# Utjecaj regulativnih promjena na odnos upravljanja zaradom i pravovremenosti financijskog izvještavanja: slučaj pandemije COVID-19

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# The effect of regulatory changes on relationship between earnings management and financial reporting timeliness: The case of COVID-19 pandemic[*]

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## Abstract

*The purpose of this paper was to examine the effect of regulatory changes regarding financial reporting deadlines introduced because of COVID-19 pandemic on relationship between earnings management and financial reporting timeliness. Using sample of companies listed on stock exchange in Republic of Croatia for the period from 2015 to 2019, pooled OLS regression model was estimated with panel data. Financial reporting timeliness was measured with financial reporting delay, while level of earnings management was proxied by discretionary accruals. Empirical results supported the hypothesis that the aforementioned changes of regulatory framework during the extraordinary pandemic circumstances had a statistically significant positive effect on relationship between earnings management and financial reporting delay, indicating that financial reporting delays after regulatory changes during pandemic could be attributed to earnings management activities. Furthermore, after separating income-increasing and income-decreasing accruals, moderating effect of regulatory changes was significant and negative only in case of income decreasing accruals, suggesting that companies were adjusting their financial information in accordance with pessimistic economic forecasts to mitigate probable profitability deterioration in future periods.*

***Key words:*** *COVID-19, coronavirus, earnings management, financial reporting delay, financial reporting timeliness*

***JEL classification:*** *G01, K20, M41, M42*

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# 1. Introduction

The worldwide outbreak of the COVID-19, which was declared as a pandemic on 11th March 2020, has had an intensive impact on all aspects of life, as well as business activities. This catastrophic event led to halt of international trade and national lockdowns intended to limit spreading of virus. Suddenly, many prosperous companies had been affronted with extreme reduction of demand for their products. With the exception of few industries that highly benefited on situation, such as food production, almost all of them were negatively affected, especially service industries, such as tourism and aviation (He et al., 2020). Large companies were less susceptible to financial repercussions than small and medium companies (Rababah et al., 2020). Uncertainty deepened by media coverage (Haroon and Rizvi, 2020), proved to be detrimental for financial markets where most of the companies experienced extreme volatility that wiped out 25 percent of shareholders' wealth worldwide (Ali et al., 2020).

This situation stressed the need for urgent reactions to alleviate repercussions of economic standstill and stimulate economic activity, such as moratorium on repayments of loans, various fiscal reliefs etc. Among these measures, regulatory actions were taken in order to extend deadlines for disclosing financial information to public. At the time, some companies already submitted their financial statements prior to deadline extension, certain of them decided not to exercise the right on additional reporting time, while significant number of them did so. Investors and other stakeholders scrutinize various aspects of business operations in order to determine future financial prospects of a company, and the time needed to deliver financial statements is one of them.

Despite the importance investors attach to financial reporting timeliness and the fact that deadline for submission of financial statements was relatively close, considerable part of companies decided to exercise the right provided by regulatory changes. In this context, potential problem arises because accounting standards offer flexibility in financial reporting which could be opportunistically abused. Given that stakeholders were probably more tolerant in assessment of corporate reporting behaviour because of ongoing pandemic, there was a possibility that companies tried to utilize accounting discretion in order to adjust to pessimistic expectations for future.

The objective of this paper was to determine the effect of financial reporting regulation changes during COVID-19 pandemic on relationship between earnings management and financial reporting timeliness. It was hypothesized that regulatory changes that extended financial reporting deadlines introduced during COVID-19 pandemic had statistically significant and positive moderating effect on the relationship between earnings management and accounting information delay. This relationship was also examined after dividing discretionary accruals, which are

used as a measure of earnings management, into income-increasing and income-decreasing. Considering the previous research in this field, hypotheses were formulated as follows:

*Hypothesis 1 – There is a statistically significant and positive moderating effect of regulatory changes extending financial reporting deadlines introduced during COVID-19 pandemic on the relationship between earnings management and financial reporting delay.*

*Hypothesis 2 – There is a statistically significant and positive moderating effect of regulatory changes extending financial reporting deadlines introduced during COVID-19 pandemic on the relationship between income-increasing earnings management and financial reporting delay.*

*Hypothesis 3 – There is a statistically significant and negative moderating effect of regulatory changes extending financial reporting deadlines introduced during COVID-19 pandemic on the relationship between income-decreasing earnings management and financial reporting delay.*

The remainder of paper is organized as follows – section 2 comprises literature relevant for the development of research hypotheses, in section 3, the methodology used for data collection and hypotheses testing was specified and in section 4, the research sample was described and results of empirical analysis provided. Section 5 contains explanations of results shown in previous section, their comparison with existing research, as well as scientific and practical implications. Section 6 concluded the paper with a discussion on hypotheses acceptance, scientific contribution of research, limitations and avenues for future research.

# 2. Literature review

According to the timeline provided by the World Health Organization, COVID-19 pandemic has started on the eve of 2020 when several cases of pneumonia were reported (World Health Organization, 2020a). Two weeks after, the first case outside China was recorded in Thailand and on 30th January, when the COVID-19 had already spread to 18 countries worldwide, the World Health Organization's Emergency Committee confirmed concerns for international health by giving high risk assessment (World Health Organization, 2020a). Finally, global pandemic was declared on 11th March 2020 because of "the alarming levels of spread and severity" (World Health Organization, 2020a). First European cases of coronavirus contagion were confirmed in France on 24th January (World Health Organization Europe, 2020b). Briefly after – on 27th January, first cases were also detected in Italy (Reuters, 2020), neighbouring country of Croatia. The initial case in the Republic of Croatia was recorded on 25th February 2020 (Croatian Institute of Public Health, 2020).

The outbreak of coronavirus was an event unparalleled for decades which caused a sudden and intense impact on economic activities and financial markets worldwide. The approximate 11 percent fall of China's stock market index CSI 300 from 23rd January to 3rd February 2020 (China Securities Index, n. d.) was the overture of subsequent financial repercussions in other countries. U. S. stock market index S&P 500 plunged nearly 34 percent from 20th February to 23rd March 2020 (Bloomberg, n. d.). The value decrease of Croatian index CROBEX and its timeline was identical (Zagreb Stock Exchange, n. d.).

At the time, it was not evident how long will the crisis last nor how detrimental its effects will be, what created favourable environment for earnings management behaviour. When confronted with pressure, company's management can be tempted to manipulate accounting information. Previous research in this area are inconclusive given that some of them proved increase of earnings management during financial and economic crises (Da Silva et al., 2014; Flores et al., 2016; Koowattanatianchai, 2018), while others document decrease of earnings management during crisis, attributing it to poor corporate performance which reduced purposefulness of earnings management (Chintrakarn et al., 2018) or need to attract investors (Cimini, 2015). Economic crisis which resulted from pandemic of COVID-19 isn't comparable to any of crises over the period of last few decades. It was sudden and caused by non-economic reason which had an intense economic and social impact worldwide. From macroeconomic standpoint, there was a stable growth of Croatian economy as well as Croatian stock market just before the COVID-19 outbreak. Preparation of financial statements for public disclosure was under way and then, all of a sudden, unexpected catastrophic event disrupted all activities and radically changed future economic prospects for subsequent years.

From theoretical standpoint of fraud triangle[2] (Cressey, 1950; Schuchter and Levi, 2016), this was the motivation for companies to adjust their financial results to future expectations. Second component of fraud triangle was opportunity for prolonging public disclosure of audited non-consolidated and consolidated financial statements that emerged with enactment of Law amending and supplementing the Accounting Act (Official Gazette, 2020a), which introduced legal concept of "special circumstances", and Regulation on deadlines for submission of financial statements and accounting documentation in special circumstances (Official Gazette, 2020b). Until that moment, there were three deadlines for submitting non-consolidated and consolidated financial statements stipulated in Accounting Act (Official Gazette, 2015, Art. 30 and 32) – first deadline was for submitting financial reports for statistical purposes (30th April 2020), second deadline was for public disclosure of non-consolidated financial statements (30th June 2020), while

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2  Not all earnings management activities are fraudulent, but fraud triangle can be applied in terms of earnings management because of similar cognitive processes that managers experience.

third one was for consolidated financial statements (30th September 2020). After the regulatory changes, first two deadlines were prolonged for two months, while third one was prolonged for one month (Official Gazette, 2020b). It is important to note that Croatian financial reporting framework is specific because of business community's tacit consensus of the 30th April as a final deadline for submitting all of these statements, until which large majority of listed companies usually publicly discloses audited financial information.

Given that they are "often the only reliable sources of information" (Leventis et al., 2005, in Ghafran and Yasmin, 2018: 9), the date of public disclosure of audited financial statements is highly important to investors and other stakeholders, creating pressure for large companies to reduce delays in delivering such information (Dyer and McHugh, 1975, in Ashton et al., 1989). Timely financial information is relevant for protection of investors (Al-Ajmi, 2008; Turel, 2010, in Agyei-Mensah, 2018) and decision-making (Efobi and Okougbo, 2014; Agyei-Mensah, 2018). If they are not provided with timely audited information, investors may resort to alternative sources (Knechel and Payne, 2001). Significant number of authors highlight the importance of financial reporting timeliness as qualitative characteristic of accounting information (Payne and Jensen, 2002, in Cohen and Leventis, 2013; Chan et al., 2016).

Financial reporting timeliness can be classified by two aspects (Abernathy et al., 2017): (1) frequency of interim reports and (2) reporting delay. Latter aspect, which is also a subject of this research, can be measured with a number of days between the first day of financial year and the date of publicly disclosing financial statements – financial reporting delay (Atiase et al., 1989, in Reheul et al., 2014; Clatworthy and Peel, 2016) or number of days between the first day of financial year and the date of audit report – audit report delay (Ashton et al., 1987, in Abernathy et al., 2017; Nelson et al., 2019). Duration of audit process is considered to be cardinal determinant of reporting timeliness (Sultana et al., 2014; Chan et al., 2016).

From the academic standpoint, the importance of financial reporting timeliness is denoted by abundance of research which analysed it in relation to various variables such as audit committee characteristics (Abernathy et al., 2015; Salleh et al., 2017; Ghafran and Yasmin, 2018; Bhuiyan and D'Costa, 2020), chief executive officer characteristics (Baatwah et al., 2015), financial reporting inspections (Yuan et al., 2020), auditor industry specialization and auditor reputation (Rusmin and Evans, 2017), religiosity (Al-Ebel et al., 2020), auditor narcissism (Church, 2020) etc.

Previous studies had not given so much attention on relationship between reporting timeliness and earnings management. Asthana (2014) documented negative relationship between abnormal audit delays and earnings quality and stated that delays influence perception of investors who take them into account when analysing company's earnings. Identical conclusions were made by Luypaert et al. (2016: 29)

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who asserted that "extremely late filings can be considered as an important negative signal with regard to the quality of the financial statements". In this context, Habib and Huang (2019: 20) founded positive relationship between audit report delay and future price crash and noticed that their results are in line with remark that "excessively long audit report delay often signals financial reporting quality issues emanating from bad news hoarding by the management". Since companies have strong incentives to make early disclosures of financial information because of an inverse relationship between disclosing earnings and share prices (Chambers and Penman, 1984, Kross and Schroeder, 1984, in Trueman, 1990), it is not rational for them to lengthen the process of financial reporting. With regard to business environment's complexity, mentioned elongation could be explained by other benefits which exceed the advantages of timely disclosure.

Lambert et al. (2017) documented a negative effect of shortened reporting deadlines on earnings quality, but situation analysed in this paper is opposite. It is questionable if additional time for financial reporting was counter-effective, providing legalised opportunity for adjusting accounting information, given that it could mitigate investors' negative perception regarding financial reporting delay in these extraordinary circumstances. Furthermore, DeFond and Park (1997) founded that after financially successful year and when estimated performance in future is below that standard, management has tendency to transfer earnings to the future period and vice versa. Since COVID-19 crisis occurred shortly after the end of previous financial year, companies found themselves in a position to shift part of their income from previous year to the turbulent period ahead of them.

Chai and Tung (2002: 3) stated that "market anticipates unfavourable earnings news when it observes reporting delays" and that "late reporters appear to make the most of a bad situation by employing income-decreasing accruals in big-bath-type earnings management". Similar findings were presented by Rahmawati (2018: 12) who founded that companies with a prolonged reporting period have higher discretionary accruals because they "store up income-increasing accruals potential for subsequent periods". Previous notions are complemented by remarks that auditors are more sensitive to client's income-increasing accruals since they increase litigation risk (Lys and Watts, 1994; Heninger, 2001). The above statements were motivation for establishment of two additional hypotheses in order to differentiate income-increasing and income-decreasing earnings management behaviour in context of this research.

As said before, COVID-19 had an enormous impact on business activities. Some researchers have determined its negative impact on financial matters such as financial performance of listed companies (Rababah et al., 2020; Shen et al., 2020), negative effect of media on financial markets (Haroon and Rizvi, 2020) etc. But, as far as the author is aware, earnings management and financial reporting timeliness during COVID-19 pandemic were not the subject of this research.

## 3. Methodology of analysis

As stated in the previous section, one of the alternatives for measuring financial reporting timeliness is using financial reporting delay, i.e. number of days between the first day of financial year and the date of submitting financial statements for the public disclosure, which was also applied in this research. Discretionary accruals as a measure of earnings management were estimated with Modified Jones model (Ilmas et al., 2018):

$$TA_{it} / A_{it-1} = \alpha_1 [1 / A_{it-1}] + \alpha_2 [\Delta\, INC_{it} - \Delta\, REC_{it} / A_{it-1}] + \\ + \alpha_3 [PPE_{it} / A_{it-1}] + \mu_{it} \tag{1}$$

where $TA_{it}$ = total accruals for company i at the end of financial year t, $A_{it-1}$ = total assets for company i at the end of previous financial year t–1, $\Delta\, INC_{it}$ = difference in income between financial year t and financial year t–1 for company i, $\Delta\, REC_{it}$ = difference in account receivables between financial year t and financial year t–1 for company i, $PPE_{it}$ = property, plant and equipment for company i at the end of financial year t, $\alpha1$, $\alpha2$ and $\alpha3$ = regression coefficients and $\mu_{it}$ = residual (measure of discretionary accruals).

Total accruals were calculated as difference between net income and net operating cash flows. Absolute discretionary accruals were calculated for model 1 expressed in eq. (2) because they incorporate both income-increasing and income-decreasing manipulation (Becker, 1998, in Katmon and Al Farooque, 2017). Positive discretionary accruals had been used in model 2 expressed in eq. (3), while negative discretionary accruals were used in model 3 expressed in eq. (4). In order to test established hypothesis, following research models were estimated:

$$FRD_{i,t} = \beta_0 + \beta_1*ADAC_{i,t} + \beta_2*C19_{i,t} + \beta_3*ADAC \times C19_{i,t} + \beta_4*AO_{i,t} + \\ + \beta_5*ROT_{i,t} + \beta_6*BIG4_{i,t} + \beta_7*SUBS_{i,t} + \beta_8*SIZE_{i,t} + \beta_9*ROA_{i,t} + \\ + \beta_{10}*LOSS_{i,t} + \beta_{11}*LEV_{i,t} + \beta_{12}*RIA_{i,t} + u_{i,t} \tag{2}$$

$$FRD_{i,t} = \beta_0 + \beta_1*PDAC_{i,t} + \beta_2*C19_{i,t} + \beta_3*PDAC \times C19_{i,t} + \beta_4*AO_{i,t} + \\ + \beta_5*ROT_{i,t} + \beta_6*BIG4_{i,t} + \beta_7*SUBS_{i,t} + \beta_8*SIZE_{i,t} + \beta_9*ROA_{i,t} + \\ + \beta_{10}*LOSS_{i,t} + \beta_{11}*LEV_{i,t} + \beta_{12}*RIA_{i,t} + u_{i,t} \tag{3}$$

$$FRD_{i,t} = \beta_0 + \beta_1*NDAC_{i,t} + \beta_2*C19_{i,t} + \beta_3*NDAC \times C19_{i,t} + \beta_4*AO_{i,t} + \\ + \beta_5*ROT_{i,t} + \beta_6*BIG4_{i,t} + \beta_7*SUBS_{i,t} + \beta_8*SIZE_{i,t} + \beta_9*ROA_{i,t} + \\ + \beta_{10}*LOSS_{i,t} + \beta_{11}*LEV_{i,t} + \beta_{12}*RIA_{i,t} + u_{i,t} \tag{4}$$

where *dependent variable* is FRD = financial reporting delay – number of days between the first day of financial year and the date of publicly disclosing financial statements; *test variables* are ADAC = value of absolute discretionary accruals; PDAC = value of positive discretionary accruals; NDAC = value of negative

discretionary accruals; C19 = year in which financial statements were publicly disclosed (dichotomous variable: 1 = year of COVID-19 related financial reporting regulatory changes; 0 = other years); ADAC x C19 = interaction between value of absolute discretionary accruals and year in which financial statements were publicly disclosed; PDAC x C19 = interaction between value of positive discretionary accruals and year in which financial statements were publicly disclosed; NDAC x C19 = interaction between value of negative discretionary accruals and year in which financial statements were publicly disclosed; *control variables* are AO = independent auditor's opinion (dichotomous variable: 1 = positive opinion; 0 = modified opinion); ROT = auditor rotation (dichotomous variable: 1 = new auditor appointed in year considered, 0 = no changes of auditor); BIG4 = auditor type (dichotomous variable: 1 = Big Four audit company; 0 = not Big Four audit company); SUBS = number of subsidiaries; SIZE = natural logarithm of total assets; ROA = return on assets (net income/total assets)*;* LOSS = financial result (dichotomous variable: 1 = negative financial result – loss; 0 = positive financial result – profit); LEV = leverage (total liabilities to total assets); RIA = receivables and inventories to total assets; u = model error; $\beta_0$ = regression model intercept and $\beta_1 - \beta_{12}$ = coefficients of explanatory variables included in model.

Considering the results and remarks made in previous research, several control variables that might be associated with the financial reporting timeliness were included in model to enhance its predictive value and reduce omitted variables issue. These could be classified into client-specific and auditor-related characteristics (Ika and Ghazali, 2012, in Abernathy et al., 2017).

Client-specific characteristics are size, leverage and financial performance. Larger companies are expected to have shorter duration of audits (Ashton et al., 1987; Carslaw and Kaplan, 1991, Ettredge et al., 2006, Afify, 2009, in Oussii and Taktak, 2018). This effect is due to more intensive monitoring activities conducted by investors and other stakeholders (Dyer and McHugh, 1975, in Ashton et al., 1989), as well as more resources which they have on their disposal (Abernathy et al., 2017) that could be utilized for strengthening internal control system (Nelson et al., 2019). Also, it is likely that they will ensure higher financial reporting quality (Schmidt and Wilkins, 2013). They also have higher capacity to resist client's persistence regarding certain accounting issues (Goldman and Barlev, 1974, in Deis and Giroux, 1992) since they have reputation to safeguard (Deis and Giroux, 1992). Size of the company was also included in models constructed by Chan et al. (2016) and Abernathy et al. (2018).

Highly leveraged companies have higher probability of not meeting their loan obligations, what puts them under auditor scrutiny (Chan et al., 2016) and, consequently, increased time for conducting audit engagement (Nelson et al., 2019). On the other side, high leverage might decrease audit risk by attracting the attention of creditors as an additional monitoring mechanism (Chan et al., 2016). This variable was also incorporated in model formulated by Abernathy et al. (2014).

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Financial performance measures were included because companies with lower profits and companies experiencing losses are inclined to disclose financial information later in comparison to more successful companies (Begley and Fischer, 1998, in Abernathy et al., 2018), which are motivated to communicate favourable news to public as soon as possible (Aubert, 2009). In line with these ideas are notions presented in papers by Chan et al. (2016), Abernathy et al. (2017) and Oussii and Taktak (2018). Furthermore, companies struggling in area of profitability will be perceived as risky by auditors (Che-Ahmad and Abidin, 2008, in Nelson et al., 2019), leading to increased workload (Nelson et al., 2019).

Given the high importance of audit process in determining financial reporting timeliness, variables estimating some of its aspects were included as control variables. Auditor's affiliation to reputable Big Four audit companies (Deloitte, Ernst & Young, KPMG and PricewaterhouseCoopers) is an indication of higher efficiency audit engagement, which is expected to shorten its duration (Abernathy et al., 2018). Those companies have greater capacity to attract human resources of highest quality (Sultana et al., 2014) and reputational capital (Afify, 2009, in Abernathy et al., 2017).

If independent auditor's opinion includes modification, it is likely that the financial reporting timeliness will be affected (Abernathy et al., 2018; Oussii and Taktak, 2018). Habib (2013) confirmed positive relationship between audit report delay and audit opinion modification stating disagreements between auditor and client, increased workload related to encountered problems (Habib, 2013) or perceived risk (Ireland, 2003, in Habib, 2013) as potential reasons to it.

Auditor rotation is expected to lengthen reporting process (Wan Hussin et al., 2018) because of inevitable adaptation time to new client (Ashton et al., 1987, in Abernathy et al., 2017) in order to increase knowledge on their business operations (Oussii and Taktak, 2018).

Complexity of client's operations is expected to prolong audit activities (Ashton et al., 1989, in Abernathy et al., 2017) and it is expressed with value of receivables and inventory divided by total assets (Abernathy et al., 2018) and number of subsidiaries that company has (Che-Ahmad and Abidin, 2008, Yaacob and Che-Ahmad, 2012, in Nelson et al., 2019).

# 4. Empirical data and analysis

Initial research sample comprised entire population of companies listed on Zagreb Stock Exchange in Republic of Croatia (106 business entities). Companies belonging to financial sector (banks, insurance companies, funds etc.) were excluded from sample due to their operational, regulatory and financial reporting

differences. In addition, their earnings management motivation may differ (Lee and Son, 2009). Also, companies which hadn't have published audited financial statements for financial year 2019 were removed from the sample, as well as companies which belonged to industries which hadn't have enough companies (threshold of six observations) to estimate earnings management using Jones model (DeFond and Jiambalvo, 1994, in Krishnan and Yang, 2009) and companies which disclosed their financial statements before $7^{th}$ April 2020, when Law amending and supplementing the Accounting Act (Official Gazette, 2020a) was enacted. Since the data included five-year period (from 2015 to 2019) and 58 companies (54.7 percent of entire population), final sample consisted of 290 firm-year observations. Pooled OLS regression was conducted using Stata 13.1. (StataCorp, 2013) and data obtained from auditors' reports as well as audited financial reports publicly available on official website of Zagreb Stock Exchange.

Table 1: Correlation coefficients of independent variables included in research model

|  | ADAC | C19 | AO | ROT | BIG4 | SUBS | SIZE | ROA | LOSS | LEV | RIA |
|---|---|---|---|---|---|---|---|---|---|---|---|
| ADAC | 1 |  |  |  |  |  |  |  |  |  |  |
| C19 | -0.13* | 1 |  |  |  |  |  |  |  |  |  |
| AO | -0.058 | 0.012 | 1 |  |  |  |  |  |  |  |  |
| ROT | -0.008 | 0.15* | -0.018 | 1 |  |  |  |  |  |  |  |
| BIG4 | 0.04 | 0.004 | 0.13* | 0.043 | 1 |  |  |  |  |  |  |
| SUBS | 0.015 | -0.032 | 0.13* | 0.109 | 0.14* | 1 |  |  |  |  |  |
| SIZE | -0.024 | -0.02 | 0.23* | 0.007 | 0.48* | 0.48* | 1 |  |  |  |  |
| ROA | -0.15* | 0.021 | 0.042 | 0.002 | 0.026 | 0.012 | 0.32* | 1 |  |  |  |
| LOSS | -0.047 | -0.024 | 0.25* | 0.057 | 0.057 | 0.09 | 0.15* | 0.45* | 1 |  |  |
| LEV | 0.066 | -0.009 | -0.029 | -0.021 | -0.055 | 0.042 | -0.26* | -0.77* | -0.19* | 1 |  |
| RIA | 0.24* | -0.048 | -0.037 | -0.026 | 0.071 | 0.3* | 0.087 | 0.098 | 0.031 | 0.004 | 1 |

\* Correlation coefficient is statistically significant at 5 percent level.

Source: Author's analysis using data available at official website of Zagreb Stock Exchange and Stata software – StataCorp (2013). Stata Statistical Software: Release 13. College Station, TX: StataCorp LP.

Preliminary analysis of correlation coefficients was done for independent variables in order to determine if there is multicollinearity problem. As it is evident from Table 1, stronger significant correlations are present in case of SIZE and BIG4, SIZE and SUBS, LOSS and ROA as well as LEV and ROA. Because Model 1 presented in Table 2 had included all of these variables, analysis was repeated with variables SIZE and ROA eliminated. Results and conclusions regarding test variable of interest for research hypotheses are identical to those which were

based on results in Table 2. Coefficient for moderating effect was even stronger after exclusion of those variables. Variance inflation factor (VIF) values indicated absence of multicollinearity problem (highest value was 2.16).

Table 2: Results of regression – Model 1 (absolute discretionary accruals)

| Variable | Coefficient | Std. Err. | t | P > t | [95% Confidence Interval] | |
|---|---|---|---|---|---|---|
| ADAC | -13.37712 | 12.22353 | -1.09 | 0.275 | -37.47105 | 10.71681 |
| C19 | 3.544743 | 5.809199 | 0.61 | 0.542 | -7.905835 | 14.99532 |
| ADAC x C19 | 215.6073 | 67.13272 | 3.21 | 0.002 | 83.28128 | 347.9334 |
| AO | -19.04888 | 4.254134 | -4.48 | 0.000 | -27.43425 | -10.66351 |
| ROT | 1.504392 | 4.786108 | 0.31 | 0.754 | -7.929559 | 10.93834 |
| BIG4 | 7.979983 | 4.16629 | 1.92 | 0.057 | -.232237 | 16.1922 |
| SUBS | -.0926226 | .5534991 | -0.17 | 0.867 | -1.183631 | .9983857 |
| SIZE | -3.48639 | 5.521505 | -0.63 | 0.528 | -14.36989 | 7.397111 |
| ROA | -58.2436 | 19.02312 | -3.06 | 0.002 | -95.74028 | -20.74692 |
| LOSS | -7.742196 | 4.770036 | -1.62 | 0.106 | -17.14447 | 1.660076 |
| LEV | -28.42456 | 8.776944 | -3.24 | 0.001 | -45.72489 | -11.12422 |
| RIA | -3.086058 | 11.84094 | -0.26 | 0.795 | -26.42588 | 20.25376 |
| _cons | 184.5092 | 44.84298 | 4.11 | 0.000 | 96.11867 | 272.8997 |

Source: Author's analysis using data available at official website of Zagreb Stock Exchange and Stata software – StataCorp (2013). Stata Statistical Software: Release 13. College Station, TX: StataCorp LP.

Results of regression analysis for Model 1 necessary for making decision on acceptance of first hypothesis were presented in Table 2. The coefficient on ADAC x C19 is positive and statistically significant at 1 percent level. This result suggests that in circumstances of regulatory actions during COVID-19 pandemic which have prolonged financial reporting deadlines, companies with longer financial reporting delays tend to have higher earnings management. For every additional 0.01 increase in value of absolute discretionary accruals in year of COVID-19 related financial reporting regulation changes, financial reporting delay on average increased by approximately 2.16 days.

Table 3: Results of regression – Model 2 (positive discretionary accruals)

| Variable | Coefficient | Std. Err. | t | P > t | [95% Confidence Interval] | |
|---|---|---|---|---|---|---|
| PDAC | -10.80645 | 22.06387 | -0.49 | 0.625 | -54.50673 | 32.89382 |
| C19 | 4.333741 | 9.525474 | 0.45 | 0.650 | -14.53266 | 23.20014 |
| PDAC x C19 | 155.2334 | 130.3505 | 1.19 | 0.236 | -102.9423 | 413.4091 |
| AO | -22.61677 | 6.567023 | -3.44 | 0.001 | -35.62359 | -9.609958 |
| ROT | 5.023859 | 7.161178 | 0.70 | 0.484 | -9.159757 | 19.20748 |
| BIG4 | 9.964526 | 6.357152 | 1.57 | 0.120 | -2.626615 | 22.55567 |
| SUBS | -1.446638 | 1.083297 | -1.34 | 0.184 | -3.592245 | .6989687 |
| SIZE | 2.655848 | 8.586896 | 0.31 | 0.758 | -14.35158 | 19.66328 |
| ROA | -71.80501 | 30.05042 | -2.39 | 0.018 | -131.3236 | -12.28637 |
| LOSS | -7.691539 | 7.027872 | -1.09 | 0.276 | -21.61112 | 6.228046 |
| LEV | -26.21284 | 13.75601 | -1.91 | 0.059 | -53.45835 | 1.032685 |
| RIA | 6.338839 | 19.55466 | 0.32 | 0.746 | -32.39162 | 45.0693 |
| _cons | 133.1058 | 69.74193 | 1.91 | 0.059 | -5.026898 | 271.2385 |

Source: Author's analysis using data available at official website of Zagreb Stock Exchange and Stata software – StataCorp (2013). Stata Statistical Software: Release 13. College Station, TX: StataCorp LP.

Furthermore, multicollinearity analyses were also conducted for Model 2 and Model 3, but statistical results were omitted for the sake of brevity. In case of Model 2 which included only positive accruals (Table 3), correlations between SIZE and BIG4, SIZE and SUBS and LOSS and ROA were proven to be stronger and statistically significant, so the model was also estimated without variables SIZE and LOSS. Coefficient of relevant moderating variable remained insignificant. Highest VIF value amounted 2.39. Results of regression analysis for Model 2 presented in Table 3 were of importance for testing second hypothesis. The coefficient on PDAC x C19 is positive which means that the similar explanation as for Model 1 could be applied, but since the coefficient is not statistically significant there is no enough evidence to support that statement. In other words, insignificant coefficients indicate that there is no moderating effect of regulatory actions during COVID-19 pandemic which have prolonged financial reporting deadlines on relationship between earnings management and financial reporting delay.

Table 4: Results of regression – Model 3 (negative discretionary accruals)

| Variable | Coefficient | Std. Err. | t | P > t | [95% Confidence Interval] | |
|---|---|---|---|---|---|---|
| NDAC | 9.761304 | 14.30858 | 0.68 | 0.497 | -18.68798 | 38.21059 |
| C19 | 6.00797 | 7.240213 | 0.83 | 0.409 | -8.387512 | 20.40345 |
| NDAC x C19 | -275.2613 | 70.73861 | -3.89 | 0.000 | -415.9086 | -134.614 |
| AO | -15.02426 | 5.35944 | -2.80 | 0.006 | -25.68026 | -4.368259 |
| ROT | -5.190067 | 6.615777 | -0.78 | 0.435 | -18.344 | 7.963871 |
| BIG4 | 7.928319 | 5.444827 | 1.46 | 0.149 | -2.897456 | 18.75409 |
| SUBS | .8664182 | .5982109 | 1.45 | 0.151 | -.3229853 | 2.055822 |
| SIZE | -8.712623 | 7.130419 | -1.22 | 0.225 | -22.88981 | 5.46456 |
| ROA | -45.72899 | 25.75233 | -1.78 | 0.079 | -96.93152 | 5.473541 |
| LOSS | -8.147576 | 6.798171 | -1.20 | 0.234 | -21.66416 | 5.36901 |
| LEV | -35.25916 | 11.64354 | -3.03 | 0.003 | -58.40965 | -12.10868 |
| RIA | -6.694701 | 14.92943 | -0.45 | 0.655 | -36.37842 | 22.98901 |
| _cons | 228.7288 | 57.83598 | 3.95 | 0.000 | 113.7353 | 343.7222 |

Source: Author's analysis using data available at official website of Zagreb Stock Exchange
and Stata software – StataCorp (2013). Stata Statistical Software: Release 13. College
Station, TX: StataCorp LP.

Results of regression analysis for Model 3 (Table 4) are relevant for decision on third hypothesis. The coefficient on NDAC x C19 is negative and statistically significant at 1 percent level. This result suggests that in circumstances of regulatory actions during COVID-19 pandemic which had prolonged financial reporting deadlines, companies with longer financial reporting delays tend to have higher earnings management. It is important to note that in case of Model 3, unlike for earnings management variable in Model 1 and Model 2, lower values of NDAC indicate higher level of earnings management. For every additional 0.01 decrease in value of negative discretionary accruals in year of COVID-19 related financial reporting regulatory changes, financial reporting delay on average increases by approximately 2.75 days. Situation regarding multicollinearity for Model 3 was similar as for Model 1. Highest VIF value was 2.76 indicating absence of multicollinearity problem. Regression model from Table 4 was repeated without variables SIZE and ROA which had stronger significant correlation values. The negative coefficient of moderating variable was slightly stronger and the conclusions made for Model 3 remain the same. It should also be noted that the confidence intervals of test variables for moderating effect in all models are wide, but they don't affect direction of coefficients nor conclusions reached for hypotheses that were accepted. In order to achieve higher precision of confidence interval, larger sample could be used in future studies. Since the number of companies cannot be increased, only temporal dimension of panel data could be

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lengthened in order to increase number of observations in context of Republic of Croatia because financial information could be gathered for additional few years. For even larger samples, financial data of companies in other countries could be collected.

# 5. Results and discussion

Research results provided strong evidence that regulatory changes regarding financial reporting deadlines introduced because of COVID-19 pandemic had positive effect on the relationship between earnings management and financial reporting timeliness. This suggests that reporting delays after regulatory changes during pandemic could be attributed to earnings management activities. Due to financial difficulties and uncertainty caused by coronavirus, companies were more inclined to manipulate financial statement items. This is in line with previous research which proved increased intensity of earnings management during financial and economic crises (Da Silva et al., 2014; Flores et al., 2016; Koowattanatianchai, 2018), as well as Asthana (2014) and Luypaert et al. (2016) who documented negative relationship between audit delays and financial reporting quality.

Furthermore, when the absolute measure of accruals was divided into income-increasing and income-decreasing accruals, results did not provide support for the income-increasing accruals, but the relationship was proven to be statistically significant in the case of income decreasing accruals. This corroborates results of research conducted by Chai and Tung (2002) and Rahmawati (2018) who founded that longer audit delays are connected to income-decreasing accruals and DeFond and Park (1997) who concluded that companies have tendency to transfer earnings to the future period if forecasts aren't favourable, like in times of COVID-19 pandemic. Also, in this context perfectly fits the fact that auditors are usually less sensitive to income-decreasing accruals as Lys and Watts (1994) and Heninger (2001) stated.

This study contributes to the existing body of literature on relationship between financial reporting timeliness and financial reporting quality through formulation of model which was utilized to estimate moderating effect of regulatory changes regarding financial reporting deadlines on relationship between financial reporting timeliness and earnings management that, to the author's knowledge, wasn't previously examined. Secondly, economic context of COVID-19 pandemic, as extremely rare occurrence, contributes to the specificity of this research. Thirdly, additional models for examining the same relationship were estimated in order to differentiate between income-increasing and income-decreasing accruals, since motivations behind them are divergent. Governments have to be extremely cautious when approving financial reporting delays and carefully analyse if they are necessary because of a potential opportunistic corporate behaviour.

# 6. Conclusions

This study aimed to examine whether regulatory changes regarding financial reporting deadlines introduced because of COVID-19 pandemic had effect on relationship between earnings management and financial reporting timeliness. Furthermore, the intention was to study the same effect in case of separated income-increasing and income-decreasing accruals. Results consistent with first and third hypothesis established for the absolute measure of earnings management and income-decreasing earnings management were founded, but in the case of income-increasing earnings management activities no statistical evidence was found to support the hypothesized relation. Main conclusion was that financial reporting delays after regulatory changes during pandemic could be attributed to earnings management activities. Higher tolerance of investors and other stakeholders regarding audit reporting delays in comparison to regular reporting environment was conjectured. Companies have transferred part of their good results from relatively prosperous period to the period of worst economic downturn over the past several decades. This study contributes to existing research on relationship between financial reporting timeliness and financial reporting quality because, to the author's knowledge, moderating effect of regulatory changes on this relationship weren't previously examined, especially considering that mentioned changes were during the COVID-19 pandemic, which adds to the specificity of research context. Similar to other studies, this research also has some limitations. Research sample comprises large companies in the Republic of Croatia and, therefore, conclusions of this research cannot be generalized for companies of different size or companies in other countries. Also, discretionary accruals are earnings management measure which can potentially have certain drawbacks. Future research could focus on companies which are not listed on stock exchange because of their divergent motivating factors for earnings management, extend analysis to different countries in search for specificities of different business and legal environments and consider using measures which capture some other aspects of financial reporting quality. Furthermore, research sample could be extended in order to achieve higher precision of regression model. This research provides valuable insights which may be of assistance to regulators, auditors, investors, academics and all other interested parties in enhancing and estimating financial reporting quality. Regulators should carefully analyse the need for regulatory actions regarding financial reporting extensions. Investors and auditors should be aware that companies are prone to transferring their income in future periods in times of intense crisis when they are also provided with extended deadlines for reporting. In that context, auditors should scrutinize financial information in more detail, focusing especially on income-decreasing accruals.

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Utjecaj regulativnih promjena na odnos upravljanja zaradom i pravovremenosti financijskog izvještavanja: slučaj pandemije COVID-19

*Toni Šušak*[1]

**Sažetak**

*Svrha ovog rada bila je ispitati učinak regulativnih promjena rokova financijskog izvještavanja koje su donesene uslijed pandemije COVID-19 na odnos između upravljanja zaradama i pravovremenosti financijskog izvještavanja. Koristeći uzorak kompanija koje su kotirale na tržištu kapitala u Republici Hrvatskoj za razdoblje od 2015. do 2019., procijenjen je združeni OLS regresijski model s pomoću panel podataka. Pravodobnost financijskog izvještavanja mjerena je s pomoću dužine vremenskog razdoblja do objave financijskih izvještaja, a razina upravljanja zaradom ustanovljena je s pomoću diskrecijskih obračunskih stavki. Empirijski rezultati potkrijepili su hipotezu prema kojoj su spomenute promjene regulativnog okvira tijekom izvanrednih okolnosti pandemije imale statistički značajan pozitivan učinak na odnos upravljanja zaradom i dužine vremenskog razdoblja do objave financijskih izvještaja, upućujući na to da se dužina vremenskog razdoblja do objave financijskih izvještaja nakon regulativnih promjena tijekom pandemije može povezati s aktivnostima upravljanja zaradom. Nadalje, nakon razdvajanja obračunskih stavki kojima se povećavaju prihodi od onih kojima se prihodi smanjuju, moderatorski učinak regulativnih promjena bio je značajan jedino u slučaju obračunskih stavki kojima se smanjuju prihodi, sugerirajući to da su kompanije prilagođavale vlastite financijske informacije pesimističnim ekonomskim prognozama kako bi ublažile vjerojatno pogoršanje profitabilnosti u budućim razdobljima.*

***Ključne riječi:*** *COVID-19, koronavirus, upravljanje zaradom, dužina vremenskog razdoblja do objave financijskih izvještaja, pravovremenost financijskog izvještavanja*

***JEL klasifikacija:*** *G01, K20, M41, M42*

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