Article

The Influence of a Company's Ownership Structure on Upward Real Earnings Management

Andrzej Piosik [1,*] and **Ewa Genge** [2]

1   Department of Accounting, University of Economics in Katowice, ul. 1 Maja 50, 40-287 Katowice, Poland
2   Department of Economic and Financial Analysis, University of Economics in Katowice, ul. 1 Maja 50, 40-287 Katowice, Poland; ewa.genge@ue.katowice.pl
*   Correspondence: andrzej.piosik@ue.katowice.pl; Tel.: +48-32-257-77-30

check for updates

Abstract: Financial transparency, including transparency of transactions, is one of the pillars of sustainability. This study investigates whether a company's ownership structure, including ownership concentration, managerial ownership, and the presence of institutional investors, affects upward real earnings management practices. The research is based on companies listed on the Warsaw Stock Exchange in Poland adapting panel data regression models. The significance and contribution to literature of the paper lies in the fact that we provide evidence that the association between the magnitude of total upward real earnings management and shareholder concentration is U-shaped, thereby indicating that there is an optimal level of ownership concentration, minimizing the magnitude of upward real earnings management and thus increasing financial transparency. Our results show the negative relationship between total upward real earnings management and managerial ownership, thereby we confirm the alignment of interest hypothesis, in terms of real earnings management. We also confirm that individual instruments of real earnings management are linked to ownership concentration and managerial ownership in specific ways. The presence of institutional investors reduces the magnitude of total upward real earnings management.

Keywords: real earnings management; a company's ownership structure; ownership concentration; managerial ownership; financial transparency; development; institutional investors; selling; general and administrative expenses; R&D expenses

1. Introduction

This study investigates whether a company's ownership structure, including ownership concentration, managerial ownership, and the presence of institutional investors, affects upward real earnings management practices. To accomplish this goal, we checked whether abnormal cuts in discretionary expenses (including selling, general and administrative expenses, and expired research and development costs), acceleration of revenue, increases in production costs, or all of these activities considered together are correlated with the ownership structure.

This issue is closely connected to the importance of the ownership structure and its impact on the monitoring activities, financial transparency, and the development of the firm. The separation of ownership and control leads to discrepancy searching for managerial interests versus shareholders' advantage [1]. To a certain extent, this behavior has been confirmed empirically [2–4]. The association between ownership concentration and earnings management has been analyzed from two perspectives, namely, the efficient monitoring hypothesis and the expropriation hypothesis [5,6].

In this paper, we focus on real earnings management and its links to ownership structure. According to the definition of Healy and Wahlen [7], "earnings management occurs when managers use judgement 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". We consider two perspectives regarding the analysis of earnings management, i.e., the opportunistic perspective and the information perspective [8]. To manage earnings, managers might choose accounting methods (accounting or accrual earnings management using accounting methods and estimates), and they also might use real transactions (real earnings management) [7]. Roychowdhury [9] found manipulation of real activities to avoid reporting losses. Such instruments of real earnings management as price discounts to accelerate revenue for the present period, increasing production volume to report lower costs of goods sold, and cut of discretionary expenses (including research and development expenses and administrative expenses) to rise profits are used by managers, and they affect financial transparency of transactions.

Real earnings management is shaped by some determinants, and it also has specific consequences for companies' activities, including the sustainability and development of a company. Researchers have found consequences of real earnings management in the form of reduction of future performance [10–12]. Financial transparency, including transparency of transactions, is one of the pillars of sustainability [13]. Taking into account sustainability, real earnings management may be reduced by dual audit system [13]. There are also links between corporate social responsibility (CSR) and earnings management. CSR conceals accounting earnings management, while it constrains real earnings management [14].

The links between accounting (accrual) earnings management and ownership structure have been analyzed in many outstanding studies described in the next section, including [3,15–25]. Research on the relationship between the magnitude of real earnings management and the ownership structure of companies has been much more limited and has not necessarily focused on ownership concentration and managerial ownership, including that of [26–33]. Hsu and Wen [34] analyzed only the linear correlation between the percentage of insider shareholdings and the magnitude of real earnings management. The main motivator of this research was to check the significance of the ownership structure of the company in real earnings management as a factor relatively poorly reported in the current literature. The second reason for conducting the research was the relatively large differentiation in the degree of concentration of ownership and managerial ownership in companies listed on the Warsaw Stock Exchange (WSE). Therefore, one of the main objectives of this study is to supplement the knowledge on the relationship between the magnitude of upward real earnings management and the ownership structures of companies. The starting point for the development of hypotheses relating to links between the magnitude of real earnings management and ownership structure is the analysis of conclusions resulting from the research on accrual-based (accounting) earnings management. The justification of the deduction extension used in building hypotheses is that the use of real earnings management and accrual earnings management is often interrelated [35].

In this article, empirical studies were conducted using a sample of 137 companies from 7 industries listed on the WSE in the period of 2008–2017 (10 points of time). Real earnings management proxies were modeled separately for each industry and year using the regression through origin method; then, we verified the models, describing the relationships between the magnitude of real earnings management and the ownership structures of companies. We also modeled the association between probability of occurrence of reversals of real earnings management activities and elements of ownership structure of companies using a logit regression. To account for the longitudinal structure of the data, we included the time dummies in both kinds of analyses mentioned above. This study consists of: The introduction (Section 1), analysis of prior research and hypothesis development (Section 2), presentation of data and methodology (Section 3), description of results (Section 4), discussion of results (Section 5), and conclusions with implications of the research (Section 6). The introduction (Section 1) describes the role of the ownership structure and its impact on monitoring activities and financial transparency, with particular emphasis on the processes of real earnings management. The purpose of Section 2 is to describe the conclusions of prior research on the relationship between ownership structure of an enterprise and earnings management, with particular emphasis on real

earnings management, including the hypotheses descriptions as well. Section 3 describes the research methodology and variables included in the model describing the relationship between real earnings management and ownership structure. Section 4 covers research results based on the applied models. Section 5 presents a discussion about the contribution of the study to knowledge, and Section 6 includes our main conclusions.

The study provides the evidence that a company's ownership structure, including ownership concentration and managerial ownership, influences upward real earnings management practices. Prior studies mostly document the role of managerial ownership in the processes of accounting (accrual) earnings management; therefore, we contribute to [3,20–22,29], but in our study, it is viewed through the lens of real earnings management. The next element of the contribution to the subject literature is the examination of the impact of the degree of ownership concentration in actions monitoring the activity of the enterprise, thereby expanding the research of [26–28] in providing evidence that the association between the magnitude of total upward real earnings management and shareholder concentration is U-shaped. The next aspect of the contribution of the study to the knowledge consists of the expanded description of the factors influencing upward real earnings management, in relation to the ownership structure of the enterprise [9,34].

2. Prior Research and Hypothesis Development

The association between ownership structure and the magnitude of earnings management has been analyzed thoroughly, and many aspects have been found, but the research has focused mostly on accounting earnings management, rather than on real earnings management. It is worth noting that ownership concentration is a very important feature, determining, to a certain extent, the monitoring role of ownership and financial transparency. High degree of ownership concentration and pyramidal organizational structures induce conflicts of interest in the relationship between controlling entity and outside investors [15,36]. Concentrated ownership can also be linked to low earnings informativeness [37]. Furthermore, large shareholders can exercise their control rights in order to satisfy their benefits (the expropriation hypothesis) [38].

2.1. Shareholder Concentration and Earnings Management

The majority of researchers have provided evidence of a monotonic, usually positive, association between ownership concentration and accrual earnings management. In accordance with some research, an increased ownership concentration increases earnings management [16–18]. The positive relationship between ownership concentration and accounting earnings management has also been confirmed in other studies, including [39–42]. However, some research has maintained that more peculiar relationships exist between ownership concentration and earnings management [18]. Some researchers showed that the relationship between corporate ownership concentration and the magnitude of earnings management is negative [43–45].

More complicated and curvilinear associations between earnings management and ownership concentration have been indicated in some research. Ding et al. [19] provided evidence that the link between magnitude of earnings management of Chinese companies and ownership concentration can be described by an inverted U-shaped model. Bozec [46] provided evidence that there is a nonmonotonic relationship between ownership structures and earnings management. The ownership concentration of the supreme owner at first stage increases earnings management, but as the level of ownership concentration increases, earnings management is reduced. There have, however, been results in the research claiming an association between earnings management and ownership concentration [47,48].

The research relating to associations between real earnings management and ownership concentration has been limited. Kang and Kim [26] did not find an association between the magnitude of real earnings management and ownership concentration. Francis et al. [27] analyzed downward real earnings management by investigating corporate events with the incentive to temporarily reduce market valuations. Achleitner et al. [28] found that family firms engage less in real earnings management.

Guo et al. [49] found that a large share of foreign investors reduces the magnitude of real earnings management. According to their research, ownership concentration also reduces the magnitude of real earnings management. Al-Amri et al. [50] observed that the magnitude of real earnings management is lower for public firms compared to private ones. Mellado-Cid et al. [51] found that firms engaged in real earnings management are associated with a lower cost of debt.

Because the findings of the majority of research examining the relationship between shareholder concentration and accrual earnings management have shown positive correlations [15–17], we presume that a very high degree of concentration can increase upward real earnings management; however, there is rather weak evidence that the relationship must be monotonic. An increasing number of researchers have also found negative associations between ownership concentration and accrual earnings management [44]. We follow Ding et al. [19] and Bozec [46] and expect a U-shaped (but not inverted) relationship between ownership concentration and the magnitude of real earnings management, which would mean that there is an optimal degree of ownership concentration that minimizes the magnitude of upward real earnings management. It can be explained that small shareholder concentrations increase pressure for short-term performance; however, a very large degree of ownership concentration mostly influences operating decisions. Therefore, we hypothesized the following:

Hypothesis H1. *The association between ownership concentration and the magnitude of upward real earnings management is U-shaped.*

2.2. Share of State in Equity

Among the feature of a firm's ownership are state equity and political connections with the state. In many countries, an important part of an entity's equity belongs to the state. Also, in Poland, in some of the companies listed on the WSE, the state treasury holds a controlling share of equity. He et al. [52] provided evidence that politically connected, non-state-owned enterprises obtain more disadvantageous audit opinions, while tied, state-owned enterprises obtain affirmative audit opinions once their attachment to corrupt functionaries are terminated. The authors further found that the magnitude of earnings management in state-owned companies is reduced when political concatenation is dissolved, but it is boosted in tied, non-state-owned enterprises. Chen et al. [53] found that underwriter reputation is negatively connected to pre-IPO (Initial Public Offering) earnings management only for issuers that are private enterprises. Underwriter reputation is also linked to amelioration of post-IPO performance.

In the case of companies listed on the WSE, the State Treasury holds shares only in a small group of companies, and the range of volatility of State Treasury shares in ownership is very limited. For this reason, a binary-type variable was adopted in the study, and consequently, linear relationships were considered.

Following the research relating to links between state ownership and real earnings management, we tested the following hypothesis:

Hypothesis H2. *An increased share of equity belonging to the state increases the magnitude of upward real earnings management.*

One of the justifications in Polish circumstances is the relatively high frequency of changes of Chief Executive Officers (CEOs).

2.3. Managerial Ownership and Earnings Management

The role of CEOs in ownership is ambiguous. According to agency theory, managerial shareholding enhances managers in improving firms' value, because managers take advantage of the wealth effects as shareholders. As a result, managerial ownership can lead to convergence of advantages between

managers and shareholders (alignment of interest hypothesis). Therefore, we can expect that managerial ownership is negatively correlated with engagement in earnings management. This principle has been confirmed in many empirical studies, including [3,20–22,29]. However, the interests of owners and managers are not identical; therefore, managers who participate in the equity of the company could realize their specific objectives and benefits. According to the entrenchment hypothesis, owning a significant part in equity can lead to managerial opportunism [54]. Consequently, increased managerial ownership can facilitate managers in engaging in earnings management. This engagement has been confirmed by empirical studies, including [4,55–58].

The correlation between managerial ownership and earnings management (especially accrual-based earnings management) has been examined, and the conclusions have been ambiguous. Some authors indicated a monotonic, positive relationship [6,24,59]. Chi et al. [60] found that increased ownership by executives of equity reduces abnormal cash flow from operations.

There is, however, evidence of a negative association between managerial ownership and the magnitude of earnings management [44,48,61,62]—for accrual-based earnings management. Hsu and Wen [34] documented that the association between the share of insider shareholdings and the level of real earnings management is significantly negative, which means that insiders with a significant share of ownership can effectively supervise managers conducting real earnings management.

There are also surveys indicating non-monotonic curvilinear associations between managerial ownership and earnings management (especially accrual-based earnings management). Yeo et al. [25] found that there exists a non-linear relation between managerial ownership and the informativeness of earnings. Similar findings have been published in other studies [43,63–65]. Yang et al. [66] hypothesized not a linear but an inverted U-shaped relationship between the percentage of outstanding shares owned by executives and the magnitude of earnings management. There is also evidence of no association between managerial ownership and earnings management [67].

Cheng et al. [68] found that the magnitude of real earnings management is reduced with key subordinate executives' horizons and influence. Qi et al. [69] found that probability of engagement in real earnings management of older executives, female executives, and more educated executives is significantly lower; however, it is more probable for executives with experience in finance to engage in real earnings management.

Because both the alignment of interest hypothesis and the entrenchment hypothesis have strong theoretical justifications, to a certain extent, they have been empirically confirmed; however, we follow Sánchez-Ballesta and García-Meca [63], relating to real earnings management and not accrual. Following the research quoted above, we intended to verify the following hypothesis related to upward real earnings management:

Hypothesis H3. *The association between managerial ownership and the magnitude of upward real earnings management follows a U-shaped pattern.*

2.4. Institutional Investors and Earnings Management

Institutional investors can also impact monitoring activities, including earnings management. According to the efficient monitoring hypothesis, an inverse relationship between the magnitude of a firm's earnings management and its institutional share ownership is maintained. Several studies have documented that institutional ownership mitigates managers from engaging in earnings management [44,70–75]. However, in accordance with the expropriation hypothesis, there are many limitations to the monitoring role of institutional investors [76–79]. Hsu and Wen [34] indicated that with the increase of the share in equity held by institutional investors, managers are affected to manage accruals to receive short-term opportunistic interests.

Roychowdhury [9] and Malik [30] found evidence that real earnings manipulations to avoid loss or negative earnings surprises are less pronounced when firms have sophisticated, larger institutional investors. Sakaki et al. [31] found that firms co-owned by stable institutional owners reveal a lower

magnitude of real earnings management by restricting overproduction. Additionally, stability in the ownership of pressure-sensitive and -insensitive institutional investors mitigates the use of real earnings management. Mehrani et al. [32] showed a positive correlation between active institutional ownership and earnings quality, and the presence of active institutional ownership decreases accrual and real earnings management.

The efficient monitoring hypothesis, maintaining inverse relationships of the magnitude of a firm's accrual and real earnings management with its institutional share ownership, was confirmed empirically; therefore, we aimed to verify the following hypothesis:

Hypothesis H4. *The relevant share of institutional investors in equity reduces the magnitude of upward real earnings management.*

2.5. Governance

The subject literature examined the relationship between the governance structure and accrual-based earnings management, emphasizing the role of board size, auditing committee independence and separation function [33]. Real earnings management is also dependent on governance structures. Kang and Kim [26] showed the negative correlation between the magnitude of real earnings management and the size of the board of directors and a share of external directors in the board. Ge and Kim [80] found that the magnitude of real earnings management enhances with superior board governance and diminishes with higher takeover protection. Firms substitute accrual-based earnings management with real earnings management, and the substitution effect is more explicit when firms have stronger board governance. Garven [81] found a positive correlation between the number of outside directorships and the likelihood of real earnings management; however, they observed negative associations between independent directors' stockholdings, as well as the number of audit committee meetings and the likelihood of real earnings management.

In accordance with the Polish Commercial Code, in joint stock companies, the activity of the managing board of a company is supervised by a supervisory board. There is high volatility in the number of members of supervisory boards. It is therefore expected that supervisory boards, which consist of many members, ought to mitigate the magnitude of real earnings management. We hypothesized the following:

Hypothesis H5. *The magnitude of upward real earnings management is negatively correlated with the number of members of supervisory boards.*

2.6. Meeting/Beating Earnings Targets

Among the incentives for real earnings management are income smoothing and meeting/beating earnings targets. Gunny [82] found that real earnings management is associated with firms only meeting earnings benchmarks. Chan et al. [83] analyzed voluntary adoption of compensation clawback provisions and showed that firms substitute for accrual-based earnings management with real transactions management. Di Meo et al. [84] focused on firms that just meet or beat earnings benchmarks and documented a negative association between managerial entrenchment and both the opportunistic use of accruals and the magnitude of real earnings management.

On the other hand, Makarem et al. [85] found that firms reporting small losses and firms demonstrating small profits show a very similar earnings management behavior, both in terms of accounting earnings management and real activities manipulation. An interesting issue to examine is whether activities of real earnings management to meet/beat earnings targets are correlated additionally with ownership concentration and managerial ownership. To check this matter, we used a variable stemming from the multiplication of two respective binary variables, i.e., increased ownership concentration (and increased managerial ownership) and the suspicious observation of

meeting/beating benchmarks. We hypothesized that a higher managerial ownership combined with suspicious observation are correlated with decreased magnitude of real earnings management [84].

Hypothesis H6. *The magnitude of real earnings management for meeting/beating earnings benchmarks is negatively linked to managerial ownership and positively linked to ownership concentration.*

2.7. Correlation of Real Earnings Management with Accrual Earnings Management

The use of real earnings management and accrual earnings management is often interrelated [35]. The choice between real and accrual-based management is often determined by the legal environment and accounting standards. Cohen et al. [86] documented that accrual earnings management boosted until the Sarbanes–Oxley Act (SOX) and was reduced after the passage of SOX; conversely, the magnitude of real earnings management enhanced significantly after the passage of SOX. Zang [87] found that managers trade off accrual-based earnings management and real earnings management based on their relative costs, and managers adjust the magnitude of accrual-based earnings management according to the level of manipulation of real activities realized. Ho et al. [88] found that firms in the post-IFRS period (after implementing International Financial Reporting Standards) are less likely to engage in accrual-based earnings management, and firms prefer real activities manipulation as a surrogate.

It is difficult to make a hypothesis regarding the relationship between accounting earnings management and real earnings management, due to the lack of research in this area in Poland. However, taking into account macroeconomic conditions, in particular the fact that the Polish economy is still part of emerging economies, it can be assumed that the application of accounting earnings management has not yet been marginalized at the expense of real earnings management. Rather, it can be assumed that the accounting earnings management and the real earnings management are positively correlated.

We therefore assumed that the magnitude of upward real earnings management is positively correlated with accrual earnings management.

Hypothesis H7. *The magnitude of upward real earnings management is positively correlated with accrual upward earnings management.*

2.8. Ownership Structure and Reversals of Upward Real Earnings Management

Vorst [12] analyzed reversals of an abnormal cut in discretionary investments and their links to future operating performance, and they found that reversal of abnormal reductions in discretionary expenses in the year after the reduction is anticipatory of real earnings management, and reversal of reductions is associated with decreased future operating performance. Reversals means the pure form of real earnings management. For example, reducing general, administrative, and selling expenses in a given year and increasing these costs in the next period are examples of relatively aggressive earnings management. We should focus especially on these abnormal results of upward real earnings management, which reverse in the following year, i.e., they result in reduction of earnings in the following year, and on their links with ownership concentration and managerial ownership. Testing this relationship, we used the expected links to form previous hypotheses H1 and H3:

Hypothesis H8. *The occurrence of reversals of (abnormal) earnings increasing residuals are linked in a U-shaped manner to ownership concentration and managerial ownership and are negatively correlated with the presence of institutional ownership.*

3. Data and Methodology

3.1. Identification of Real Earnings Management

One of the instruments of real earnings management is manipulating discretionary expenses. Abnormal discretionary expenditures $R1(SGAE_{it})$ measure manipulation in selling, general, and administrative expenses. To estimate the normal level of selling, general, and administrative expenses, including expired Research and Development costs (R&D costs) ($SGAE_{it}$), we followed Roychowdhury's approach [9], modified by Cohen et al. [86], and used regression through origin as follows:

$$SGAE_{it}/A_{it-1} = \beta_1 \, 1/A_{it-1} + \beta_2 S_{it-1}/A_{it-1} + \zeta_{it}. \tag{1}$$

where:

$SGAE_{it}$ = selling, general, and administrative expenses, including expired R&D costs;
A_{it} = total assets;
S_{it} = sales revenue;
ΔS_{it} = change in sales; and
$i = 1, \ldots, n$ (companies); $t = 1, \ldots, T$ (time periods).

Abnormal discretionary expenses $R(SGAE_{it})$ are calculated as the differences between actual $SGAE_{it}$ and normal $SGAE_{it}$. The more negative that the amount is, the greater that the extent is to which earnings are shaped upward.

Managers can increase/decrease production to increase/decrease earnings. Because the cost of goods sold is only the resultant effect of real earnings management (the reduced cost of goods sold increases income), the measure of production costs ($PROD_{it}$) is the total of cost of goods sold and change in inventory. In modeling normal production costs, we followed Roychowdhury's approach [9], as follows:

$$PROD_{it}/A_{it-1} = \beta_1 1/A_{it-1} + \beta_2 S_{it}/A_{it-1} + \beta_3 \Delta S_{it}/A_{it-1} + \beta_4 \Delta S_{it-1}/A_{it-1} + \zeta_{it} \tag{2}$$

where:
$PROD_{it}$ = total cost of goods sold plus/minus change in inventory.
Other symbols of variables are the same as in Equation (1).

Abnormal production costs $R1(PROD_{it})$ consist of residuals stemming from Equation (2). Higher abnormal production costs cause the earnings to move upward.

Real earnings management can also be based on the acceleration of the timing of sales through price discounts and indulgent credit terms. We followed Roychowdhury's approach [9], as follows:

$$CFO_{it}/A_{it-1} = \beta_1 1/A_{it-1} + \beta_2 S_{it}/A_{it-1} + \beta_5 \Delta S_{it}/A_{it-1} + \zeta_{it.} \tag{3}$$

where CFO_{it} = cash flow from operations. Other symbols of variables are the same as in Equation (1).

Abnormal cash flow from operations $R1(CFO_{it})$ consists of residuals from Equation (3). Smaller residuals indicate managing earnings upward.

All three models above are cross-sectional regressions through origin, executed separately for every industry and year, requiring at least 16 observations for each model, following [87].

Because it is possible for the reporting entities to use three groups of transactions (boosting sales, reducing discretionary expenses, and increasing production volumes), we used a single variable of three real earnings management activities, combining the sum of residuals from three models. We constructed a combined measure of real earnings management activities by aggregating three individual proxies of real earnings management, namely, $R(SGAE_{it})$, $R(PROD_{it})$, and $R(CFO_{it})$, as follows;

$$TREM_{it} = R(SGAE_{it}) + R(CFO_{it}) - R(PROD_{it}) \tag{4}$$

Thus, according to the variable $TREM_{it}$, smaller values indicate managing earnings upward.

We took the view, however, that the three individual measures of real earnings management $R(SGAE_{it})$, $R(CFO_{it})$, $R(PROD_{it})$ can have different implications for real earnings management [87] and can also have different determinants, also including ownership concentration and managerial ownership. Therefore, analysis of the determinants of real earnings management included both combined measures of real earnings management $TREM_{it}$ and individual measures ($R(SGAE_{it})$, $R(CFO_{it})$, $R(PROD_{it})$).

3.2. Research Design

We verified an empirical model to investigate the association between ownership concentration and managerial ownership and the proxies of real earnings management. In our model, real earnings management proxies are described as a function of ownership concentration, managerial ownership, other ownership characteristics, and control variables. Among these variables, we included dummies for years. Due to the inclusion of dummy explanatory variables for the different points of time, we accounted for the longitudinal structure of the data, though this was based on fixed rather than random effects. The use of fixed effects was justified by the limited points of time considered and Husman test results showing that fixed model was the preferred one (i.e., the results for variable $TREM_{it}$ $\chi^2 = 61.95$, $p < 0.001$). Then, our equation is given as follows:

$$
\begin{aligned}
REM_{it} = \beta_0 &+ \beta_1 CON_{it} + \beta_2 CON^2{}_{it} + \beta_3 MNG1_{it} + \beta_4 MNG1^2{}_{it} + \beta_5 INST01_{it} + \beta_6 CONST01_{it} + \beta_7 MEET_{it} + \\
&\beta_8 MEET_{it}{}^*CON01_{it} + \beta_9 MEAT_{it}{}^*MNG101_{it} + \beta_{10} BEAT_{it} + \beta_{11} BEAT_{it}{}^*CON01_{it} + \beta_{12} BEAT_{it}{}^*MNG101_{it} + \\
&\beta_{13}{}^{\wedge}MNG_{it} + \beta_{14} PO_{it} + \beta_{15} CON01_{it}{}^*MNG101_{it} + \beta_{16} ROI_{it} + \beta_{17} D_{it-1}/A_{it-1} + \beta_{18} AUDQ_{it} + \beta_{19} DACC_{it} + \\
&\beta_{20} LnNBRD_{it} + \beta_{21} MBV_{it} + \beta_{22} SCORE_{it} + \beta_{23} CYCLE_{it} + \beta_{24} CFO_{it}/A_{it-1} + \beta_{25} t\_9 + \beta_{26} t\_10 + \\
&\beta_{27} t\_11 + \beta_{28} t\_12 + \beta_{29} t\_13 + \beta_{30} t\_14 + \beta_{31} t\_15 + \beta_{32} t\_16 + \beta_{33} t\_17 + \zeta_{it.}
\end{aligned}
\tag{5}
$$

where:

REM_{it} = one of the four proxies of real earnings management: $TREM_{it}$, $R1(SGAE_{it})$, $R1(CFO_{it})$, and $R1(PROD_{it})$);
CON_{it} = the concentration: Total percentage of shares owned by shareholders who own at least 5% of shares and who are not institutional investors;
$MNG1_{it}$ = the proportion of the company's shares owned by members of the management board;
$CON01_{it}$ = a dummy variable equal to 1 if CON_{it} is higher than the median value of CON_{it} in the sample, and 0 otherwise;
$MNG101_{it}$ = a dummy variable equal to 1 if $MNG1_{it}$ is at least 0.05, and 0 otherwise;
$INST01_{it}$ = a dummy variable equal to 1 if there are institutional investors who own at least 5% of the common stock, and 0 otherwise;
$CONST01_{it}$ = the concentration held by the state treasury: A dummy variable equal to 1 if there is ownership by the state treasury of at least 5% of the common stock, and 0 otherwise;
$MEET_{it}$ = a binary variable equal to 1 if reported net earnings scaled by total assets is higher than 0 and lower than 0.01, and 0 otherwise;
$BEAT_{it}$ = a binary variable equal to 1 if the change in net earnings scaled by total assets is higher than 0 and lower than 0.01, and 0 otherwise;
${}^{\wedge}MNG_{it}$ = a binary variable equal to 1 if a change in the company's CEO_{it} occurred, and 0 otherwise;
PO_{it} = a binary variable equal to 1 if a public offering was realized during the period, and 0 otherwise;
ROI_{it} = return on assets, equal to net earnings divided by the beginning value of total assets;
D_{it-1}/A_{it-1} = financial leverage, which is lagged total liabilities divided by lagged total assets;
$AUDQ_{it}$ = audit quality: A binary variable equal to 1 if the auditor of the reporting entity was ranked in the first to tenth position in the ranking by the *Rzeczpospolita* newspaper in Poland in the period of 2008–2017, and 0 otherwise; and
$DACC_{it}$ = discretionary accruals: Residuals form normal accruals.

We used a model of total normal accruals (ACC_{it}), as follows:

$$ACC_{it} = (\Delta CA_{it} - \Delta CASH_{it}) - \Delta CL_{it} - DEP_{it};$$

ACC_{it} = total accruals;
ΔCA_{it} = change in current assets;
$\Delta CASH_{it}$ = change in cash and cash equivalents;
ΔCL_{it} = change in current liabilities; and
DEP_{it} = depreciation and amortization expense.

Total accruals were modeled using the modified Jones approach [89], but cross-sectionally for each industry and year as follows:

$$ACC_{it}/A_{it-1} = \beta_0/A_{it-1} + \beta_2 \Delta S_{it}/A_{it-1} + \beta_3 PPE_{it}/A_{it-1} + \zeta_{it}$$

where

PPE_{it} = value of property, plant and equipment;
$LnNBRD_{it}$ = natural log of the number of members of the supervisory board;
M_{it}/BV_{it} = market to book value;
$SCORE_{it}$ = score model PAN-F [90];
$CYCLE_{it}$ = the operating cycle ratio in days;
CFO_{it} = net cash flow from operations;
time = included by dummy variables (*t_8* as reference category, *t_9*, *t_10*, … ,*t_17*).

Variables in the model were in accordance with Hypotheses H1–H7. Parameters were estimated using fixed effects regression model. The normality of distribution of residuals was checked using the Kolmogorov–Smirnov test. All of the computations and tables in this paper were prepared using the *TIBCO Statistica* software, version 13.3, and packages of open source R 3.6.1.

4. Results

4.1. Sample Selection and Descriptive Statistics

4.1.1. Sample Selection

The sample includes companies listed on the WSE. We identified companies listed since 2008 from all sectors. We chose this research setting because it is characterized by a large diversity of ownership concentration and managerial ownership. The sample covers a period of 10 years, from 2008 to 2017, considered as 10 points of time in our final panel structure data set. We identified the sectors in which the companies operate. Then, we eliminated all sectors with fewer than 16 companies because of modeling of the real earnings management proxies cross-sectionally for every industry and year, and we received the distribution of numbers of companies and lists of industries included in Table 1. Observations retrieved from elements of financial statements were obtained from NOTORIA base (ir.notoria.pl/db/privacy).

Table 1. Sample characteristics according to companies' industries.

No	Industry	Number of Companies	% Share
1.	Architecture and construction	27	19.7
2.	Electromechanical industry	23	16.8
3	Heavy industry and energy	16	11.7
4.	Informatics	21	15.3
5.	Clothes and cosmetics	17	12.4
6.	Food production	17	12.4
7.	Merchandise	16	11.7
	Total	137	100.0

Seven industries are represented in the final sample, providing 1370 firm-year observations. Observations from 2008 for two industries, namely, food production and merchandise, were eliminated because the number of companies listed was less than 16; therefore, the final sample for modeling of normal selling, general, and administrative expenses and cash flow was reduced by 33 observations.

To estimate normal production costs and total residuals (*TREM*), we had to reduce the sample by an additional 33 firm-year observations (missing data from 2007). Then, we eliminated some firm-year observations due to missing data, outliers, and defective indicators (for example negative P/BV ratios). The final data that were derived from 134 companies (represented at least twice) over a 2008–2017 period of time is described in Table 2. The final dataset with observations used in the research is placed in Supplementary Materials Table S1.

Table 2. Sample selection.

No	Firm-Year Observations	Quantity
1.	Firm-year observations covering 2008–2017 from 137 companies	1370
2.	Eliminating food production and merchandise industry in 2008 and in 2009	66
3.	Eliminating missing data, extreme values, and outliers	251
4.	Total firm-year observations for modeling	1053

4.1.2. Descriptive Statistics

Table 3 reports descriptive statistics for the dependent and independent variables used in model 4.

Mean and median proxies of real earnings management can indicate that Polish companies generally manage earnings management downward (Table 3). However, mean and median values for the proxy of accounting earnings management *DACCI* indicate rather neutral behavior of accrual earnings management (Table 3).

In Appendix A, we show a correlation matrix depicting Pearson's and Spearman's correlation coefficients between pairs of continuous variables, respectively, in the upper right and bottom left sections. Significant coefficients are in marked * (at $p = 0.05$).

We observe that the magnitudes of individual real earnings management proxies are positively correlated with each other, likely indicating that three tools of real earnings management tools are used supplementarily. We observe a negative correlation (in terms of upward real earnings management) between *TREM* and managerial ownership. We need to stress that even if the sign of the correlation or regression coefficient in the tables given below is positive (negative), we conclude that there is a negative (positive) relationship between those two variables. We take this shortcut (opposite way) to interpretation based on the *TREM, R1(SGAE),* and *R1(CF0)* definitions (positive coefficient indicates that as the value of the independent variable increases, the mean of the dependent variable tends to decrease).

Table 3. Descriptive statistics.

Variable	Statistics					
	N	Mean	Median	25% Quartile	75% Quartile	Std. Dev.
R1_SGAE	1053	0.003	0.001	−0.042	0.047	0.083
R1_CFO	1053	0.010	0.008	−0.039	0.061	0.082
R1_PROD	1053	−0.005	−0.003	−0.069	0.059	0.103
TREM1	1053	0.018	0.019	−0.116	0.156	0.208
CON	1053	0.530	0.569	0.401	0.676	0.221
MNG1	1053	0.145	0.000	0.000	0.247	0.221
INST01	1053	0.684	1.000	0.000	1.000	0.465
CONST01	1053	0.070	0.000	0.000	0.000	0.256
MEET	1053	0.072	0.000	0.000	0.000	0.259
MEETxCON01	1053	0.047	0.000	0.000	0.000	0.211
MEETxMNG01	1053	0.030	0.000	0.000	0.000	0.172
BEAT	1053	0.136	0.000	0.000	0.000	0.343
BEATxCON01	1053	0.057	0.000	0.000	0.000	0.232
BEATxMNG01	1053	0.069	0.000	0.000	0.000	0.254
*MNG^*	1053	0.130	0.000	0.000	0.000	0.337
PO	1053	0.011	0.000	0.000	0.000	0.106
CON01xMNG01	1053	0.247	0.000	0.000	0.000	0.431
ROI	1053	0.041	0.040	0.010	0.074	0.107
D_A	1053	0.461	0.453	0.339	0.577	0.181
AUDQ	1053	0.570	1.000	0.000	1.000	0.495
DACCI	1053	0.000	0.002	−0.050	0.051	0.098
LnNBRD	1053	1.895	1.792	1.609	2.079	0.321
M_BV	1053	1.427	0.967	0.610	1.563	1.674
SCORE	1053	2.487	2.163	1.124	3.522	2.676
CYCLE	1053	70.580	57.665	21.236	113.191	77.821
CFO_A	1053	0.073	0.073	0.028	0.121	0.089

4.2. Results

The basic stage of the study is to determine the parameters of Equation (5) describing the relationships between the total real earnings management proxy (*TREM* variable) and factors of the enterprise ownership structure. The regression estimates for Equation (5) are presented in Table 4.

Table 4 shows that the link between the magnitude of total upward real earnings management and shareholder concentration is curvilinear and precisely U-shaped. The increases in shareholder concentration are negatively linked (see *TREM* definition) to the magnitude of total upward real earnings management; however, when the degree of concentration reaches optimal levels, the scope of upward real earnings management starts to increase. Therefore, Hypothesis H1 is acknowledged in terms of total upward real earnings management proxies. The results of tests coincide with Ding et al. [19] and Bozec [46], and they confirm a U-shaped (but not inverted) relationship between ownership concentration and the magnitude of real earnings management as well. Taking into account the magnitude of ownership concentration, we confirm partially the efficient monitoring hypothesis (Dechow et al. [5], Chin et al. [18], Saona and Muro [43], Alves [44]) and the expropriation hypothesis (Jaggi and Tsui [6], Waweru and Riro [16], Hamid et al. [17], Yang et al. [39], Shuto and Iwasaki [40], Dempsey et al. [41], and Francis et al. [42]). In accordance with our results, we observed a negative correlation between managerial ownership and total real earnings management; therefore, we did not acknowledge Hypothesis H3. In our research, we confirmed the effective monitoring hypothesis (García-Meca and Sánchez-Ballesta [48]; Nguyen and Xu [61]; Alves [44]; Huang et al. [62] and Hsu and Wen [34] in conjunction with the monitoring role of managerial ownership.

Table 4. OLS regression results for *TREM*.

	Coeff.	*St. Error*	*t Stat.*	*p*		
Constant	−0.056	0.049	−1.145	0.252		
CON	0.243 **	0.082	2.949	0.003		
CON^2	−0.298 ***	0.086	−3.444	0.001		
MNG1	0.182 *	0.085	2.131	0.033		
MNG1^2	−0.206	0.114	−1.811	0.070		
INST01	0.055 ***	0.012	4.737	0.000		
CONST01	0.033	0.020	1.600	0.110		
MEET	−0.024	0.033	−0.723	0.470		
*MEET*CON01*	0.033	0.040	0.830	0.407		
*MEET*MNG101*	−0.009	0.039	−0.224	0.823		
BEAT	0.018	0.022	0.839	0.402		
*BEAT*CON01*	0.007	0.028	0.205	0.838		
*BEAT*MNG101*	−0.030	0.028	−1.031	0.303		
^MNG	0,006	0.015	0.352	0.725		
PO	0.106 *	0.046	2.327	0.020		
*CON01*MNG101*	0,025	0.018	1.520	0.129		
ROI	−0.205 **	0.077	−2.669	0.008		
D/A	−0.247 ***	0.040	−6.304	0.000		
AUDQ	0.028 *	0.011	2.520	0.012		
DACCI	−0.042	0,055	−0.818	0.414		
LnNBRD	−0.015	0,018	−0.809	0.419		
M/BV	0.013 ***	0.003	4.525	0.000		
SCORE	0.007	0.004	1.874	0.061		
CYCLE	0.000 ***	0.000	6.201	0.00		
CFO/A	1.122 ***	0.063	17.691	0.000		
t_9	−0.049 *	0.024	−2.096	0.036		
t_10	−0.035	0.023	−1.552	0.121		
t_11	0.005	0.022	0.084	0.933		
t_12	−0.018	0.023	−0.785	0.433		
t_13	−0.064 **	0.023	−2.821	0.005		
t_14	−0.026	0.023	−1.133	0.257		
t_15	−0.047 *	0.023	−2.035	0.042		
t_16	−0.036	0.023	−1.552	0.121		
t_17	−0.031	0.023	−1.316	0.189		
Dependent variable	*Coeff. of determination*	*Adj. coeff. of determination*	*Df*	*MS*	*F*	*p*
TREM	0.4674	0.4501	1019	0.024	27.09	0.000
Normality of resid.: Kolmogorov–Smirnov test	*K–S d* = 0.030, *p* < 0.15					

* Coefficients significant at p < 0.05; ** Coefficients significant at p < 0.01; *** Coefficients significant at p < 0.001.

We do not observe a significant relationship between the share of state treasury in equity and the magnitude of total real earnings management. Consequently, Hypothesis H2 is not confirmed in terms of total real upward earnings management. The results of our study do not follow He et al. [51] and Chen et al. [52].

The share of institutional investors reduces the magnitude of total upward real earnings management. We therefore reaffirm Hypothesis H4, providing evidence of efficient monitoring maintaining an inverse relationship between the magnitude of the firm's total upward real earnings management and its institutional share ownership. The findings coincide with the results of Bange and De Bondt [70], Bushee [71], Chung et al. [72], Cornett et al. [73], Alves [44], and Roychowdhury [9].

There is no link between the magnitude of upward real earnings management and the number of members of supervisory boards of companies. We did not confirm the monitoring role of members of supervisory boards; consequently, we rejected Hypothesis H5. The results do not follow the research findings of Kang and Kim [26] and they are difficult to compare with the findings of Ge and Kim [80],

because we did not take into account the measure of quality of board governance, which is a limitation of our study.

We did not find evidence that total real earnings management is used in meeting or beating earnings benchmarks, also considering the link with concentration and managerial ownership. Consequently, we did not corroborate Hypothesis H6 and the results do not follow the findings of Gunny [82] and Di Meo et al. [84]. They are rather consistent with the findings of Makarem et al. [85].

The outcome does not show that real earnings management is used jointly with accounting (accrual) earnings management, therefore we did not confirm Hypothesis H7. In accordance with Hypothesis H7, we did not confirm that the magnitude of upward total real earnings management is correlated with upward accrual earning management, demonstrating that two groups of instruments of earnings management are not mutually associated, and the results of the study contradict the findings of Matsuura [35].

We have evidence that audit quality reduces the magnitude of upward real earnings management. Additionally, we observe also an increasing tendency (the smaller, negative values indicate managing earnings upward) for total real earnings management upward in years 2009, 2013, and 2015 referred to the first year of our analysis (2008).

As a robustness test, we also built a model of total real earnings management with the same variables but excluding squared variables (not tabulated). As a result, we found no linear links between the proxy of total upward real earnings management and shareholder concentration, as well as managerial ownership. This outcome strengthens the evidence that the links of total earnings management with ownership concentration could be accepted as U-shaped.

Individual instruments of real earnings management can be linked, however, in a specific way with the concentration of equity and managerial ownership. In Table 5, we present panel regression models separately, including *R1(SGAE), R1(CFO),* and *R1(PROD)*. Significant coefficients in the table are marked *. In Table 5, we use the same independent variables as in Table 4. For *R1(SGAE),* we missed the variable $MNG1^2$, because the variable *MNG1* is monotonically linked to *R1(SGAE)*— Appendix A.

Upward real earnings management by reducing selling, general, and administrative expenses is linked to ownership concentration in a U-shaped manner. In this way, we confirmed Hypothesis H1 for this dependent variable as well.

When the share of managerial ownership in equity increases, companies reduce their usage of *SGAE* to manage earnings upward. Therefore, we did not acknowledge Hypothesis H3 for *SGAE*; however, the results offer us evidence of the efficient monitoring hypothesis.

The presence of institutional investors reduces the magnitude of upward real earnings management with the usage of *SGAE*. We consequently certified Hypothesis H4 for *SGAE* [9]. The positive link between upward earnings management using *SGAE* and more numerous supervisory boards is inconsistent with Hypothesis H5. The equity held by the state treasury is negatively correlated with abnormal *SGAE*. In this respect, we did not confirm Hypothesis H2 for *SGAE*.

The magnitude of upward real earnings management using acceleration of revenue is not linked to concentration (we rejected in this regard Hypothesis H1). It is not linked to the managerial ownership (we did not confirm Hypothesis H3). Ownership concentration is positively correlated with manipulating revenue for the objective of beating earnings benchmarks. Meeting earnings benchmark is negatively correlated with managerial ownership. The magnitude of upward real earnings management by accelerating revenue is negatively correlated with the number of members of supervisory boards, so we acknowledged Hypothesis H5. The positive correlation between accelerating revenue and accrual earnings management testifies to the complementarity of two instruments of upward earnings management, and we confirmed Hypothesis H7. Moreover, we noticed also an increasing tendency for real earnings management upward in years 2009, 2012, and 2013 referred to the first year of our analysis (2008). As far as the abnormal cash flow from operations *R1(CFO)* variable is concerned, the increasing tendency in the first year of crisis and the decreasing tendency at the end of the crisis (2011), compared to 2008 year could be observed.

Table 5. OLS regression results for *R1(SGAE)*, *R1(PROD)*, and *R1(CFO)*.

Dependent Variable	R1(SGAE)		R1(CFO)		R1(PROD)	
Variables:	Coeff.	T	Coeff.	t	Coeff.	t
Constant	0.047 *	1.969	−0.059 ***	−4.460	0.040	1.453
CON	0.178 ***	4.547	−0.039	−1.753	−0.117 *	−2.493
CON^2	−0.219 ***	−5.417	0.036	1.516	0.132 **	2.690
MNG1	0.056 ***	3.574	0.017	0.723	−0.049	−1.016
$MNG1^2$	——-	- —	−0.054	−1.737	0.066	1.027
INST01	0.032 ***	5.690	−0.004	−1.409	−0.027 ***	−4.098
CONST01	0.020 *	1.980	−0.001	−0.109	−0.012	−1.074
MEET	−0.003	−0.219	0.002	0.197	0.023	1.240
MEET*CON01	0.024	1.228	−0.013	−1.186	−0.022	−0.994
MEET*MNG101	−0.016	−0.859	0.024 *	2.294	0.015	0.667
BEAT	0.002	0.163	0.015 *	2.534	0.000	0.032
BEAT*CON01	0.017	1.262	−0.021 **	−2.752	−0.010	−0.597
BEAT*MNG101	−0.012	−0.920	−0.001	−0.113	0.011	0.681
^MNG	0.000	0.004	0.011 **	2.846	0.007	0.781
PO	0.022	0.977	0.023	1.821	−0.062 *	−2.392
CON01*MNG101	0.002	0.296	0.010 *	2.130	−0.016 ***	−1.569
ROI	0.020	0.525	−0.052 *	−2.531	0.173 ***	3.967
D/A	−0.127 ***	−6.618	−0.027 *	−2.475	0.093 *	4.133
AUDQ	0.013 *	2.540	0.001	0.360	−0.013	−2.071
DACCI	−0.011	−0.426	−0.039 **	−2.599	−0.006	−0.207
LnNBRD	−0.025 **	−2.915	0.015 **	3.069	0.005	0.522
M/BV	0.006 ***	4.218	0.002 *	2.414	−0.005 **	−3.188
SCORE	−0.003	−1.366	0.001	1.046	−0.009 ***	−4.052
CYCLE	0.000 ***	4.233	0.000 **	3.210	0.000 ***	−5.636
CFO/A	0.068 *	2.210	0.771 ***	44.667	−0.283 ***	−7.836
t_9	−0.023 *	−2.002	−0.013 *	−1.975	0.014	1.014
t_10	−0.021	−1.909	0.002	0.258	0.016	1.227
t_11	−0.009	−0.831	0.014 *	2.327	0.002	0.152
t_12	−0.022 *	−2.001	−0.008	−1.255	−0.012	−0.966
t_13	−0.030 **	−2.740	−0.009	−1.419	0.025	1.912
t_14	−0.020	−1.823	0.001	0.087	0.006	0.477
t_15	−0.019	−1.659	−0.012	−1.777	0.017	1.249
t_16	−0.020	−1.811	−0.001	−0.198	0.014	1.050
t_17	−0.013	−1.135	−0.001	−0.087	0.017	1.260
Model characteristics:						
Coeff. of determination	0.211		0.747		0.295	
Adj. coeff. of determination	0.186		0.739		0.272	
Df	1020		1019		1019	
F	8.533		91.52		12.91	
P	0.000		0.000		0.000	
Normality of resid.: Kolmogorov–Smirnov test	K–S d = 0.037, p < 0.15		K–S d = 0.035, p > 0.20		K–S d = 0.278, p < 0.15	

*Coefficients significant at $p < 0.05$; ** Coefficients significant at $p < 0.01$; *** Coefficients significant at $p < 0.001$.

The extent of upward real earnings management using production costs manipulation is correlated with shareholder concentration in a U-shaped manner, therefore we confirmed Hypothesis H1. Although, there is not a significant relationship between managerial ownership and the magnitude of upward real earnings management stemming from abnormal production costs. We observe, however, that the presence of institutional investors in equity reduces the magnitude of upward real earnings management by increasing production. Hypothesis H4 is consequently confirmed for production costs.

4.3. Reversals of Real Earnings Management and Ownership Structure

We analyzes also whether reversals of real earnings management are linked to the ownership structure of a company. For variables $R1(SGAE_{it})$, $R1(CFO_{it})$, $R1(PROD_{it})$, and $TREM_{it}$, we therefore introduced the respective dummy variables as follows: $REV1(SGAE_{it})$, $REV1(CFO_{it})$, $REV1(PROD_{it})$, and $REV1(REM_{it})$, generally indicated as $REV1$.

Dummy variable $REV1(SGAE_{it})$ is equal to 1 if the negative $R1(SGAE_{it})$ for a company for a given year corresponds with positive $R1(SGAE_{it})$ for a company in the following year, and 0 otherwise.

Dummy variable $REV1(CFO_{it})$ is equal to 1 if the negative $R1(CFO_{it})$ for a company for a given year corresponds with positive $R1(CFO_{it})$ for a company in the following year, and 0 otherwise.

Dummy variable $REV1(PROD_{it})$ is equal to 1 if the positive $R1(PROD_{it})$ for a company for a given year corresponds with negative $R1(PROD_{it})$ for a company in the following year, and 0 otherwise.

Dummy variable $REV1(REM_{it})$ is equal to 1 if the negative $TREM_{it}$ for a company for a given year corresponds with positive $TREM_{it}$ for a company in the following year.

For each dummy variable $REV1$, we built a logit regression with the same independent variables as in model (5) as follows:

$$
\begin{aligned}
REV1_{it} = {} & \beta_0 + \beta_1 CON_{it} + \beta_2 CON^2{}_{it} + \beta_3 MNG1_{it} + \beta_4 MNG1^2{}_{it} + \beta_5 INST01_{it} + \beta_6 CONST01_{it} + \beta_7 MEET_{it} + \\
& \beta_8 MEET_{it}{}^* CON01_{it} + \beta_9 MEAT_{it}{}^* MNG101_{it} + \beta_{10} BEAT_{it} + \beta_{11} BEAT_{it}{}^* CON01_{it} + \beta_{12} BEAT_{it}{}^* MNG101_{it} + \\
& \beta_{13}{}^{\hat{}} MNG_{it} + \beta_{14} PO_{it} + \beta_{15} CON01_{it}{}^* MNG101_{it} + \beta_{16} ROI_{it} + \beta_{17} D_{it-1}/A_{it-1} + \beta_{18} AUDQ_{it} + \\
& \beta_{19} DACC_{it} + \beta_{20} LnNBRD_{it} + \beta_{21} MBV_{it} + \beta_{22} SCORE_{it} + \beta_{23} CYCLE_{it} + \beta_{24} CFO_{it}/A_{it-1} + \beta_{25}t\_9 + \beta_{26}t\_10 + \\
& \beta_{27}t\_11 + \beta_{28}t\_12 + \beta_{29}t\_13 + \beta_{30}t\_14 + \beta_{31}t\_15 + \beta_{32}t\_16 + \beta_{33}t\_17 + \zeta_{it.}
\end{aligned}
\tag{6}
$$

Table 6 shows the results of the logit regression, with the estimates of the probability of reversals (with a binding function that the probability of reversals is equal to zero). We can conclude that the probability of reversals of total upward real earnings management proxy is not linked to ownership structure or managerial ownership and is not linked to the presence of institutional investors. Consequently, we did not acknowledge Hypothesis H8 for reversals of total upward real earnings management.

Table 6. Logit regression of *REV1* (probability *REV1* = 0).

Dependent Variable:	REV1(REM)		REV1(SGAE)		REV1(CFO)		REV1(PROD)	
	Coeff.	*Wald Stat.*	*Coeff.*	*Wald Stat.*	*Coeff.*	*Wald Stat.*	*Coeff.*	*Wald Stat.*
Constant	1.581	1.851	5.114 **	8.201	1.792	3.305	1.933	3.815
CON	−0.552	0.074	−6.440 **	3.918	−1.350	0.682	−0.442	0.065
CON²	0.263	0.015	5.756	3.392	1.374	0.597	−0.607	0.124
MNG1	0.317	0.024	6.325 **	5.035	−1.777	1.186	−1.559	0.859
MNG1²	−0.710	0.068	−8.006 **	5.097	1.878	0.711	1.534	0.480
INST01	0.162	0.358	0.141	0.190	−0.304	1.749	0.134	0.365
CONST01	−0.713	2.627	−0.360	0.490	0.125	0.077	−1.082 ***	9.701
MEET	−0.668	1.010	0.160	0.032	0.532	0.538	−0.976	3.015
MEET*CON01	0.463	0.285	−0.198	0.040	−0.983	1.415	1.209	3.013
MEET*MNG101	0.443	0.238	−1.334	1.989	1.013	1.641	−0.357	0.258
BEAT	−0.127	0.056	0.983	1.203	−0.120	0.080	−0.689	2.855
BEAT*CON01	1.014	1.909	−0.516	0.361	0.347	0.423	0.441	0.634
BEAT*MNG101	−0.538	0.608	−1.805	3.686	−0.061	0.013	0.581	1.123
^MNG	0.668	2.632	−0.363	1.015	0.417	1.798	−0.111	0.146
PO**	17.023	0.000	16.145	0.000	−0.591	0.406	0.987	0.795
CON01*MNG101	0.049	0.012	0.071	0.016	0.118	0.120	0.275	0.598
ROI	−2.205	1.415	−2.257	1.326	−0.327	0.038	−5.586 ***	11.642
D/A	0.127	0.019	1.424	1.791	0.323	0.177	0.083	0.012
AUDQ	−0.179	0.477	0.464	2.228	0.035	0.029	0.215	0.995
DACCI	−0.514	0.157	−1.625	1.154	−1.288	1.529	−1.383	1.678
LnNBRD	0.117	0.071	−0.056	0.012	−0.152	0.174	0.026	0.005

Table 6. *Cont.*

Dependent Variable:	REV1(REM)		REV1(SGAE)		REV1(CFO)		REV1(PROD)	
	Coeff.	*Wald Stat.*	*Coeff.*	*Wald Stat.*	*Coeff.*	*Wald Stat.*	*Coeff.*	*Wald Stat.*
M/BV	−0.010	0.021	−0.147 **	4.693	0.142	3.466	−0.009	0.025
SCORE	0.009	0.012	0.307 **	6.018	−0.025	0.105	0.180 **	5.020
CYCLE	0.000	0.075	−0.003	2.327	−0.001	0.260	−0.002	1.885
CFO/A	8.590 ***	32.753	−2.635	2.286	11.795 ***	68.094	2.103	2.710
t_9	0.291	0.282	−2.997 ***	7.533	−0.114	0.058	0.100	0.049
t_10	0.384	0.563	−1.551	1.829	−0.331	0.583	−0.093	0.050
t_11	0.754	2.028	−2.032	3.217	0.018	0.002	−0.232	0.316
t_12	0.086	0.029	−2.112	3.591	−0.281	0.398	0.782	2.586
t_13	0.001	0.000	−1.478	1.633	−0.628	2.120	−0.267	0.414
t_14	0.349	0.469	−1.130	0.914	−0.180	0.167	0.325	0.524
t_15	−0.279	0.315	−1.896	2.781	−0.663	2.173	−0.337	0.626
t_16	0.124	0.058	−2.019	3.196	−0.024	0.003	0.198	0.188
Model characteristics								
Scale	1		1		1		1	
R2 Nagelkerke	0.130		0.164		0.177		0.100	
Df	911		911		911		911	

* Coefficients significant at p < 0.05; ** Coefficients significant at p < 0.01; *** Coefficients significant at p < 0.001.

The probability of the binary variable "reversals of cuts in *SGAE*" is negatively linked to ownership concentration. Therefore, companies with a higher degree of ownership concentration are less likely not to present the reversals of real earnings management. The relationship between probability of reversals of cuts in SGAE and managerial ownership is statistically significant and U-shaped, therefore we confirmed the last of our hypothesis.

The probability of reversals of acceleration in sales seems to be unrelated to the ownership structure of the company, and the presence of institutional investors in equity as well. Similarly, the probability of reversals of production costs is not related with shareholder concentration, managerial ownership, and the presence of institutional investors in equity; however, we observe that the companies with ownership by the state treasury of at least 5% are less likely not to present the reversals in production costs.

In summary, Hypothesis H8 is only partially confirmed for reversals of *SGAE*.

5. Discussion

This study provides the evidence that a company's ownership structure, including ownership concentration and managerial ownership, influences upward real earnings management practices. Although there is a great deal of literature focused on correlations between ownership structure of a company and earnings management, prior studies mostly document the role of ownership structure in the processes of accounting (accrual) earnings management. The contribution of this study to the literature can be considered in five areas. The first one relates to the agency theory developed, in particular, by Jensen and Meckling [1] and Fama and Jensen [54]. The study confirms the existence of the negative correlation between total upward real earnings management and managerial ownership, thereby indicating that the greater the managerial ownership, the smaller the magnitude of upward real earnings management, thus managerial ownership increases financial transparency. Our research thus confirms the alignment of interest hypothesis, but takes the perspective of real earnings management. Consequently, our study contributes to the hypothesis considering the positive relationship between informativeness of earnings and the magnitude of managerial ownership of Dhaliwal et al. [20], Warfield et al. [3], Ebrahim et al. [21], Ali et al. [22], and Sawicki et al. [29], but it is viewed through the lens of real earnings management, while prior studies analyzed accrual earnings management. In prior studies, the correlations were analyzed between real earnings management and the quality of board governance [80]. Our results only partly confirm alignment of interests hypothesis in terms

of real earnings management (for accelerating revenues). In this regard, we positively verified the effective monitoring hypothesis in terms of the relationships between managing selling, general, and administrative expenses (including expired R&D costs) and managerial ownership (Hsu and Wen [34]). We also confirmed a U-shaped link between managerial ownership and reversals of abnormal selling, general, and administrative expenses. This is proof that there is an optimal share of managerial ownership in the sense of reversible reductions of selling and administrative expenses. This issue was not analyzed in the literature so far. The third element of the contribution to the subject literature is the examination of the impact of the degree of ownership concentration in actions monitoring the activity of the enterprise, thereby expanding the research of Fan and Wong [36], Donnelly and Lynch [37], and Shleifer and Vishny [38] in providing evidence that the association between the magnitude of total upward real earnings management and shareholder concentration is U-shaped. The results of our study coincide with those by Ding et al. [19] and Bozec [46], and they confirm the U-shaped (but not inverted) relationship between ownership concentration and the magnitude of earnings management; however, in terms of real earnings management rather than the accrual one. We indicated, however, that the probability of reversals of selling, general, and administrative expenses is positively correlated with ownership concentration. We need to add that it is difficult to compare the results with other studies. The effective monitoring role of institutional investors was reaffirmed in our study. The fourth aspect of the contribution of the study to the knowledge consists of the expanded description of the factors influencing real earnings management, in relation to the ownership structure of the enterprise (Roychowdhury [9], Al-Amri et al. [50], Hsu and Wen [34]). Roychowdhury [9] took into account the presence of institutional investors, the impact of the presence of which was also included in this study, but neglected to consider the role of ownership concentration and managerial ownership. The contribution of the paper of Al-Amri et al. [50] consists of the fact that more detailed conditions of the magnitude of real earnings management in public companies as dependent on the ownership structure were indicated. Hsu and Wen [34] analyzed only two variables measuring real earnings management. The fifth area of the contribution to knowledge is in finding that the magnitude of total upward real earnings management is not linked to the objective of meeting or beating earnings benchmarks, and it is not strengthened by higher ownership concentrations or higher managerial ownership. However, we found evidence that companies with more concentrated equity significantly beat earnings using acceleration of revenue. Consequently, the results do not follow the findings of Gunny [82] and Di Meo et al. [84]. Rather, they are consistent with the findings of Makarem et al. [85].

6. Conclusions

In this study, we provided evidence that the association between the magnitude of total upward real earnings management and shareholder concentration is U-shaped. The same relationship was observed among abnormal cuts in selling, general, and administrative expenses and the measure of ownership concentration. We confirmed the negative association between total upward real earnings management and managerial ownership, and thus we confirmed alignment of interest hypothesis. The effective monitoring role of institutional investors was reaffirmed in our study.

The study has implications for science and practice. The basic implication for science is determining the role of the ownership concentration and managerial ownership and the process of financial transparency, including transparency of transactions, viewed through the lens of real earnings management. The basic limitation of the study consists in a sample limited to companies listed on the WSE in Poland. Another limitation of the study is the limited aspect of the role of governance structures in real earnings management. Future research related to this issue could take greater account of the role of reversals of abnormal cuts in discretionary expenses in connection with ownership structures. This study did not confirm relevant research hypothesis in this aspect, excluding selling, general, and administrative expenses. Further research directions may also consist of analyzing the relationship between ownership concentration and managerial ownership and the extent of real earnings management in the aspect of future performance of reporting units.

This study has important practical implications. For investors, it provides relevant information about the role of ownership concentration and managerial ownership in a company's monitoring activities and financial transparency. For auditors, it provides knowledge about factors affecting the magnitude of real earnings management, and, as a consequence, it is easier to identify processes of real earnings management.

Appendix A

Table A1. Correlation Matrix Pearson/Spearman Correlation Coefficients.

Variable	R1_SGAE	R1_CFO	R1_PROD	TREM1	CON	MNG1	ROI	D_A	DACCI	LnNBRD	M_BV	SCORE	CYCLE	CFO_A
R1_SGAE	1.000	0.145 *	−0.592 *	0.748 *	−0.063 *	0.091 *	0.109 *	−0.282 *	−0.056	−0.091 *	0.069 *	0.197 *	0.180 *	0.142 *
R1_CFO	0.162 *	1.000	−0.416 *	0.658 *	−0.003	−0.058	0.229 *	−0.249 *	−0.273 *	0.074 *	0.069 *	0.319 *	0.082 *	0.845 *
R1_PROD	−0.561 *	−0.437 *	1.000	−0.894 *	0.006	−0.014	−0.160 *	0.359 *	0.054	0.030	−0.053	−0.355 *	−0.253 *	−0.338 *
TREM1	0.703 *	0.674 *	−0.886 *	1.000	−0.030	0.020	0.213 *	−0.388 *	−0.156 *	−0.021	0.081 *	0.380 *	0.229 *	0.557 *
CON	−0.093 *	−0.042	0.036	−0.066 *	1.000	0.291 *	0.013	0.026	−0.021	−0.193 *	−0.059	0.043	0.030	0.028
MNG1	0.113 *	−0.020	−0.059	0.074 *	0.209 *	1.000	0.026	−0.028	0.032	−0.313 *	−0.062 *	0.051	−0.010	−0.033
ROI	0.145 *	0.366 *	−0.258 *	0.334 *	−0.049	0.009	1.000	−0.258 *	0.170 *	−0.021	0.038	0.747 *	−0.005	0.319 *
D_A	−0.297 *	−0.269 *	0.375 *	−0.411 *	0.051	−0.058	−0.347 *	1.000	0.039	0.044	0.157 *	−0.631 *	−0.275 *	−0.214 *
DACCI	−0.029	−0.263 *	0.058	−0.158 *	−0.016	0.014	0.122 *	0.015	1.000	0.038	−0.013	0.154 *	0.033	−0.263 *
LnNBRD	−0.097 *	0.066 *	0.046	−0.031	−0.193 *	−0.330 *	−0.030	0.050	0.045	1.000	−0.018	−0.071 *	−0.048	0.036
M_BV	0.054	0.087 *	−0.075 *	0.082 *	0.044	−0.080 *	0.323 *	0.083 *	−0.018	−0.004	1.000	−0.027	−0.018	0.056
SCORE	0.283 *	0.395 *	−0.442 *	0.490 *	−0.025	0.057	0.767 *	−0.723 *	0.135 *	−0.077 *	0.111 *	1.000	0.200 *	0.366 *
CYCLE	0.231 *	0.108 *	−0.272 *	0.256 *	0.038	−0.043	−0.004	−0.263 *	0.041	−0.066 *	−0.047	0.241 *	1.000	0.024
CFO_A	0.139 *	0.802 *	−0.336 *	0.546 *	−0.005	−0.027	0.488 *	−0.217 *	−0.241 *	0.025	0.162 *	0.440 *	0.037	1.000

* Correlations significant at level $p < 0.05$.

References

1. Jensen, M.C.; Meckling, W.H. Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure. *J. Financ. Econ.* **1976**, *3*, 305–360. [CrossRef]
2. Morck, R.; Shleifer, A.; Vishny, R.W. Management Ownership and Market Valuation. *J. Financ. Econ.* **1988**, *20*, 293–315. [CrossRef]
3. Warfield, T.D.; Wild, J.J.; Wild, K.L. Managerial Ownership, Accounting Choices, and Informativeness of Earnings. *J. Account. Econ.* **1995**, *20*, 61–91. [CrossRef]
4. Cheng, Q.; Warfield, T.D. Equity Incentives and Earnings Management. *Account. Rev.* **2005**, *80*, 441–476. [CrossRef]
5. Dechow, P.M.; Sloan, R.G.; Sweeney, A.P. Causes and Consequences of Earnings Manipulation: An Analysis of Firms Subject to Enforcement Actions by the SEC. *Contemp. Account. Res.* **1996**, *13*, 1–36. [CrossRef]
6. Jaggi, B.; Tsui, J. Insider Trading, Earnings Management and Corporate Governance: Empirical Evidence Based on Hong Kong Firms. *J. Int. Financ. Manag. Account.* **2007**, *18*, 192–222. [CrossRef]
7. Healy, P.M.; Wahlen, J.M. A Review of the Earnings Management Literature and Its Implications for Standard Setting. *Account. Horiz.* **1999**, *13*, 365–383. [CrossRef]
8. Beneish, M.D. Earnings Management: A Perspective. *Manag. Financ.* **2001**, *27*, 3–17. [CrossRef]
9. Roychowdhury, S. Earnings Management through Real Activities Manipulation. *J. Account. Econ.* **2006**, *42*, 335–370. [CrossRef]
10. Cupertino, C.M.; Martinez, A.L.; Costa, N.C.A.D. Consequences for Future Return with Earnings Management through Real Operating Activities. *Rev. Contab. Finanças* **2016**, *27*, 232–242. [CrossRef]
11. Leggett, D.M.; Parsons, L.M.; Reitenga, A.L. Real Earnings Management and Subsequent Operating Performance. *IUP J. Oper. Manag.* **2016**, *15*, 7–32. [CrossRef]
12. Vorst, P. Real Earnings Management and Long-Term Operating Performance: The Role of Reversals in Discretionary Investment Cuts. *Account. Rev.* **2016**, *91*, 1219–1256. [CrossRef]
13. Jin, S.-J.; Hwang, I.T.; Kang, S.M. Improving Sustainability through a Dual Audit System. *Sustainability* **2018**, *10*, 137. [CrossRef]
14. Mutuc, E.B.; Lee, J.-S.; Tsai, F.-S. Doing Good with Creative Accounting? Linking Corporate Social Responsibility to Earnings Management in Market Economy, Country and Business Sector Context. *Sustainability* **2019**, *11*, 4568. [CrossRef]
15. Chin, C.L.; Kleinman, G.; Lee, P.; Lin, M.F. Corporate Ownership Structure and Accuracy and Bias of Mandatory Earnings Forecast: Evidence from Taiwan. *J. Int. Account. Res.* **2006**, *5*, 41–62. [CrossRef]
16. Waweru, N.M.; Riro, G.K. Corporate Governance, Firm Characteristics and Earnings Management in an Emerging Economy. *J. Appl. Manag. Account. Res.* **2013**, *11*, 43–64.
17. Hamid, F.A.; Eddine, H.; Oussama, C.; Ayedh, A.M.; Echchabi, A. Firms Financial and Corporate Governance Characteristics Association with Earning Management Practices: A Meta-Analysis Approach. *Econ. Rev. J. Econ. Bus.* **2014**, *12*, 49–72.
18. Chin, C.-L.; Chen, Y.-J.; Hsieh, T.-J. International Diversification, Ownership Structure, Legal Origin, and Earnings Management: Evidence from Taiwan. *J. Account. Audit. Financ.* **2009**, *24*, 233–262. [CrossRef]
19. Ding, Y.; Zhang, H.; Zhang, J. Private vs State Ownership and Earnings Management: Evidence from Chinese Listed Companies. *Corp. Gov. Int. Rev.* **2007**, *15*, 223–238. [CrossRef]
20. Dhaliwal, D.S.; Salamon, G.L.; Smith, E.D. The Effect of Owner Versus Management Control on the Choice of Accounting Methods. *J. Account. Econ.* **1982**, *4*, 41–53. [CrossRef]
21. Ebrahim, A. Earnings Management and Board Activity: An Additional Evidence. *Rev. Account. Financ.* **2007**, *6*, 42–58. [CrossRef]
22. Ali, S.M.; Salleh, N.M.; Hassan, M.S. Ownership Structure and Earnings Management in Malaysian Listed Companies: The Size Effect. *Asian J. Bus. Account.* **2008**, *1*, 89–116.
23. Banderlipe, M.R.S. The Impact of Selected Corporate Governance Variables in Mitigating Earnings Management in the Philippines. *DLSU Bus. Econ. Rev.* **2009**, *19*, 17–27. [CrossRef]
24. Gopalan, R.; Jayaraman, S. Private Control Benefits and Earnings Management: Evidence from Insider Controlled Firms. *J. Account. Res.* **2012**, *50*, 117–157. [CrossRef]
25. Yeo, G.H.H.; Tan, P.M.S.; Ho, K.W.; Chen, S.S. Corporate Ownership Structure and the Informativeness of Earnings. *J. Bus. Financ. Account.* **2002**, *29*, 1023–1046. [CrossRef]

26. Kang, S.-A.; Kim, Y.-S. Effect of Corporate Governance on Real Activity-Based Earnings Management: Evidence from Korea. *J. Bus. Econ. Manag.* **2012**, *13*, 29–52. [CrossRef]

27. Francis, B.; Hasan, I.; Li, L. Evidence for the Existence of Downward Real-Activity Earnings Management. *J. Account. Audit. Financ.* **2016**, *31*, 212–248. [CrossRef]

28. Achleitner, A.-K.; Günther, N.; Kaserer, C.; Siciliano, G. Real Earnings Management and Accrual-Based Earnings Management in Family Firms. *Eur. Account. Rev.* **2014**, *23*, 431–461. [CrossRef]

29. Sawicki, J.; Shrestha, K. Misvaluation and Insider Trading Incentives for Accrual-Based and Real Earnings Management. *J. Bus. Financ. Account.* **2014**, *41*, 926–949. [CrossRef]

30. Malik, M. Corporate Governance and Real Earnings Management: The Role of the Board and Institutional Investors. *J. Knowl. Glob.* **2015**, *8*, 37–87.

31. Sakaki, H.; Jackson, D.; Jory, S. Institutional Ownership Stability and Real Earnings Management. *Rev. Quant. Financ. Account.* **2017**, *49*, 227–244. [CrossRef]

32. Mehrani, S.; Moradi, M.; Eskandar, H. Institutional Ownership Type and Earnings Quality: Evidence from Iran. *Emerg. Mark. Financ. Trade* **2017**, *53*, 54–73. [CrossRef]

33. Kouki, M.; Elkhaldi, A.; Atri, H.; Souid, S. Does corporate governance constrain earnings management? Evidence from US firms. *Eur. J.Econ. Finan. Adm. Sci.* **2011**, *35*, 58–71. [CrossRef]

34. Hsu, M.F.; Wen, S.Y. The influence of corporate governance in Chinese companies on discretionary accruals and real earnings management. *Asian Econ. Financ. Rev.* **2015**, *5*, 391–406. [CrossRef]

35. Matsuura, S. On the Relation between Real Earnings Management and Accounting Earnings Management: Income Smoothing Perspective. *J. Int. Bus. Res.* **2008**, *7*, 63–77.

36. Fan, J.P.H.; Wong, T.J. Corporate Ownership Structure and the Informativeness of Accounting Earnings in East Asia. *J. Account. Econ.* **2002**, *33*, 401–425. [CrossRef]

37. Donnelly, R.; Lynch, C. The Ownership Structure of UK Firms and the Informativeness of Accounting Earnings. *Account. Bus. Res.* **2002**, *32*, 245–257. [CrossRef]

38. Shleifer, A.; Vishny, R.W. A Survey of Corporate Governance. *J. Financ.* **1997**, *52*, 737–783. [CrossRef]

39. Yang, J.; Chi, J.; Young, M. A Review of Earnings Management in China and Its Implications. *Asian Pac. Econ. Lit.* **2012**, *26*, 84–92. [CrossRef]

40. Shuto, A.; Iwasaki, T. Stable Shareholdings, the Decision Horizon Problem and Earnings Smoothing. *J. Bus. Financ. Account.* **2014**, *41*, 1212–1242. [CrossRef]

41. Dempsey, S.J.; Hunt, H.G.; Schroeder, N.W. Earnings Management and Corporate Ownership Structure: An Examination of Extraordinary Item Reporting. *J. Bus. Financ. Account.* **1993**, *20*, 479–500. [CrossRef]

42. Francis, J.R.; Richard, C.; Vanstraelen, A. Assessing Frances Joint Audit Requirement: Are Two Heads Better Than One? *Audit. A J. Pract. Theory* **2009**, *28*, 35–63. [CrossRef]

43. Saona, P.; Muro, L. Firm- and Country-Level Attributes as Determinants of Earnings Management: An Analysis for Latin American Firms. *Emerg. Mark. Financ. Trade* **2018**, *54*, 2736–2764. [CrossRef]

44. Alves, S. Ownership Structure and Earnings Management: Evidence from Portugal. *Australas. Account. Bus. Financ. J.* **2012**, *6*, 57–74.

45. Kouaib, A.; Jarboui, A. External Audit Quality and Ownership Structure: Interaction and Impact on Earnings Management of Industrial and Commercial Tunisian Sectors. *J. Econ. Financ. Adm. Sci.* **2014**, *19*, 78–89. [CrossRef]

46. Bozec, Y. Concentration De Lactionnariat, Séparation des Droits de Vote et des Droits de Propriété et Gestion des Bénéfices: Une Étude Empirique Canadienne. *Can. J. Adm. Sci. Rev. Can. Des Sci. De Ladministration* **2008**, *25*, 67–82. [CrossRef]

47. Bhatia, S.; Singh, B. Ownership Structure and Operating Performance of IPOS in India. *IUP J. Appl. Econ.* **2013**, *12*, 7–37.

48. García-Meca, E.; Sánchez-Ballesta, J.P. Corporate Governance and Earnings Management: A Meta-Analysis. *Corp. Gov. Int. Rev.* **2009**, *17*, 594–610. [CrossRef]

49. Guo, J.; Huang, P.; Zhang, Y.; Zhou, N. Foreign Ownership and Real Earnings Management: Evidence from Japan. *J. Int. Account. Res.* **2015**, *14*, 185–213. [CrossRef]

50. Al-Amri, K.; Shidi, S.A.; Busaidi, M.A.; Akguc, S. Real earnings managementin public vs private firms in the GCC countries: A risk perspective. *J. Appl. Account. Res.* **2017**, *18*, 242–260. [CrossRef]

51. Mellado-Cid, C.; Jory, S.R.; Ngo, T. Real Earnings Management Activities Prior to Bond Issuance. *BRQ Bus. Res. Q.* **2017**, *20*, 164–177. [CrossRef]

52. He, K.; Pan, X.; Tian, G.G. Political Connections, Audit Opinions, and Auditor Choice: Evidence from the Ouster of Government Officers. *Audit. A J. Pract. Theory* **2017**, *36*, 91–114. [CrossRef]

53. Chen, C.; Shi, H.; Xu, H. Underwriter Reputation, Issuer Ownership, and Pre-IPO Earnings Management: Evidence from China. *Financ. Manag.* **2013**, *42*, 647–677. [CrossRef]

54. Fama, E.F.; Jensen, M.C. Separation of Ownership and Control. *J. Law Econ.* **1983**, *26*, 301–325. [CrossRef]

55. Healy, P.M. The Effect of Bonus Schemes on Accounting Decisions. *J. Account. Econ.* **1985**, *7*, 85–107. [CrossRef]

56. Holthausen, R.W.; Larcker, D.F.; Sloan, R.G. Annual Bonus Schemes and the Manipulation of Earnings. *J. Account. Econ.* **1995**, *19*, 29–74. [CrossRef]

57. Perry, S.E.; Williams, T.H. Earnings Management Preceding Management Buyout Offers. *J. Account. Econ.* **1994**, *18*, 157–179. [CrossRef]

58. Beneish, M.D.; Vargus, M.E. Insider Trading, Earnings Quality, and Accrual Mispricing. *Account. Rev.* **2002**, *77*, 755–791. [CrossRef]

59. Baik, B.; Kang, J.-K.; Morton, R. Why are Analysts Less Likely to Follow Firms with High Managerial Ownership? *J. Account. Audit. Financ.* **2010**, *25*, 171–200. [CrossRef]

60. Chi, W.; Lisic, L.L.; Pevzner, M. Is Enhanced Audit Quality Associated with Greater Real Earnings Management? *Account. Horiz.* **2011**, *25*, 315–335. [CrossRef]

61. Nguyen, V.T.; Xu, L. The Impact of Dual Class Structure on Earnings Management Activities. *J. Bus. Financ. Account.* **2010**, *37*, 456–485. [CrossRef]

62. Huang, H.-H.; Chan, M.-L.; Chang, C.-H.; Wong, J.-L. Is Corporate Governance Related to the Conservatism in Management Earnings Forecasts? *Emerg. Mark. Financ. Trade* **2012**, *48* (Suppl. 2), 105–121. [CrossRef]

63. Sánchez-Ballesta, J.P.; García-Meca, E. Ownership Structure, Discretionary Accruals and the Informativeness of Earnings. *Corp. Gov. Int. Rev.* **2007**, *15*, 677–691. [CrossRef]

64. Sáenz González, J.; García-Meca, E. Does Corporate Governance Influence Earnings Management in Latin American Markets? *J. Bus. Ethics* **2014**, *121*, 419–440. [CrossRef]

65. OCallaghan, S.; Ashton, J.; Lynn Hodgkinson, L. Earnings management and managerialownership in private firms. *Journal of Applied Accounting Research* **2018**, *19*, 648–668. [CrossRef]

66. Yang, C.Y.; Lai, H.N.; Tan, B.L. Managerial Ownership Structure and Earnings Management. *J. Financ. Report. Account.* **2008**, *6*, 35–53. [CrossRef]

67. Lai, L.; Tam, H. Corporate Governance, Ownership Structure and Managing Earnings to Meet Critical Thresholds among Chinese Listed Firms. *Rev. Quant. Financ. Account.* **2017**, *48*, 789–818. [CrossRef]

68. Cheng, Q.; Lee, J.; Shevlin, T. Internal Governance and Real Earnings Management. *Account. Rev.* **2016**, *91*, 1051–1085. [CrossRef]

69. Qi, B.; Lin, J.W.; Tian, G.; Lewis, H.C.X. The Impact of Top Management Team Characteristics on the Choice of Earnings Management Strategies: Evidence from China. *Account. Horiz.* **2018**, *32*, 143–164. [CrossRef]

70. Bange, M.M.; De Bondt, W.F.M. R&D Budgets and Corporate Earnings Targets. *J. Corp. Financ.* **1998**, *4*, 153–184. [CrossRef]

71. Bushee, B. *Institutional Investors Long-Term Investment and Earnings Management*; Working Paper; Harvard University: Cambridge, MA, USA, 1998.

72. Chung, R.; Firth, M.; Kim, J.-B. Institutional Monitoring and Opportunistic Earnings Management. *J. Corp. Financ.* **2002**, *8*, 29–48. [CrossRef]

73. Cornett, M.; Marcus, A.; Tehranian, H. Corporate Governance and Pay-for-Performance: The Impact of Earnings Management. *J. Financ. Econ.* **2008**, *87*, 357–373. [CrossRef]

74. Katz, S.P. Earnings Quality and Ownership Structure: The Role of Private Equity Sponsors. *Account. Rev.* **2009**, *84*, 623–658. [CrossRef]

75. Huang, Y.C.; Hou, N.W.; Cheng, Y.J. Illegal Insider Trading and Corporate Governance: Evidence from Taiwan. *Emerg. Mark. Financ. Trade* **2012**, *48* (Suppl. 3), 6–22. [CrossRef]

76. Almazan, A.; Hartzell, J.C.; Starks, L.T. Active Institutional Shareholders and Costs of Monitoring: Evidence from Executive Compensation. *Financ. Manag.* **2005**, *34*, 5–34. [CrossRef]

77. Claessens, S.; Fan, J.P.H. Corporate Governance in Asia: A Survey. *Int. Rev. Financ.* **2002**, *3*, 71–103. [CrossRef]

78. Porter, M.E. Capital Choices: Changing the Way America Invests in Industry. *J. Appl. Corp. Financ.* **1992**, *5*, 4–16. [CrossRef]

79. Beuselinck, C.; Blanco, B.; Lara, J.M.G. The Role of Foreign Shareholders in Disciplining Financial Reporting. *J. Bus. Financ. Account.* **2017**, *44*, 558–592. [CrossRef]

80. Ge, W.; Kim, J.B. Boards, takeover protection, and real earnings management. *Rev.Quant. Finan. Account.* **2014**, *43*, 651–682. [CrossRef]

81. Garven, S. The Effect of Board and Audit Committee Characteristic on Real Earnings Management: Do Boards and Audit Committees Play a Role in Its Promotion or Constrain? *Acad. Account. Financ. Stud. J.* **2015**, *10*, 67–84.

82. Gunny, K.A. The Relation between Earnings Management Using Real Activities Manipulation and Future Performance: Evidence from Meeting Earnings Benchmarks. *Contemp. Account. Res.* **2010**, *27*, 855–888. [CrossRef]

83. Chan, L.H.; Chen, K.C.W.; Chen, T.Y.; Yu, Y. Substitution between Real and Accruals-Based Earnings Management after Voluntary Adoption of Compensation Clawback Provisions. *Account. Rev.* **2015**, *90*, 147–174. [CrossRef]

84. Di Meo, F.; Lara, J.M.G.; Surroca, J.A. Managerial entrenchment and earnings management. *J. Account. Public Policy* **2017**, *36*, 399–414. [CrossRef]

85. Makarem, N.; Hussainey, K.; Zalata, A. Earnings management in the aftermath ofthe zero-earnings discontinuity disappearance. *J.Appl. Account. Res.* **2018**, *19*, 401–422. [CrossRef]

86. Cohen, D.A.; Dey, A.; Lys, T.Z. Real and Accrual-Based Earnings Management in the Pre- and Post-Sarbanes-Oxley Periods. *Account. Rev.* **2008**, *83*, 757–787. [CrossRef]

87. Zang, A.Y. Evidence on the Trade-Off between Real Activities Manipulation and Accrual-Based Earnings Management. *Account. Rev.* **2012**, *87*, 675–703. [CrossRef]

88. Ho, L.C.J.; Liao, Q.; Taylor, M. Real and Accrual-Based Earnings Management in the Pre- and Post-IFRS Periods: Evidence from China. *J. Int. Financ. Manag. Account.* **2015**, *26*, 294–335. [CrossRef]

89. Jones, J.J. Earnings Management during Import Relief Investigations. *J. Account. Res.* **1991**, *29*, 193–228. [CrossRef]

90. Mączyńska, E.; Zawadzki, M. Dyskryminacyjne Modele Predykcji Bankructwa Przedsiębiorstw. *Ekonomista* **2006**, *2*, 205–235.