

Managing the Bottom Line: A Path to Higher Shareholder Returns?

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Abstract— This study investigates the impact of earnings management on shareholder returns among public companies listed on the Warsaw Stock Exchange (WSE) whose shares were traded throughout the 2014–2023 period. We run multiple linear regression with a stepwise procedure to examine how accrual-based earnings management (AEM) and real earnings management (REM) influence both traditional total shareholder return (TSR) and its relative version (RTSR). Our findings indicate that both earnings altering strategies have statistically significant negative effects on TSR and RTSR, suggesting that investors may penalize firms engaging in earnings manipulation. Among firm-specific control variables, we found that variables such as asset tangibility, short-term debt, and return on assets (ROA) also significantly affect shareholder returns. Thus, we confirmed prior research and support agency theory, emphasizing that managerial actions aimed at manipulating reported earnings can harm shareholder value. Despite modest explanatory power typical for market-based models, our results appear noteworthy and underscore the critical role of incorporating earnings management metrics in investment analysis and valuation models, suggesting such practices serve as salient risk signals for investors.

Keywords— accrual-based earnings management, real earnings management, total shareholder return, public companies

I. INTRODUCTION

The Total Shareholder Return (TSR) ratio is regarded as one of the key indicators of the benefits accruing to investors from the property and corporate rights embedded in share ownership. It is broadly applied in both short- and long-term decision-making concerning the strategy of buying, selling, or holding the securities of individual issuers, including public company investors listed on the Warsaw Stock Exchange (WSE). Recognizing the crucial importance of the TSR ratio for the

stakeholders of economic entities operating in the capital market, it becomes essential to examine the determinants that may influence its value - not only in the context of market conditions. One such factor is earnings management - a practice whereby managers influence reported financial figures, either with or without constraints, by managing disclosures. These actions may be aimed at enhancing the informational value of earnings to support the firm's valuation or, alternatively, at maximizing the utility function of the management itself (Fields et al., 2001). Following this, we assume that the TSR ratio is driven not only by a company's operational outcomes, but also by the strategic choices made in financial reporting. Earnings management involves not only reflecting economic reality, but also actively constructing it (Wójtowicz, 2010).

In the subject literature, the relationship between earnings management and shareholder returns of publicly listed companies is primarily examined from two perspectives. The first focuses directly on the impact of earnings-altering practices on stock returns achieved within a given period. The second assesses earnings management in the context of its influence on future or expected stock returns. When referencing key findings from selected empirical studies on these issues, it is worth highlighting the conclusions of Bansal et al. (2021), who suggest that investors react negatively to actions aimed at reducing net income (or increasing net losses) through real earnings management practices. When company management decides to lower earnings to report a stable income stream, investors perceive this as a risk factor, which warrants a higher risk premium. On the other hand, shareholders tend to respond positively to increases in reported earnings achieved through transactional manipulations, which is reflected, among other things, in their reluctance to sell shares even when returns are



lower. More broadly, the authors documented a negative relationship between real earnings management (REM) and the stock returns of listed companies. Similarly, Bhutto et al. (2021) found statistically significant negative associations between the use of both accrual-based and real earnings management techniques and shareholder returns, measured by stock profitability. A negative relationship between stock returns and firm-level earnings management was also confirmed by Aboody et al. (2005) and Wang et al. (2024), with the latter focusing specifically on firms with high debt refinancing risk. In contrast, Salehi et al. (2018) did not find significant relationships between disclosure quality, the scale and direction of accrual-based earnings management, and stock returns in the Iranian market. It should also be emphasized that numerous studies (Graham et al., 2005; Dechow & Dichev, 2002; Biddle et al., 2009) confirm that, over the long term, high quality of reported financial results is positively correlated with the TSR ratio. While earnings management practices - whether accrual-based or transactional - may, in the short term, lead to increased investor returns, over the long run they tend to undermine investor confidence and ultimately result in a decline in shareholder return.

This paper investigates whether the values of total shareholder return indicators for companies listed on the WSE in a given year are statistically related to the scope and direction of accrual-based and real earnings management processes occurring within those companies. To this end, multiple regression analysis was applied using the stepwise elimination of statistically insignificant exogenous variables. The study sample comprised 217 publicly listed companies on the Main Market of the WSE over the period 2014–2023, whose shares were actively traded throughout the entire reference period. Due to differences in the presentation of financial data, entities from the banking and insurance sectors were excluded from the sample.

II. MATERIALS AND METHODS

G. Total Shareholder Return proxies

The considerable significance of the TSR ratio in the perception of stakeholders of publicly listed companies arises primarily from shareholders' pursuit of their own interests in shaping and overseeing corporate activities. This ratio can take various forms. It may pertain to the evaluation of returns generated from the sale of held shares, or it may assume a more comprehensive formulation that incorporates additional benefits associated with the ownership and management of company shares - benefits that are often difficult to quantify or directly assess.

The equations used to estimate TSR can take various forms. In its basic formulation, TSR is directly equated with the rate of return on a company's shares, calculated solely based on changes in the market value of the asset over a defined reference period (Burgman & Van Clief, 2012). This approach may be particularly appealing to speculative investors seeking short-term gains from fluctuations in share prices. However,

alternative research perspectives presented in the literature advocate for a broader definition of TSR - one that incorporates the company's profit distribution policy (Jaki, 2012), as well as other forms of cash distributions to shareholders associated with share ownership during the investment period (Mikołajek-Gocejna, 2010).

The most commonly referenced additional shareholder cash flows - beyond dividends - include net gains from share buybacks and benefits arising from subscription rights to newly issued shares.

As noted by Comporek (2025), calculating the final value of TSR does not fully reflect the extent and depth of shareholder satisfaction regarding the financial returns on capital invested in a publicly traded company. A key point of reference is whether shareholders' original expectations - regarding the wealth anticipated from their investment - have been met. These expectations are often shaped in relation to intra-sector benchmarks. A useful measure in this context is the Relative Total Shareholder Return (RTSR), which expresses the ratio between a company's absolute TSR value and the average TSR value within a reference group, such as a market, industry, or peer set (Mikołajek-Gocejna, 2010). When calculated this way, RTSR helps identify companies delivering above-average returns to shareholders and enables the classification of firms based on whether they meet or fall short of their investors' financial expectations. Thus, in our study, we applied the following versions of the TSR ratio, namely: the traditional TSR (Equation 1) and the relative RTSR (Equation 2):

$$TSR_t = \frac{(P_t - P_{t-1}) + DPS_t}{P_{t-1}} \quad (1)$$

Where:

- TSR_t – Total Shareholder Return in year t;
- P_t – market price of the share at the end of period t;
- P_{t-1} – market price of the share at the beginning of period t;
- DPS_t – dividend per share distributed during period t.

$$RTSR_t = TSR_t - \overline{TSR}_t \quad (2)$$

Where:

- RTSR_t – Relative Total Shareholder Return in year t;
- $\overline{TSR}_t$ – average Total Shareholder Return for the sector during period t.

In the article, we used the WSE sector classification regulations, effective since 2019, which identify eight sectors (excluding public administration) to which companies listed on the Warsaw Stock Exchange belong.

H. Earnings management proxies

In this paper, we investigate the impact of two forms of earnings management on the TSR ratio. The first, accrual-based earnings management, involves the use of discretion and flexibility in financial reporting and the interpretation of accounting regulations. This form employs a defined set of

instruments and tools to influence financial results, utilizing both accepted accounting principles and estimates. The second form, real earnings management, is reflected in deviations from normal and routine operational practices, involving temporary coordination and restructuring of business activities. This allows for the proactive “design” of transactions in order to anticipate and influence the recognition of their effects in the accounting records (Roychowdhury, 2006).

We estimated the extent and direction of accrual-based earnings management (DACC) by employing the Dechow et al. (2003) model (Equation 3). Total accruals (TACC) were specified as a function of cash-based revenues (ΔREV - ΔREC) and depreciation expenses (PPE). The residuals obtained from this regression were used as proxies for discretionary accruals (ε = DACC). The slope parameter k represents the anticipated responsiveness of accounts receivable to sales changes, where a value of $k=1$ signifies nondiscretionary movements, while $k=0$ indicates discretionary manipulation (Equation 4).

$$\frac{TACC_t}{TA_{t-1}} = \alpha_1 \left(\frac{1}{TA_{t-1}} \right) + \alpha_2 \left(\frac{(1+k) * \Delta REV_t - \Delta REC_t}{TA_{t-1}} \right) + \alpha_3 \left(\frac{PPE_t}{TA_{t-1}} \right) + \alpha_4 \frac{TACC_{t-1}}{TA_{t-2}} + \varepsilon_t \quad (3)$$

$$\Delta REC_t = \alpha_1 + k * \Delta REV_t + \varepsilon_t \quad (4)$$

Where:

- TACC_t – total accruals in year t (determined by the balance sheet approach);
 TA_t – total assets in year t ;
 REV_t – revenues from sales in year t ;
 REC_t – net receivables in year t ;
 PPE_t – gross property, plant and equipment in year t ;
 k – slope coefficient indicating the expected change in receivables per unit change in sales.

On the other hand, to quantify real earnings management (REM), we adopted the methodology outlined by Roychowdhury (2006). Initially, we calculated three distinct proxies for REM: abnormal cash flows from operations (ab_OCF), abnormal production costs (ab_PROD), and abnormal discretionary expenses (ab_DISX), as defined in Equations (5) to (7). In each regression, the residual term was interpreted as the deviation from normal managerial behavior and thus served as an indicator of REM. Subsequently, these measures were aggregated into a composite REM score following Cohen et al. (2008) (Equation 8), which combines standardized components reflecting REM activities.

$$\frac{OCF_t}{TA_{t-1}} = \alpha_1 \left(\frac{1}{TA_{t-1}} \right) + \alpha_2 \left(\frac{REV_t}{TA_{t-1}} \right) + \alpha_3 \left(\frac{\Delta REV_t}{TA_{t-1}} \right) + \varepsilon_t \quad (5)$$

$$\frac{PROD_t}{TA_{t-1}} = \alpha_0 + \alpha_1 \left(\frac{1}{TA_{t-1}} \right) + \alpha_2 \left(\frac{REV_t}{TA_{t-1}} \right) + \alpha_3 \left(\frac{\Delta REV_t}{TA_{t-1}} \right) + \alpha_4 \left(\frac{\Delta REV_{t-1}}{TA_{t-1}} \right) + \varepsilon_t \quad (6)$$

$$\frac{DISX_t}{TA_{t-1}} = \alpha_1 \left(\frac{1}{TA_{t-1}} \right) + \alpha_2 \left(\frac{REV_{t-1}}{TA_{t-1}} \right) + \varepsilon_t \quad (7)$$

$$REM_t = -ab_OCF_t + ab_PROD_t - ab_DISX_t \quad (8)$$

Where:

- OCF_t – cash flow from operations in year;
 PROD_t – COGS and inventory-adjusted cost of goods sold in year t ;
 DISX_t – discretionary expenses in year t ;
 ab_OCF_t – abnormal cash flow from operations in year t (Roychowdhury, 2006);
 ab_PROD_t – abnormal production costs in year t (Roychowdhury (2006);
 ab_DISX_t – abnormal discretionary expenses in year t (Roychowdhury (2006).

I. Overall model specification

The section below outlines the final regression model used to investigate the impact of earnings management and other firm-specific factors on TSR and RTSR (Equation 9). The set of control variables includes: the ratio of property, plant and equipment to total assets at the end of the fiscal year (TANG); the ratio of intangible assets to sales revenue (INT); the ratio of retained earnings to total assets (RET); the share of long-term liabilities in total assets (LTL); the share of interest-bearing short-term liabilities in total assets (STL); and the return on assets ratio (ROA).

$$\begin{bmatrix} TSR_t \\ RTSR_t \end{bmatrix} = \alpha_0 + \alpha_1 DACC_{Dechow,t} + \alpha_2 REM1_t + \sum_{i=1}^{n=6} CONTROL\ VARIABLES + \varepsilon_t \quad (9)$$

The selection of control variables was not arbitrary but grounded in established theoretical frameworks within corporate finance and economics. The inclusion of variables such as TANG and INT is supported by agency theory and the resource-based view of the firm, respectively, as they reflect the structure and quality of assets that influence monitoring costs and innovation potential (Jensen & Meckling, 1976; Barney, 1991). RET is linked to a firm's internal financing ability, consistent with pecking order theory (Myers & Majluf, 1984), while LTL and STL are commonly used in empirical tests of trade-off theory and capital structure optimization (Modigliani & Miller, 1958; Myers, 1984). Lastly, ROA represents a firm's operational efficiency and profitability, making it relevant in the context of signaling theory (Spence, 1973).

J. Research hypotheses

Based on the conclusions drawn in the theoretical section, we state the following research hypotheses:

- H1: Accrual-based earnings management (AEM),

measured by discretionary accruals, has a negative impact on both traditional Total Shareholder Return (TSR) and its relative measure (RTSR).

- H2: Real earnings management (REM) has a negative impact on both traditional Total Shareholder Return (TSR) and its relative measure (RTSR).

III. RESULTS

In the first step of the empirical research, we applied multiple linear regression with a stepwise procedure to illustrate the determinants shaping TSR in the Polish capital market. Based on the information included in Table 1, we notice several findings worthy of comment. First, the negative and statistically significant coefficient for the DACC proxy indicates that greater use of accrual-based earnings management is associated with a lower TSR ratio, suggesting that investors may respond negatively to perceived manipulation through accounting discretion. Second, the significant negative effect of REM confirms that real earnings management also diminishes shareholder value, likely due to its distortionary impact on operational decisions and long-term performance.

Among the other variables under consideration, asset tangibility is negatively associated with TSR, while short-term debt and return on assets (ROA) exhibit positive and statistically significant effects. These findings highlight the importance of financial structure and profitability in influencing shareholder value.

Although our model explains a relatively modest portion of the variation in TSR, this level of explanatory power is typical for models analyzing market-based outcomes, which are influenced by a broad set of external and firm-specific factors. The overall significance of the model (confirmed by ANOVA) and a Durbin-Watson statistic close to 2 indicate that the model is well specified and that autocorrelation in the residuals is not a concern.

TABLE 1: DETERMINANTS OF TOTAL SHAREHOLDERS' RETURN (TSR) AMONG WSE-LISTED COMPANIES

Dependent variable - TSR							
Independent Variables	Unstandard. Coeff.		Standard. Coeff. i.	t	p-value	Collinearity Statistics	
	B	Standard Error	Beta			Tolerance	VIF
Step 1							
(Constant)	11.668	1.972	-	5.918	<0.001	-	-
DACC	-26.346	9.207	-0.073	-2.861	0.004	0.689	1.451
REM	-84.373	14.766	-0.125	-5.714	<0.001	0.929	1.076

Dependent variable - TSR							
TANG	-15.655	5.863	-0.057	-2.67	0.008	0.968	1.034
INT	-0.752	0.86	-0.019	-0.874	0.382	0.989	1.011
RET	-0.042	0.024	-0.037	-1.74	0.082	0.986	1.014
LTL	5.168	8.674	0.013	0.596	0.551	0.96	1.042
STL	2.984	0.594	0.128	5.021	<0.001	0.681	1.469
ROA	63.01	6.43	0.286	9.8	<0.001	0.522	1.915
Step 2							
(Constant)	12.257	1.705	-	7.188	<0.001	-	-
DACC	-25.871	9.171	-0.071	-2.821	0.005	0.695	1.440
REM	-84.381	14.764	-0.125	-5.715	<0.001	0.929	1.076
TANG	-15.056	5.776	-0.055	-2.607	0.009	0.997	1.003
INT	-0.748	0.86	-0.018	-0.87	0.384	0.989	1.011
RET	-0.042	0.024	-0.037	-1.749	0.080	0.986	1.014
STL	2.959	0.593	0.127	4.993	<0.001	0.684	1.461
ROA	62.737	6.412	0.285	9.784	<0.001	0.525	1.905
Step 3							
(Constant)	12.128	1.699	-	7.14	<0.001	-	-
DACC	-26.174	9.164	-0.072	-2.856	0.004	0.696	1.438
REM	-83.838	14.75	-0.124	-5.684	<0.001	0.931	1.074
TANG	-15.096	5.775	-0.055	-2.614	0.009	0.997	1.003
RET	-0.042	0.024	-0.037	-1.756	0.049	0.987	1.014
STL	2.99	0.592	0.129	5.054	<0.001	0.687	1.456

Dependent variable - TSR							
ROA	63.295	6.38	0.288	9.922	<0.001	0.530	1.886
Step	R	R ²	Adjusted R ²	Stand. Error of the Estimate	Durbin-Watson	ANOVA p-value	N
1	0.276	0.076	0.073	52.571	2.065	<0.001	2170
2	0.276	0.076	0.073	52.563		<0.001	
3	0.275	0.076	0.073	52.560		<0.001	

Source: own elaboration.

In the second stage of the empirical analysis, we examined the factors affecting the relative total shareholder return (RTSR) among public companies listed on the WSE. Our results confirmed that the coefficients for both accrual-based earnings management (DACC) and real earnings management (REM) are negative and statistically significant, confirming that higher engagement in either form of earnings manipulation is associated with a lower RTSR (Table 2). Moreover, among the control variables used in the study, asset tangibility and retained earnings (RET) are negatively related to RTSR, whereas short-term debt (STL) and return on assets (ROA) display positive and statistically significant effects.

The obtained Durbin-Watson test values indicate that first-order autocorrelation of residuals does not occur in the examined cases. The variance inflation factor (VIF) values, which determine whether there is multicollinearity among the predictors, were also found to be at a low level in both cases. It is noticeable that the tested regression models exhibited a low degree of fit to the empirical data; however, as Michalak (2018) notes, regression analysis in such cases is used primarily to detect relationships rather than for prediction purposes, and therefore the model's explanatory power is not of decisive importance.

TABLE 2: DETERMINANTS OF RELATIVE TOTAL SHAREHOLDERS' RETURN (RTSR) AMONG WSE-LISTED COMPANIES

Dependent variable - TSR							
Independent Variables	Unstandard. Coeff.		Standard. Coeff. i.	t	p-value	Collinearity Statistics	
	B	Standard Error	Beta			Tolerance	VIF
Step 1							
(Constant)	-0.703	1.831	-	-0.384	0.701	-	-
DACC	-26.653	8.551	-0.08	-3.117	0.002	0.689	1.451
REM	-58.01	13.714	-0.093	-4.23	<0.001	0.929	1.076
TANG	-11.	5.445	-0.046	-2.117	0.034	0.968	1.034

Dependent variable - TSR							
	527						
INT	-0.335	0.799	-0.009	-0.419	0.675	0.989	1.011
RET	-0.056	0.022	-0.054	-2.516	0.012	0.986	1.014
LTL	7.241	8.056	0.02	0.899	0.369	0.96	1.042
STL	2.252	0.552	0.105	4.08	<0.001	0.681	1.469
ROA	56.006	5.971	0.276	9.379	<0.001	0.522	1.915
Step 2							
(Constant)	-0.756	1.826	-	-0.415	0.678	-	-
DACC	-26.786	8.543	-0.08	-3.135	0.002	0.69	1.449
REM	-57.768	13.699	-0.093	-4.217	<0.001	0.931	1.074
TANG	-11.542	5.444	-0.046	-2.12	0.034	0.968	1.034
INT	-0.056	0.022	-0.054	-2.521	0.012	0.986	1.014
RET	7.216	8.054	0.019	0.896	0.37	0.96	1.042
STL	2.266	0.551	0.106	4.113	<0.001	0.683	1.464
ROA	56.254	5.94	0.277	9.47	<0.001	0.527	1.896
Step 3							
(Constant)	0.066	1.577	-	0.042	0.967	-	-
DACC	-26.121	8.511	-0.078	-3.069	0.002	0.696	1.438
REM	-57.781	13.698	-0.093	-4.218	<0.001	0.931	1.074
TANG	-10.706	5.363	-0.042	-1.996	0.046	0.997	1.003
RET	-0.057	0.022	-0.054	-2.533	0.011	0.987	1.014
STL	2.231	0.549	0.104	4.06	<0.001	0.687	1.456
ROA	55.868	5.925	0.275	9.43	<0.001	0.53	1.886

Dependent variable - TSR							
Step	R	R ²	Adjusted R ²	Stand. Error of the Estimate	Durbin - Watson	ANOVA p-value	N
1	0.251	0.063	0.059	48.82392	2.061	<0.001	2170
2	0.251	0.063	0.06	48.81421		<0.001	
3	0.250	0.063	0.06	48.81189		<0.001	

Source: own elaboration.

IV. DISCUSSION

The obtained results of the conducted regression analyses confirm previous observations from other capital markets and demonstrate that within the studied population there are statistically significant negative relationships between accrual-based and real earnings management and the values of indicators reflecting shareholder returns on investments in the shares of a given issuer (Graham et al., 2005; Dechow & Dichev, 2002; Biddle et al., 2009; Cohen et al., 2008). This applies both to the traditional measure of capital gains (losses) associated with investments in a specific company's securities (TSR) and its relative version (RTSR). Such relationships find justification in agency theory (Jensen & Meckling, 1976), which assumes that managers, operating under conditions of information asymmetry, may make decisions beneficial from their perspective but not necessarily aligned with shareholders' interests. Earnings management, understood as deliberate manipulation of reported financial results, is one form of such a conflict of interest. These actions can distort the true financial condition of the enterprise, which in turn affects market mispricing and lowers investor confidence.

According to the efficient market hypothesis (Fama, 1970), market participants are able, over time, to identify inauthentic accounting practices and adjust their expectations regarding firm value accordingly. As a result, companies engaging in aggressive forms of earnings manipulation - especially real activities such as cutting R&D expenses or accelerating sales - may be "punished" by the market through lower shareholder returns (Roychowdhury, 2006).

The literature also indicates that real earnings management (REM) tends to be more destructive than accrual-based earnings management (DACC) because it directly affects real operational decisions that can have negative long-term consequences (Zang, 2012). In our study, REM was observed to have a stronger negative impact on TSR and RTSR than DACC, which confirms existing empirical findings. These conclusions suggest that, from an investor's perspective, earnings management practices should be treated as a risk signal that reduces future returns. They also support the validity of including earnings management metrics in valuation models and fundamental analysis.

V. CONCLUSIONS

The diversity of investor reactions to realized and forecasted company performance, the nature of agency relationships within firms, the value of capital invested on the stock market, and the intended investment horizon cause shareholder expectations to vary significantly depending on the size and structure of returns derived from purchased shares. The communication process between issuer and investor, viewed through the lens of financial accounting systems, is based on the belief that financial reporting is a fundamental element of the information policy of enterprises operating in the global economy. However, economic practice reveals that the bottom line, which is arguably the most important synthetic measure of a company's economic performance, is highly susceptible to managerial influence. Thus, investigating the relationships between earnings management and shareholder return metrics becomes crucial. By identifying and quantifying how earnings-altering practices affect actual investor gains, we can better understand how managerial actions shape firm value from the capital market's perspective.

Using a stepwise multiple regression analysis, we examined whether the values of total shareholder return indicators for public companies listed on the Warsaw Stock Exchange (WSE) are statistically related to the scope and direction of accrual-based and real earnings management processes. The obtained results allowed us to positively verify the research hypotheses and confirmed findings from other countries, demonstrating that within the studied population there are statistically significant negative relationships between accrual and real earnings management of net profit (loss) and the shareholder returns generated from investments in the shares of a given issuer. We acknowledge that incorporating earnings management metrics into investment analysis and valuation processes constitutes a key element for better understanding investment risk and supports more informed capital decisions by both domestic and foreign investors on the WSE. Further studies in this field can help develop effective tools to identify and prevent practices that undermine the transparency of capital markets.

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