

# Earnings Management in Response to the Introduction of Additional Corporate Income Tax

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**Abstract.** The objective of this research was to assess the impact of the introduction of windfall taxes on accrual earnings management in the Republic of Croatia. The Croatian windfall taxation setting was unique in the European Union due to the comprehensive taxpayer approach. The research sample included 115 companies eligible for windfall tax treatment in the Republic of Croatia in the time period from 2020 to 2023. Panel regression analysis was used to estimate the model necessary for hypothesis acceptance, and the Modified Jones model was utilized to calculate the magnitude of discretionary accruals as a proxy of earnings management. The research findings showed a positive relationship between absolute discretionary accruals and additional corporate income tax liabilities for the companies that utilized downward earnings management, which indicates the presence of a tax minimization issue through accrual earnings management during the period of windfall taxation. This research has practical implications for the legislature, tax authorities, and other users of financial statements and academia. Tax authorities and other users of financial statements may exercise caution in interpreting the financial information of companies eligible for windfall taxation. To prevent accounting manipulations, regulators should consider taking measures such as establishing a windfall taxation scheme based on the profitability of an industry or demanding more frequent disclosure of financial information from potential windfall taxpayers.

**Keywords:** excess profit tax, reporting quality, windfall tax.

## 1. Introduction

The period of economic prosperity following the 2008 global financial crisis had been abruptly terminated in the early months of 2020 when the outbreak of coronavirus indicated the start of a time interval replete with worldwide economic shocks. Even before the first economic shock caused by the COVID-19 economic crisis was formally declared as ‘finished’, the new economic crisis generated by the escalation of the Russo-Ukrainian war in February 2022 commenced. These events had severe repercussions on energy prices, whose increase started at the beginning of 2021 (Duparc-Portier & Figus, 2024).

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A variety of fiscal measures, such as subsidy programs, price interventions, and tax decreases, were implemented by the European Union countries as part of coordinated activities intended to alleviate the negative consequences of the aforementioned events on the most exposed persons and entities (Antón, 2023). Besides the control of energy costs, the rationale behind these interventions was also the redistribution of excess income earned by the energy companies to those most affected (Antón, 2023). In this context, one of the frequently utilized measures was the introduction of the windfall tax or excess profit tax (Hebous et al., 2022).

These redistributive measures are welcomed by households and other entities affected by the crisis, but the potential taxpayers are generally unwilling to contribute their surpluses to the state budget, irrespective of the magnitude of their financial success. This creates incentives to utilize earnings management techniques to reduce tax liability. Earnings management implies situations “when managers use judgment in financial reporting and in structuring transactions to alter financial reports to either mislead some stakeholders about the underlying economic performance of the company, or to influence contractual outcomes that depend on reported accounting numbers” (Healy & Wahlen, 1998, p. 6). In the case of tax minimization, it is expected that a company would utilize income-decreasing earnings management in an attempt to reduce its tax base or avoid exceeding an accounting threshold that qualifies an entity to be eligible as a taxpayer. Considering the contemporaneity of the subject and the fact that prior research was limited, out of date, focused exclusively on the Anglo-Saxon countries, and inconclusive (Beekes, 2003; Han & Wang, 1998), additional research was required.

The main objective of this research is to examine the relationship between earnings management and additional corporate income tax liabilities. Given that companies aiming to minimize tax liabilities are inclined to manage earnings downwards, this relationship is analyzed for the companies which have used downward earnings management. Previous research on the topic of earnings management and windfall taxes refers to the behavior of companies regarding potential introduction of windfall taxes, but, to the best of the author’s knowledge, the reaction of companies when windfall taxes were actually introduced was not examined, and this is exactly what constitutes the scientific contribution of this research.

Furthermore, this paper contributes to the existing research by conducting research in a non-Anglo-Saxon country. The specificity of the Croatian setting in comparison to other European countries was the comprehensive windfall tax scope, which did not focus exclusively on companies operating in the energy or some other sector, but included companies from all fields of activities. Also, it is a small country with a legal system of a limited efficiency, mostly due to the lengthy court proceedings. Furthermore, the time of introduction of the windfall tax could be debatable from the aspect of retroactivity, given that it entered into force at the very end of December 2022 and imposed tax liabilities for the current year, which was nearing its end, thereby significantly reducing the scope for tax planning.

## 2. Literature Review on Windfall Taxes

### 2.1. *Definition, measurement and history of windfall taxes*

Windfall profits are “large and unexpected gains resulting from luck or other factors which the person had not strategically worked towards” (Madhukumar, 2024, p. 374). In the literature, these profits are also defined as excess profits, unexpected profits, or extraordinary profits (Dubinina et al., 2024). Given that these profits are the consequence of unfortunate events with intensive economic repercussions, such as wars and pandemics (Diniz Magalhães & De Lillo, 2023), windfall taxes are introduced as a part of the spectrum of governmental measures introduced to address these repercussions.

Windfall tax can be defined as a “onetime, retrospective tax that is levied on a group of taxpayers who have received extraordinary profit based on the government’s judgment” (Antón, 2023, p. 745). These taxes are typically imposed on companies operating in certain corporate sectors, but can also be applied generally, irrespective of sectoral affiliation (Alvarado, 2023). One of the most important issues when considering the implementation of the windfall tax is calculating the value of normal profit (Madhukumar, 2024). Firstly, gross income was used as a tax base before the transition to net income (Avi-Yonah, 2020). Two methods were used in determining the amount of windfall tax: the average earnings method, by using the average value of earnings in several recent years, and the invested capital method, which includes determining the normal return on capital by the government (Antón, 2023).

Initially, these taxes were introduced in Denmark and Sweden in 1915 on entities that generated extraordinary profits from export to Germany (Plehn, 1920). Subsequently, this taxation practice was adopted by other countries, such as the United Kingdom and the United States (Diniz Magalhães & De Lillo, 2023). It was extended during World War II, when the Canadian windfall tax reached the rate of 100% (Diniz Magalhães & De Lillo, 2023). Besides wartime, windfall taxes are also introduced to mitigate the consequences of natural disasters, such as an earthquake that struck the Japanese coast in 2012 (Abdel-Kader & De Mooij, 2020).

### 2.2. *Argumentation pro et contra windfall taxation*

Fiscal policy is a powerful instrument for a stabilization of the financial system, but the measures implemented usually have supplementary drawbacks. A similar assertion is applicable to the windfall taxes, which were a subject of considerable professional and political disagreement. Expectedly, the fiercest opponents were the entities financially affected by the introduction of windfall taxes.

Besides predictability, economic efficiency, and simplicity of its collection, the prime reason in favor of its implementation is its societal fairness (Nálepová & Lampart, 2024), which cultivates a spirit of solidarity by financially supporting companies and households affected by the energy crisis (Antón, 2023). This form of taxation encourages reflection on progressive corporate taxation as an alternative for a reform of the currently existing

tax systems in terms of more equitable redistribution of wealth among the entities of an economic system (Diniz Magalhães & De Lillo, 2023).

The abovementioned fairness of introducing windfall taxes has two completely opposing sides, depending on the viewpoint. Subjects adversely affected by the crises regard it as a redistributive measure that will help alleviate the repercussions of the energy crisis (Antón, 2023). On the other hand, potential taxpayers are, expectedly, the fiercest opponents of its implementation, and they consider windfall taxes as a constitutionally questionable distortion of equal market treatment (Alvarado, 2023).

Furthermore, there are challenges such as double taxation (Alvarado, 2023), lack of uniformity of tax implementation in different jurisdictions across the European Union, which raises investment uncertainty (Alvarado, 2023), inclusion of the COVID-19 crisis period in the calculation of normal profits (Erdős & Czoboly, 2023), stimulation of tax planning (Erdős & Czoboly, 2023), possible initiation of a new European Commission's tax legislative practice in avoiding unanimity in decision making (Erdős & Czoboly, 2023), a potential negative effect on the tax system reliability in terms of dampening future investments because of corporate anticipations of tax initiatives broadening to other industries (Martins, 2025), overlap with existing energy taxes in certain EU countries (Moniz, 2023), reduced investment in innovation (Xu, 2020), administrative complexity and questionable measurement accuracy (Christians, Allison, & Magalhães, 2023) and negative effects on the business freedom (Chmelíčková, 2024).

### ***2.3. Implementation of contemporary windfall taxation in the EU***

The implementation of windfall taxes in the jurisdictions of European Union countries is based on the Council Regulation (EU) 2022/1854 of 6 October 2022 on an emergency intervention to address high energy prices, OJ 2022 L 261/1. Several EU countries had anticipated the Regulation and implemented the windfall tax before its adoption – among the pioneering countries are Romania and Spain, which imposed these temporary fiscal measures in 2021 on the companies operating in the energy sector (Alvarado, 2023). There is also the case of Hungary, which implemented an energy surtax more than a decade ago, in 2009 (Erdős & Czoboly, 2023). Certain EU countries adopted a more extensive approach to windfall taxation by including companies operating in other sectors, such as banking and food distribution (Alvarado, 2023). The rationale behind the inclusion of the banking sector is an increase in interest rates (Martins, 2025). The Croatian approach was the most comprehensive of all, with a tax scope including all companies surpassing a defined income threshold, irrespective of their sector (Alvarado, 2023). During 2023, certain countries, such as Lithuania and Spain, altered the trends concerning the sectors affected by the windfall taxation and started imposing windfall taxes on the banking sector (Enache, 2023). In 2024, most countries did not impose new windfall taxes, but the few countries that did so predominantly focused on banks and extended their taxes for multiple years (Enache, 2024).

#### 2.4. Regulation and legality of windfall taxes in the EU and the Republic of Croatia

By using Article 122 of the Treaty on the Functioning of the European Union as the base for adopting the Regulation and implementing the windfall tax across the European Union was controversial because the voting unanimity necessary for tax measures was bypassed (Alvarado, 2023). Apparently, this was not the sole issue surrounding the introduction of windfall taxes, as Cordewener (2024) stated that “a complex legal battlefield has developed around the windfall taxes” (p. 222). Some reasons for these legal issues were the selectivity in determining the companies obliged to pay taxes in terms of the size and industry, arbitrariness of determining the amount of excess profits (Alvarado, 2023), the violation of the retroactivity presumption and the property right, as well as the principles of legal certainty and proportionality (Fabbrini, 2024). The entities dissatisfied with the new Regulation have undertaken legal actions before the constitutional courts in the EU countries, e.g., *Corte Costituzionale* in Italy and *Cour constitutionnelle* in Belgium, but their requests have been overruled (Fabbrini, 2024; Alvarado, 2023).

The solidarity contribution was intended to be temporary (Article 18), and 31 December 2023 was set as the ultimate date of its application (Article 22). The revenues generated from the solidarity contribution should be used for purposes specified in Article 17, mostly directed towards vulnerable households, companies in energy-intensive industries, developing energy autonomy, and promoting investments in renewable energy. The windfall tax base is prescribed in Article 15 as the profits that exceed the threshold of 20% above the average taxable profits generated in the four years preceding the year of the calculation of windfall taxes. The minimum windfall tax rate threshold applied on the prescribed windfall tax base is 33% (Article 16).

Given the “short timeframe to draft rules and the difficulty in determining a common tax base for a windfall tax, the Regulation relies on national rules” (Erdős & Czoboly, 2023, p. 41). In August 2022, the Croatian Minister of Finance expressed readiness to introduce an extra profit tax if necessary (RTL Danas, 2022). At the end of September 2022, he stated that “the Ministry of Finance is currently developing the basic elements of taxation with a special or additional profit tax” (Government of the Republic of Croatia, 2022). Public consultation on the Draft Law on additional corporate income tax was opened on 17 November 2022 and closed on 1 December 2022. Finally, the Act on Extra Corporate Income Tax (OG 151/2022, 9/2023) entered into force on 22 December 2022. Besides the presently mentioned Act, the regulation was also implemented in the Republic of Croatia through the Bylaw on extra corporate income tax (OG 17/2023).

The companies that had an income higher than 300,000,000.00 HRK<sup>1</sup> (equivalent to 39,816,842.52 EUR) (Article 4) were obliged to pay the extra corporate income tax of 33% (Article 9) on the profit that exceeded the average threshold value of profits in the four preceding years, increased by 20% (Article 5). The specificity of the extra corporate income tax in the Republic of Croatia, in comparison to the other windfall taxes across

<sup>1</sup> HRK is an abbreviation for the Croatian *Kuna*, the official currency in the Republic of Croatia until 2023, when it was replaced with the Euro (abbreviation: EUR).

the European Union, is its universal application to all companies that fulfill the requirements for its payment. The threshold is identical to one provided in the Regulation, and the minimal possible tax rate was prescribed by the Croatian legislator.

### ***2.5. Previous research on tax rate increases and earnings management***

The research on the relationship between windfall taxes and earnings management is extremely scarce, focused only on the Anglo-Saxon countries, and outdated, given that it was carried out more than two decades ago. This is the reason why, in this section, the related research stream was considered, namely, the research on tax rate increases and earnings management. Beekes (2003) and Han and Wang (1998) analyzed earnings management in the context of potential political costs in the form of windfall taxes. The term ‘political costs’ refers to the power of political establishment to make decisions which cause wealth distributions between different societal groups and frequently affect the corporate sector (Watts & Zimmerman, 1978).

Beekes (2003) investigated whether the downward earnings management was utilized by Water and Sewerage group companies in England and Wales to avoid possible political costs of windfall taxation. He found that companies did the opposite of what had been expected, and concluded that “other pressures were more important (...) than the threat of politically imposed wealth transfers” (p. 2).

Using the sample of the crude petroleum and natural gas industry and the petroleum refining industry during the 1990 Persian Gulf Crisis spurred by the Iraq’s invasion of Kuwait, Han and Wang (1998) found that these companies used downward earnings management to reduce their financial results and that there is a positive relationship between earnings increases and fourth quarter financial results disclosure delay. Probably due to the recent experience with oil windfall profits during the 1980s and the significant business media coverage, these companies took the possibility of the reintroduction of the windfall tax more seriously.

Regarding the taxation research that was not focused on the windfall taxes, Li et al. (2016) found a positive relationship between tax rate increase and earnings management, but only for companies with political connections that protect them from tax authorities. Not only do tax increases entice earnings management activities, but also tax rate reductions – Zeng (2014) investigated tax rate alterations in China that occurred nearly two decades ago and found that companies shifted income from the period with less favorable tax rates to the subsequent period with reduced tax rates. This finding was corroborated by Kuo and Lee (2019), who also found evidence of income-decreasing earnings management before a tax rate reduction. Conversely, Guenther (1994) found lower accruals in the year preceding the tax reduction, corroborating the existence of incentives other than tax minimization, as well as Wali (2021). In this context, Lin et al. (2012) found that private companies are more prone to use downward earnings management than public companies, and Sundvik (2016) found that this was predominantly conducted through accounts receivable, while the weaker relationship was found with depreciation and inventory.

Following the previous research, the hypothesis of the present investigation is established as follows:

*There is a statistically significant positive moderating effect of downward earnings management on the relationship between earnings management and additional corporate income tax liabilities.*

### 3. Research Methodology

Financial information was acquired from the Fina Info.BIZ database, provided by the Croatian Financial Agency, which comprises business data of companies operating in the Republic of Croatia. Information on the additional corporate income taxes was obtained from the annual reports publicly available at the RGFI Public Posting database, also provided by the same agency.

The research population of 453 companies which have exceeded the threshold of 300,000,000 HRK (equivalent to 39,816,842.52 EUR) in the financial year 2022 was considered for the inclusion in the research sample. To increase the estimation accuracy of the magnitude of the earnings management model, a four-digit industry classification was utilized. Thus, the industries which did not fulfill the benchmark of six companies per industry threshold following the approach of Thi (2025) and Nuhu et al. (2024) were not included in the sample. Finally, the sample comprised the financial data for 115 companies during the period from 2020 to 2023.

The modified Jones model was utilized to measure earnings management (Zadeh et al., 2022):

$$TA_{it}/A_{i,t-1} = \alpha_0 (1/A_{i,t-1}) + \alpha_1 [(\Delta REV_{it} - \Delta REC_{it})/A_{i,t-1}] + \alpha_2 (PPE_{it}/A_{i,t-1}) + \varepsilon_{it} \quad (1)$$

where “ $TA_{it}$  is the total accruals for company  $i$ , in year  $t$ ;  $A_{i,t-1}$  is the asset for company  $i$ , in year  $t-1$ ;  $\Delta REV_{it}$  indicates the changes in revenues of the company  $i$  in year  $t$ , which is calculated by revenues in year  $t$  less revenues in year  $t-1$ ;  $\Delta REC_{it}$  is related to the changes in receivables for the company  $i$ , in year  $t$  that is measured by receivables in year  $t$  less receivables in year  $t-1$ ;  $PPE_{it}$  is the (...) property, plant, and equipment as fixed assets of the company  $i$  in year  $t$ ; and  $\varepsilon_{it}$  is the residual error for the company  $i$  in year  $t$ ” (Zadeh et al., 2022, p. 7).

The value of cash flows from operations was subtracted from the value of net profit to compute the value of *Total Accruals* (TA) required for the Modified Jones model. Following the approach of previous research (Kothari et al., 2005), residuals ( $\varepsilon_{it}$ ) from Equation (1) were considered as discretionary accruals.

Following the research of Zhang et al. (2022), Gandía and Huguet (2021), Kim et al. (2019), Cassell et al. (2018), and Cheng and Reitenga (2001), absolute values of discretionary accruals were applied in this research. Jamadar et al. (2022) highlight the absolute discretionary accruals as more suitable compared to signed accruals, but Cheng and Reitenga (2001) also indicate that this approach does not account for differences

between income-increasing and income-decreasing activities. An increase in absolute discretionary accruals implies a decrease in the quality of financial reporting (Chen et al., 2008; Boone et al., 2012).

**Table 1.** Variable description

Variable	Abbreviation	Description
Absolute discretionary accruals	aDACC	Absolute discretionary accruals estimated by the Modified Jones model.
Signed discretionary accruals	DACC	Signed discretionary accruals estimated by the Modified Jones model.
Additional corporate income tax ratio	ACIT/TA	Additional corporate income tax divided by total assets.
Downward earnings management	DW	Dichotomous variable indicating if a company conducted downward earnings management, i.e., a value of '1' signifies that a company conducted downward earnings management, whereas a value of '0' signifies that a company did not conduct downward earnings management.
Company size	CS	Company size is measured as the natural logarithm of total assets. Logarithmic transformation "is the typical transformation of variables with large positive values" (Saona et al., 2020, p. 110).
Return on assets	PROF	Profitability calculated as net profit divided by total assets.
Leverage	LVG	Gearing ratio calculated as total liabilities divided by total assets.

The research hypothesis was tested by using the following research model:

$$aDACC_{i,t} = \beta_0 + \beta_1 * ACIT/TA_{i,t} + \beta_2 * DW_{i,t} + \beta_3 * ACIT/TA * DW_{i,t} + \beta_4 * CS_{i,t} + \beta_5 * PROF_{i,t} + \beta_6 * LVG_{i,t} + e_{i,t} \quad (2)$$

The variables included in the research model are elaborated in Table 1. The statistical analyses were conducted by using the *PAST 4.03* software (Hammer et al., 2001) and *R* language and environment for statistical computing (*R Core Team*, 2024). Additional *R* software packages were used such as the *stargazer* (Hlavac, 2022), the *car* package (Fox & Weisberg, 2019), the *plm* package (Croissant & Millo, 2018; Croissant & Millo, 2008) and the *lm* test (Zeileis & Hothorn, 2002).

An additional corporate income tax ratio as a test variable was calculated in relative terms to achieve greater comparability among companies of different sizes. Interaction between additional corporate income tax and a dichotomous variable indicating downward earnings management was included in the model, given that companies aiming to minimize tax liabilities are inclined to manage earnings downwards. This tendency could be offset by stronger upward earnings management incentives typical for listed companies.

Several control variables were also included in the model – the *company size* (CS), *return on assets* (PROF), and *leverage* (LVG). The relationship between the company size and earnings management is not straightforward due to potential contrastive effects – analysts’ and regulatory oversight curbing earnings management on the one side and organizational complexity contributing to opportunistic activities on the other side (Saona et al., 2020). The relationship between leverage and earnings management is also ambiguous – it could be positive due to potential debt covenant violation (Palacios-Manzano, Gras-Gil, & Santos-Jaen, 2021), but companies could also have a lack of motivation to conduct earnings management if their operations are already financed through debt (Li, Wang, Wu, & Xiao, 2016). Also, profitable companies are less incentivized to engage in earnings management activities (Kapoor & Goel, 2017).

#### 4. Results

This section comprises descriptive statistics, a correlation matrix of independent variables included in the research model, variance inflation factors, and results of panel regression analysis. Table 2 shows descriptive statistics of the variables included in the research model. On average, companies have relatively high discretionary accrual values; they were rather profitable and used debt financing to acquire nearly 59% of their assets.

**Table 2.** Descriptive statistics

	aDACC	ACIT/TA	CS	PROF	LVG
<b>Min</b>	0.00003	0	7.14	-6.37	0.05
<b>Max</b>	1.15	1.43	20.80	0.81	9.46
<b>Mean</b>	0.08	0.01	17.71	0.05	0.59
<b>Median</b>	0.05	0	17.59	0.06	0.56

Source: Authors’ calculation using the *Past* software package.

Signed discretionary accruals analyzed in Table 3 imply that companies, on average, had positive accruals in the year of the additional corporate income tax (0.0002), but, if only the additional corporate income tax is considered, the values are negative, thereby implying considerable usage of income-decreasing earnings management techniques (-0.0125).

**Table 3.** Average signed discretionary accruals

Year	2020	2021	2022	2023	Total
<b>DACC</b>	0.0004	-0.0017	0.0002	-0.0004	-0.0003
<b>DACC (ACIT taxpayers)</b>	-	-	-0.0125	-	-

Source: Authors’ calculation using the *Past* software package.

Given that the panel regression was used to estimate model coefficients necessary for the hypothesis testing, Pearson correlation coefficients were calculated in Table 4. Statistically significant regression coefficients imply that larger companies are more profitable (0.32) and less leveraged (-0.36) and vice versa, but also that more profitable companies are less leveraged (-0.65) and vice versa. The correlation coefficient between leverage and return on assets exceeds the threshold of 0.5; therefore, variance inflation factors were calculated in Table 5 to ensure the absence of a multicollinearity problem (Gu, 2021).

**Table 4.** Correlation matrix of independent variables

	ACIT/TA	CS	PROF	LVG
ACIT/TA	1			
CS	-0.07	1		
PROF	0.05	0.32***	1	
LVG	0.02	-0.36***	-0.65***	1

Note: \*  $p < 0.1$ ; \*\*  $p < 0.05$ ; \*\*\*  $p < 0.01$ .

Source: Authors' calculation using the *Past* software package.

Given that the values of variance inflation factors are within a threshold of 7.25 both for the Modified Jones model and the Jones model, there is no multicollinearity problem (Gu, 2021).

**Table 5.** Variance inflation factors

Variable	Modified Jones model	Jones model
ACIT/TA	1.417409	1.417570
DW	1.051292	1.045727
DW * ACIT/TA	1.413834	1.414023
CS	1.102253	1.102206
PROF	1.370505	1.367319
LVG	1.285376	1.284307

Note: \*  $p < 0.1$ ; \*\*  $p < 0.05$ ; \*\*\*  $p < 0.01$ .

Source: Authors' calculation using the *R* language and environment for statistical computing.

Regression results are presented in Table 6. In order to test the established hypothesis, two models were estimated by using random effects panel regression – in the first regression model, the modified Jones model was used to estimate the dependent variable, while the second regression model includes a dependent variable estimated with the Jones model as part of the robustness testing. A dichotomous variable indicating the earnings management direction was included in models to distinguish between companies with income-decreasing and income-increasing earnings management.

**Table 6.** Regression results

<b>Dependent variable:</b>	<b>aDACC – Modified Jones model</b>	<b>aDACC – Jones model</b>
<b>ACIT/TA</b>	-0.180***	-0.188***
	(0.061)	(0.061)
<b>DW</b>	-0.004	-0.004
	(0.009)	(0.009)
<b>DW * ACIT/TA</b>	0.921***	0.932***
	(0.114)	(0.115)
<b>CS</b>	-0.008*	-0.009*
	(0.005)	(0.005)
<b>PROF</b>	0.147***	0.129**
	(0.054)	(0.054)
<b>LVG</b>	0.037	0.037
	(0.026)	(0.026)
<b>Constant</b>	0.200**	0.208**
	(0.090)	(0.091)
<b>N</b>	435	435
<b>R<sup>2</sup></b>	0.182	0.179
<b>Adjusted R<sup>2</sup></b>	0.171	0.168
<b>F Statistic</b>	86.595***	84.579***

Note: \* p < 0.1; \*\* p < 0.05; \*\*\* p < 0.01.

Source: Authors' calculation using the R language and environment for statistical computing.

The values of R<sup>2</sup> (Adjusted R<sup>2</sup>) signify that 18% (17%) of variation in absolute discretionary accruals is explained by the independent variables included in the model. These results are substantive given that they are higher in comparison to a large number of studies which have analyzed earnings management as a dependent variable and provided the adjusted R<sup>2</sup> values. For instance, Jiang and Jia (2025) reported the lowest value of 0.1038, Simpson (2013) announced the lowest value of 0.00425, and Yang and Krishnan (2005) obtained the lowest value of 0.097 for the Jones model, while Xu et al. (2021) had the lowest value of 0.1235 and Lee (2023) calculated the lowest value of 0.1158 for the modified Jones model. F statistic values provide evidence that the models are overall statistically significant.

The coefficients of the first model indicate that the relationship between earnings management and the additional corporate income tax ratio is negative. This result is not relevant for the analysis given that dependent variable is absolute and includes both upward and downward earnings management. As hypothesized, it is presumable that companies obliged to pay additional corporate income tax have incentives to conduct downward earnings management.

Thus, the interaction variable between earnings management and the additional corporate income tax ratio has been considered, and its results are significant at 1%. More specifically, an increase in the additional corporate income tax ratio of 1.00 p.p. results in an

increase of 0.00921 in discretionary accruals. The results of the first model are completely corroborated by the results of the second model, which indicates that an increase in the additional corporate income tax ratio of 1.00 p.p. results in an increase of 0.00932 in discretionary accruals. Following the research results, the research hypothesis was accepted.

In reference to the remaining research variables, the company size is negatively associated with the dependent variable. Conceivably, larger companies wanted to avoid additional public scrutiny. Also, profitability turned out to have a significantly positive relationship with earnings management, which is contrary to the previously mentioned expectations. This might be the result of the windfall tax environment incentivizing corporate tendencies toward decreasing their financial results.

Pesaran CD test for cross-sectional dependence in panels, the Breusch-Godfrey/Woolridge test for serial correlation in panel models and the Breusch-Pagan test were conducted as a part of diagnostic panel data testing. Among these tests, only the Breusch-Pagan test indicated the presence of heteroskedasticity. In order to control for heteroskedasticity, a coefficient test was conducted, and the conclusion regarding the test variable remained the same. Consequently, the research hypothesis was accepted.

These results are in line with research results provided by Han and Wang (1998). They have also found that companies resort to downward earnings management, but their results are based on the behavior of companies regarding possible reintroduction of the windfall tax. Conversely, research results in this chapter are based on reaction of companies in the existing business situation. Results of this research also correspond with the results of Zeng (2014), Kuo and Lee (2019), Wali (2021), and Sundvik (2016). They investigate reactions of companies during regular tax reforms, which differ from the introduction of windfall taxes because they affect all companies and are not temporary. Companies subjected to windfall taxation are usually exposed to more vigilant public oversight, which affects their behavior. Despite these facts, the incentives regarding earnings management are identical, and these papers can also serve as a guidance in research of windfall taxes.

## **5. Conclusions and Policy Recommendations**

As expected, the results indicate a positive relationship between downward earnings management and the additional corporate income tax ratio. Thus, the problem of tax minimization through earnings management during the period of windfall taxation is evident in the Republic of Croatia. Its introduction near the end of a fiscal year, with the speculation period several months beforehand, provided them enough time to adjust their financial statements.

The specificity of the Croatian situation relates to the fact that all industries were affected by the windfall taxation, irrespective of their financial prosperity during the observed period. This appeared to intensify negative sentiment toward windfall taxation, given that many industries did not experience a profit increase caused by the warfare-induced crisis. Before determining which industries ought to be subject to windfall taxes, legislators must analyze which industries have benefited most from the occurrence of a crisis.

Future studies may examine the variations in earnings management behavior between countries with a comprehensive approach and a particular approach regarding windfall taxation. Investigations into the existence of differences in earnings management magnitude regarding the period of introduction of windfall taxes could also be conducted.

Conceivably, the degree of earnings management is positively correlated with the quantity of details companies know about windfall taxation before its implementation. If profits are the basis of taxation, an optimal option would be to introduce the details of taxation after the companies have published their annual financial statements.

Another potentially useful alternative to curb earnings management is to define the profit threshold for industries instead of companies, in the sense that aggregate industry profitability is identified after the financial statements have been disclosed. Accordingly, companies operating in industries that surpass a predefined profit growth threshold will be subjected to taxation of profits.

In terms of limiting opportunities for earnings management during the introduction of windfall taxation, unaudited quarterly and semi-annual financial statements could be useful. Tracking a company's financial performance is easier when they disclose their financial statements during the financial year. The problem is that the majority of windfall taxpayers in the Republic of Croatia were not obliged to publish their quarterly financial statements like the companies listed on the Zagreb Stock Exchange. The difference in the magnitude of earnings management between the companies that have published quarterly financial statements and those that have not could be investigated in the future to gain insight into this issue.

Given the small number of companies eligible for windfall taxation in the Republic of Croatia and the need for a more detailed industry classification for more precise accrual estimation, the research sample was relatively small. Thus, research needs to be replicated in the countries that can provide larger samples or, preferably, conduct a cross-country analysis. Despite their popularity in research, measuring earnings management with discretionary accruals has limitations because of their shortcomings. Hence, research results should be corroborated by using different methods of estimation.

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