala, 2006). Agency theory posits that in the absence of good corporate governance, agency costs occur. A firm that participates in tax planning will consider the costs and benefits. The benefits include lowering the tax burden of the firm, saving tax on expenditure, and using funds saved more creatively to increase the firm's value (Nebie & Cheng, 2023). In this context, Desai & Dharmapala (2006) developed a theoretical framework named compensation theory and assumed that stronger corporate governance raises the possibility of being caught and disciplined, which raises the manager's anticipated costs of diversion. Prior studies have extensively employed this theory to explain how corporate governance shapes tax avoidance activities (Desai & Dharmapala, 2006; Atwood & Lewellen, 2019; Kovermann & Velte, 2019; A. Hasan et al., 2024). Kovermann & Velte (2019) conclude that different corporate governance factors—including incentive alignment between management and shareholders, board composition, ownership structure, capital market oversight, auditing, enforcement, government relations, and stakeholder pressure—significantly impact corporate tax avoidance and they suggest that strong corporate governance mechanisms help maintain tax avoidance at an optimal level specific to each firm. In accordance with the agency theory, numerous studies have investigated the connection between tax avoidance and ownership structure (Richardson et al., 2016; Khan et al., 2017; Chen et al., 2018), family ownership (Gaaya et al., 2017), and managerial ownership (Wongsinhirun et al., 2024). Richardson et al. (2016) They identify a significant non-linear relationship between ownership concentration and tax avoidance, following an inverted U-shaped pattern. At lower levels, higher ownership

concentration is positively linked to tax avoidance due to the entrenchment effect. However, once ownership surpasses the threshold required for effective control, voting-based concentrated ownership negatively correlates with tax avoidance due to the alignment effect. Khan et al. (2017) provide evidence supporting the agency theory of corporate tax avoidance by demonstrating that higher institutional ownership is linked to increased tax avoidance. Using a sample of 55 Tunisian listed firms from 2008 to 2013, Gaaya et al. (2017) find that Tunisian family firms engage in more aggressive tax avoidance to minimize their tax liabilities compared to their non-family counterparts. This suggests that families expropriate minority shareholders by extracting rents through tax-saving strategies. Wongsinhirun et al. (2024) investigate the impact of managerial ownership on tax avoidance and their results support the idea that corporate tax avoidance is largely driven by agency conflicts and is significantly reduced when managerial ownership increases, as it better aligns the interests of managers and shareholders.

2.2. Literature Review and Hypothesis

Firms must generally weigh the possible advantages of cash retention against the expenses and practicalities of tax avoidance strategies. Financially distressed firms can save cash by avoiding tax, and tax-related information offers relevant signals of potential bankruptcy risk (M. M. Hasan & Habib, 2023). Although tax avoidance is a valuable part of internal finance through tax savings, it is related to costs, such as the cost of developing an information system for effective tax management operations, the costs linked to opportunistic tax avoidance tactics, and the reputational costs resulting from the potential tax enforcement agency prosecution (Desai & Dharmapala, 2006). In a stable economic environment, firms would continue to use tax avoidance strategies given that the marginal advantages outweigh the marginal disadvantages. However, it is crucial to comprehend how firms respond to geopolitical risks or economic uncertainties by changing their strategies (Ramesh & Athira, 2024). The equilibrium position of a firm with respect to tax avoidance is also altered by a rise in the cost of capital, a reduction in the accessibility of external funding sources for financially distressed firms, and generally encouraging management to take on greater risk (Richardson et al., 2015).

Due to an increase in geopolitical risks or economic uncertainty, firms' external financing costs increase, and if the costs of external financing exceed the marginal costs linked to tax avoidance activities, complying with the precautionary motive, firms prefer to increase internal resources for potential upcoming investments (Law & Mills, 2015). In simpler words, the firms' operations are less likely to suffer from tax savings, and cash saved by avoiding taxes can be used for dividend payments, financial or real investments, share repurchases, and debt reduction (Edwards et al., 2015; Guenther et al., 2019). Aligned with the precautionary motive, Nguyen & Nguyen (2020) examined how economic policy uncertainty (EPU) affects tax avoidance. They suggest that firms are more inclined to avoid taxes owing to the increase in EPU. They also provided evidence that firms respond to EPU with aggressive strategies to avoid tax in the long run. Further, Kang & Wang (2021) documented that inducing cautious reasons to participate in long-term tax savings takes time. Haque et al. (2023) reported that firms avoid taxes more when confronted with heightened GPR. In addition, Ramesh & Athira (2024) analyzed the association between tax avoidance and GPR using the financial data of 28,347 firms from 42 countries and demonstrated that firms faced with increased GPR behave more cautiously and participate in tax avoidance to hoard more cash.

From the tax avoidance perspective of agency theory, heightened GPR or EPU may impose potential expenses to firms through agency costs. Instead of using cash savings to raise the firm's value, opportunistic managers could misuse it for investments that devalue the company (Jensen, 1986). In addition, saving cash through tax avoidance may enable managers to extract private benefits for themselves through overinvestment and increase agency costs during the period of unstable economic conditions (Athira & Ramesh, 2024). On the one side, GPR or EPU cause governments' fiscal revenue to decrease, while they are compelled to boost spending to prevent economic

recessions, which puts further strain on the government's finances. To prevent the pressure, governments will make every effort to raise the tax revenue, which will result in a rise in the corporate tax burden (D. Dang et al., 2019). Taken together, it is also morally and pro-socially unacceptable for firms to underpay when the government requires funds to address inequality, prevent climate change, or invest in infrastructure development (Athira & Ramesh, 2024). Consequently, when GPR or EPU increases, firms would rather lower tax avoidance to minimize the possibility of investigation or reputational costs (Shen, Hou, et al., 2021). Aligned with the agency theory, D. Dang et al. (2019) reported the positive association of corporate tax burden and EPU, which means that firms decrease tax avoidance activities to prevent risks. Additionally, they discover that EPU intensifies tax collection by increasing government fiscal pressure, which in turn raises the corporate tax burden. Based on a sample of publicly traded Chinese firms, Shen, Hou, et al. (2021) examined the effect of EPU on tax avoidance, and the findings showed that firms that face uncertainty are less inclined to avoid taxes. Additionally, they suggest that state ownership, strong internal controls, and government subsidies help lessen the adverse impact of EPU on tax avoidance, whereas managerial ownership and high financial constraints exacerbate the negative effect of EPU on tax avoidance. Athira & Ramesh (2024) also concluded that accumulating cash by avoiding taxes increases agency costs during times of elevated EPU. The findings, consistent with agency theory, suggest that an increase in economic policy uncertainty leads to a reduction in tax avoidance, with this effect being more pronounced in firms with fewer financial constraints, while strong firm-level governance further mitigates tax avoidance during periods of heightened EPU.

As mentioned before, rising geopolitical tensions around the world can pose a serious threat to Turkey's economic prospects, and it is possible to infer that GPR leads to greater economic uncertainty about the future expectations and corporate decisions of firms. The following hypothesis is put forth in the light of these discussions.

H1: Geopolitical risk (GPR) affects tax avoidance of Turkish firms.

3. Data and Methodology

3.1. Sample Construction and Data

The sample comprises 269 firms listed on the Borsa Istanbul (BIST) with a total of 3498 observations from 2007 to 2022. Since inflation accounting is applied in Turkey as of 2023, the analysis does not include the financial data for 2023. Financial data was collected from Thomson-Reuters DataStream. Firms with less than 4 years of consecutive data and banks, investment funds, real estate companies, insurance companies, sports teams, and utilities are excluded from the sample. Following the literature (Nguyen & Nguyen, 2020; Ramesh & Athira, 2024), firm-year data with negative pre-tax income were removed from the sample. To minimize the possible influence of outliers on the empirical findings, all continuous variables are adjusted through winsorization at the first and 99th percentiles. All firm-level data are in TL denominated. The GPR index data is sourced from Caldara & Iacoviell (2022)'s website (<https://www.matteoiacoviello.com/gpr.htm>).

3.2. Variable Description and Empirical Model

Hanlon & Heitzman (2010) state that defining tax avoidance is relatively complex, and a number of corporate tax avoidance measures have been developed so far. Each measure has its own limitations. Previous studies have utilized GAAP effective tax rates (Porcano, 1986; D. Dang et al., 2019), residual book-tax difference (Desai & Dharmapala, 2006; Shen, Hou, et al., 2021), cash effective tax rates (S. Dyreng & Maydew, 2005; Nguyen & Nguyen, 2020), or adjusted cash effective tax rates (Benkraiem et al., 2022; Ramesh & Athira, 2024) to examine the level of firm's tax avoidance. Using effective tax rates to quantify tax avoidance is a common measure in the

previous literature. Following S. D. Dyreng et al. (2010), a firm's cash effective tax rate (CETR) is used to quantify tax avoidance, which is formulized as the firm's cash taxes paid divided by pretax book income without special items in a one-year window.

Changes in accounting assumptions, such as tax contingency reserves and allowances for valuation, may influence GAAP effective tax rates, but changes in cash effective tax rates, in contrast to other tax avoidance measures, are unaffected (Kim et al., 2011). Moreover, Edwards et al. (2015) state that the clearest indicator of a company's cash tax burden is its CETR. When pre-tax book income is zero or negative, CETR is regarded as missing, and in fact, following Nguyen & Nguyen (2020), CETR is multiplied by -1 after being truncated to the interval between 0 and 1. CETR is denoted as TA_CETR as a proxy of tax avoidance, which means that a higher TA_CETR reflects more tax avoidance (Nguyen & Nguyen, 2020; M. M. Hasan & Habib, 2023).

The main explanatory variable of the study is the GPR index. The GPR index is developed by Caldara & Iacoviell (2022). The frequency of publications addressing negative geopolitical events and associated risks for each month is counted to create the GPR index. Through automated text searches, these articles are obtained from ten newspapers' electronic archives. Words like "war, peace, military buildup, nuclear or terrorist threats, escalation of war" are included in this index (Caldara & Iacoviell, 2022). The country's overall and country-specific GPR indexes are reported separately. The fact that the primary focus of this study is firms listed in BIST and the GPR index of Turkey is used in this study. Additionally, GPR index are available on a monthly basis, and as a measure of GPR for Turkey, the annual GPR by taking the GPR index' monthly arithmetic mean throughout a year is computed. As the main independent variable of this study, the natural logarithm of the annual GPR was used (Aksoy-Hazır & Tan, 2023).

Drawing on existing literature, the analysis incorporates a number of firm-level control variables that influence tax avoidance, including profitability, firm size, leverage, and cash flow (Richardson et al., 2016; Chen et al., 2018; Nguyen & Nguyen, 2020; Haque et al., 2023; Ramesh & Athira, 2024). Each variable's definition is displayed in Table 1.

Table 1. Variables

Variables	Definitions
CETR	Cash taxes paid/pre-tax income without special items
GPR_TURKEY	Natural logarithm of the annual average of country-specific GPR
ROA	Net income/total assets
LEV	Total debt/ total assets
SIZE	Natural logarithm of total assets
CASH	Cash and cash equivalents/total assets

Source: Author's work

In panel data analysis, since using the logarithms of monetary values and large numbers is more appropriate to reduce the scale of the data, better reflect proportional relationships, increase comparability, and stabilize the variance of the data, the natural logarithms of the GPR data as GPR_TURKEY and total assets as SIZE variables have been considered (Wooldridge, 2010). The following regression model is used to verify the study's purpose and investigate the association of tax avoidance and GPR:

$$TA_CETR_{i,t} = \alpha_o + \alpha_1 GPR_TURKEY_{i,t} + \alpha_2 ROA_{i,t} + \alpha_3 LEV_{i,t} + \alpha_4 SIZE_{i,t} + \alpha_5 CASH_{i,t} + YEAR + \varepsilon_{it}$$

4. Empirical Results

4.1. Descriptive Statistics and Correlation Analysis

Table 2 displays the descriptive statistics for the primary independent variable (GPR_TURKEY), the dependent variable (TA_CETR), and the control variables (ROA, SIZE, LEV, and CASH).

Table 2. Descriptive statistics

	N	Std. Dev.	Mean	min	max	Median	p25	p75
TA_CETR	3498	.169	-0.101	-1	0	-0.064	-.167	0
GPR_TURKEY	3498	.159	2.296	1.86	2.492	2.307	2.25	2.421
ROA	3498	.123	0.066	.008	.229	0.051	.003	.115
LEV	3498	.256	0.528	.025	2.94	0.537	.334	.708
SIZE	3498	.939	8.477	2.561	11.235	8.433	7.89	9.061
CASH	3498	.123	0.106	0	.737	0.062	.016	.152

Source: Author's work

The mean inverse cash effective tax rate is -10.1 percent, which is relatively higher than -26.2 percent in the USA (Nguyen & Nguyen, 2020). The higher value of TA_CETR suggests a more aggressive approach to tax avoidance in Turkey (Haque et al., 2023). The average GPR_TURKEY is 2.296 during the sample period. The average size of sample firms is 8.477. The mean value of profitability of sample firms is 6.6 percent within a maximum of 22.9 percent and a minimum of 0.8 percent. The mean value of leverage is 52.8 percent, with a standard deviation of 25.6 percent. The average cash ratio of firms is 10.6 percent. The differences between the mean and median values are not so high which indicates the normality of the data. The Pearson correlation statistics between the variables are presented in Table 3.

Table 3. Correlation analysis

Variables	TA_CETR	GPR_TURKEY	ROA	LEV	SIZE	CASH
TA_CETR	1.000					
GPR_TURKEY	-0.034**	1.000				
ROA	-0.097***	0.034**	1.000			
LEV	0.067***	0.020	-0.379***	1.000		
SIZE	-0.179***	0.045***	0.199***	0.234***	1.000	
CASH	-0.115***	-0.011	0.392***	-0.211***	0.132***	1.000
VIF		1.00	1.44	1.33	1.20	1.19

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Source: Author's work

The correlation between tax avoidance and GPR is negative and significant at the 5 percent significance level. This result suggests early evidence that firms do not prefer to participate in tax avoidance activities or cut their tax payments as GPR increases. Profitability, firm size, and cash holding are inversely correlated with tax

avoidance. Put differently, firms with a larger size, higher profitability, and a high level of cash reduce their tax avoidance activities. However, a positive and significant connection between tax avoidance and leverage is found.

As correlation coefficients were generally low, multicollinearity between the independent variables may not be an issue. To identify the multicollinearity problem, the Variance Inflation Factors (VIFs) for each variable were conducted. The values of VIFs of each independent variable are presented in Table 3 and the mean value of VIFs was 1.232, which do not exceed 10 and confirm the lack of multicollinearity among independent variables and consistency of the regression analysis (Neter et al., 1996).

4.2. Regression Findings

To examine the baseline regression model, three types of panel data techniques - pooled OLS, fixed effects (FE), and random effects (RE) - were used. The F-test and Breusch-Pagan Lagrange multiplier (LM) were used to identify the most suitable model for the study data. The F-test and LM-test concluded that both FE and RE models are more appropriate than pooled OLS. The study employs the Hausman test to ascertain which of the FE and RE models is most suited for the data analysis. Due to the results of the Hausman test, the FE model is more suitable for the data than the RE model. The diagnostic tests of serial correlations, autocorrelation, and heteroscedasticity are investigated, and the FE model's validity has been established. These issues lead to the employment of the robust standard error estimator, the Driscoll and Kraay (1998) test. The results are displayed in Table 4, with Column 1 reporting the initial model's findings. Column 2 and Column 3 provide the estimations of the RE and pooled OLS models.

Table 4. Regression results

	FE	RE	POLS
	1	2	3
GPR_TURKEY	-0.0436*** (0.0159)	-0.0363** (0.0162)	-0.0306* (0.0176)
ROA	0.0387 (0.0324)	0.0448 (0.0283)	0.0117 (0.0273)
LEV	0.0829*** (0.0226)	0.0787*** (0.0155)	0.0666*** (0.0126)
SIZE	-0.0140* (0.00823)	-0.0284*** (0.00482)	-0.0348*** (0.00324)
CASH	-0.0202 (0.0350)	-0.0497* (0.0287)	-0.0981*** (0.0248)
Constant	YES	YES	YES
Year	YES	YES	YES
Observations	3,498	3,498	3,498
Prob > F	0.000		0.000
Prob > chi2		0.000	
Hausman	0.000		
R-squared	0.010	0.126	0.050

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Source: Author's work

The outcomes in Column 1 document that GPR has a detrimental effect on tax avoidance in Turkey (D. Dang et al., 2019; Shen, Hou, et al., 2021; Athira & Ramesh, 2024). The negative relationship between GPR and tax avoidance indicates that Turkish firms prefer to reduce agency costs by decreasing their cash reserves (Attig et al., 2021). Due to agency theory, intricate and ambiguous tax avoidance would give managers the opportunity to engage in self-serving practices, and this would raise agency costs and decrease information transparency (Desai & Dharmapala, 2006). Additionally, in the presence of high GPR, firms might participate in less tax avoidance because they are thought to be less willing to take risks (Badertscher et al., 2013). Agency costs brought on by tax avoidance may force Turkish firms to face excessive financing costs if they decide to participate in tax avoidance in the face of high GPR (Shen, Hou, et al., 2021). Alternatively, it can be highlighted that tax avoidance incurs costs from information asymmetry and litigation risks, which elevate financing costs, especially in environments where GPR leads to credit rationing. Consequently, firms are more likely to reduce their tax avoidance practices in order to improve transparency (Balakrishnan et al., 2019). On the other side, another possible explanation of the negative association between tax avoidance and GPR can be the increased possibility of tax investigation and punishment. Firms tend to decrease tax avoidance activities to overcome the possibility of being investigated or penalized (D. Dang et al., 2019). The heightened tax burden on firms resulting from reduced tax avoidance can be seen as a transfer of resources from the firm to the government. This choice reflects the firm's trust in the government's ability to offer adequate support during periods of higher GPR (Athira & Ramesh, 2024). It can also be argued that the decline in tax avoidance during uncertain periods is driven by concerns over heightened government oversight, as authorities work to enhance tax collection in the face of fiscal pressures (Kang & Wang, 2021). The findings in Columns 2 and 3 also reveal that GPR significantly and negatively affects tax avoidance.

Among control variables, the coefficient of leverage is positive and statistically significant, implying that firms may have additional motivation and potential for tax avoidance because of tax-deductible interest payments. (Richardson et al., 2016; Gaaya et al., 2017). Firm size has a statistically significant negative impact at the 10 percent level. Because larger firms are more noticeable and under regulatory inspection, they are less likely than smaller firms to participate in tax avoidance activities (Gaaya et al., 2017; Atwood et al., 2012; D. Dang et al., 2019). The relationship between profitability and tax avoidance is positive although insignificant (Richardson et al., 2015; V. C. Dang & Nguyen, 2022). Lastly, the effect of cash on tax avoidance remains negative and insignificant, which does not align with literature (Ouyang et al., 2020).

4.3. Robustness Checks

To further confirm the validity of the baseline results, the long run cash effective tax rate (LCETR) is used as an alternative measure of tax avoidance. It is determined by the percentage of cash tax paid to pre-tax book income without special items in each five-year period. (S. Dyreng & Maydew, 2005; Haque et al., 2023). According to S. Dyreng & Maydew (2005), cash taxes paid over short periods of time involve payments to, or refunds from tax authorities related to tax issues that arose years ago, and in line with this situation, they can be an imperfect measure of avoidance. But over extended periods of time, the income that these taxes are related to is more likely to be included in the same ratio as the tax. Additionally, firms that successfully avoid tax over the long term may be captured by the long run cash effective tax rates (LCETR) as opposed to the cash effective tax rate (Haque et al., 2023). Following Kim et al. (2011), to capture the firm's long run tax behavior, non-missing data for at least three years to calculate LCETR was taken into account. Following Nguyen & Nguyen (2020), LCETR is multiplied by -1. LCETR is denoted as TA_LCETR as a proxy of tax avoidance, which means that a greater TA_LCETR reflects more tax avoidance. The baseline regression results were estimated using TA_LCETR and FE with Driscoll and Kraay's (1998) standard errors was only applied.

Table 5. Robustness test results with alternative dependent variable

	TA_LCETR
GPR_TURKEY	-0.228*** (0.0473)
ROA	0.191*** (0.0355)
LEV	-0.0203 (0.0288)
SIZE	-0.0639*** (0.0135)
CASH	-0.0439 (0.0429)
Constant	YES
Year	YES
Observations	3,498
Prob > F	0.000
Hausman	0.000
R-squared	0.117
Robust standard errors in parentheses	
*** p<0.01, ** p<0.05, * p<0.1	

Source: Author's work

The findings reported in Table 5 indicate that the coefficient of GPR_TURKEY remains significantly negative, in line with the previous findings. Overall, it can be assumed that firms facing increased GPR are not inclined to take risk and do not avoid tax in the long run.

As an additional robustness check, the baseline regression results were reestimated using alternative measures of GPR, which are the natural logarithm of the annual average of the GPR threat and its associated risk (GPR_THREAT), the natural logarithm of the annual average of the GPR act and its associated risk (GPR_ACT), and the natural logarithm of the annual average of the worldwide GPR index (GPR_GLOBAL) (Caldara & Iacoviell, 2022).

Table 6. Robustness test results with alternative measures of GPR

	1	2	3
GPR_GLOBAL	-0.0764** (0.0316)		
GPR_THREAT		-0.0563*** (0.0204)	
GPR_ACT			-0.0707*** (0.0229)
ROA	0.0503 (0.0332)	0.0423 (0.0328)	0.0488** (0.0213)

LEV	0.0827*** (0.0226)	0.0889*** (0.0231)	0.0778*** (0.0228)
SIZE	-0.0114 (0.00789)	-0.00432 (0.00786)	-0.0187** (0.00858)
CASH	-0.0217 (0.0349)	-0.00763 (0.0352)	-0.0269 (0.0270)
Constant	YES	YES	YES
Year	YES	YES	YES
Observations	3,498	3,498	3,498
Prob > F	0.000	0.000	0.000
Hausman	0.000	0.000	0.000
R-squared	0.009	0.010	0.011

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Source: Author's work

The results given in Columns 1 to 3 of Table 6 reveal that the baseline results continue to hold and that the relationship between all alternative GPR indexes and tax avoidance is significantly negative. Aligned with the main results, the advantage of lowering tax avoidance exceeds the disadvantages when firms deal with a significant degree of GPR (Shen, Hou, et al., 2021).

5. Conclusion

Although the importance of geopolitical risk in corporate decision-making is becoming more widely recognized, little is known about how GPR impacts tax avoidance. It is aimed to investigate the impact of GPR on tax avoidance by using an unbalanced panel data of 269 firms listed on BIST over the period of 2007 and 2022 in this study. The results demonstrate that firms with higher exposure to GPR are less likely to avoid tax, which also supports the agency motive of tax avoidance. Moreover, the detrimental impact of GPR on tax avoidance is robust to a variety of alternative measures of the dependent and explanatory variables. The evidence also reveals that a rise in GPR causes lower participation in tax avoidance in the long run. When considering tax avoidance in relation to other control variables, it can be stated that Turkish companies tend to engage in tax avoidance due to interest payments resulting from debt. Additionally, large firms, when compared to small businesses, are more likely to consider their reputation and, within the framework of reputation management policies, prefer not to engage in tax avoidance.

Due to agency costs brought on by geopolitical tensions, Turkish firms are more inclined to be risk apprehensive and to avoid potential tax investigations or penalties rather than to save cash as a cushion against adverse disruptions to their cash flows. Alternatively, tax avoidance can worsen the information asymmetry issue between managers and investors during periods of elevated GPR. Consequently, Turkish firms are less likely to avoid tax when GPR arises.

As mentioned earlier, despite the extent to which the literature has thoroughly examined the effect of GPR on corporate investment, capital structure, dividend payments, and corporate cash holdings, there is limited evidence on how GPR affects the tax avoidance of firms. This study adds to the literature on the tax-related consequences of GPR. It also addresses a gap in the literature by examining the relationship between GPR and tax avoidance in Turkey as a vulnerable market. Moreover, prior research on tax avoidance is complemented that firms are reluctant

to avoid taxes in reaction to external geopolitical tensions. Finally, the findings demonstrate the effect of agency concerns on firms' tax planning mechanisms during periods of greater GPR.

The study has valuable implications for policymakers and managers. The policymakers should analyze the possible economic consequences of GPR, and in order to improve the effectiveness and efficiency of tax systems and decrease the social and financial costs related to tax avoidance, they can guide firms towards good governance practices. On the other hand, managers should mitigate the agency problems to benefit from the value-enhancing effects of tax avoidance.

This study has several limitations. First, the study focused on only non-financial firms in Turkey. Future studies can develop the study utilizing the context of financial firms or comparative studies involving many countries can be developed. In this study, tax avoidance has been measured on a cash basis; the study can be expanded with new variables by using different measurement methods of tax avoidance. Moreover, other macroeconomic factors, the role of industry-specific factors, or the role of tax authority can be related to tax avoidance in future studies.

Yazar Katkı Oranı Beyanı

Tüm süreç sorumlu yazar Çağrı Aksoy Hazır tarafından yürütülmüştür.

Destek Beyanı

Bu çalışma için herhangi bir kurumdan destek alınmamıştır.

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