

Xiaohui Xiao, female, (1985.09.02), born in Shandong, research direction: Corporate Finance
sdmuxiaohui2025@163.com

Executive Financial Background, Institutional Ownership, and Real Earnings Management

Xiaohui Xiao^{1,*}

Shandong Management University, Jinan City, Shandong Province, 250357, China

Abstract: This paper focuses on the micro-enterprise level, studying China's A-share listed companies from 2013 to 2023, to theoretically elucidate and empirically analyze the relationship between executive financial background (EFB), institutional ownership, and real earnings management. The research results indicate that EFB significantly promotes real earnings management in enterprises, while institutional ownership notably inhibits it. Moderating effect analysis shows that institutional ownership plays a moderating role in the relationship between EFB and real earnings management. Heterogeneity analysis reveals that EFB has a more pronounced effect on real earnings management in private enterprises (PEs), while institutional ownership has a more significant impact on real earnings management in high-tech enterprises.

Keywords: EFB; Institutional ownership; Real earnings management

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Abstract: This paper focuses on the micro-enterprise level, studying China's A-share listed companies from 2013 to 2023, to theoretically elucidate and empirically analyze the relationship between executive financial background (EFB), institutional ownership, and real earnings management. The research results indicate that EFB significantly promotes real earnings management in enterprises, while institutional ownership notably inhibits it. Moderating effect analysis shows that institutional ownership plays a moderating role in the relationship between EFB and real earnings management. Heterogeneity analysis reveals that EFB has a more pronounced effect on real earnings management in private enterprises (PEs), while institutional ownership has a more significant impact on real earnings management in high-tech enterprises.

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1. Introduction

Amid the deepening reform of the capital market and the strengthening of regulatory oversight, real earnings management, which involves management manipulating profits through adjustments in real operational activities, has gradually become a critical issue affecting resource allocation efficiency and market transparency. Traditional financial fraud tactics have become limited due to stricter regulations. Real earnings management, due to its obscurity and complexity, has become an important tool for companies to evade external scrutiny and maintain short-term performance. However, such behaviors may distort the true operational conditions of enterprises, mislead investor decision-making, and even harm the long-term value of companies. As the core subjects of strategic decision-making, executives' professional backgrounds and behavioral preferences directly influence the choice of earnings management strategies. At the same time, institutional investors, as important participants in the capital market, impose external constraints on corporate financial behavior through their shareholding ratios and governance participation. Against this backdrop, exploring how the interaction between EFB and institutional ownership affects real earnings management not only helps to reveal the interactive mechanism of micro-subject behavior and capital market governance but also provides a theoretical basis for optimizing regulatory policies and enhancing corporate governance levels.

The influence of executive background characteristics on corporate earnings management is one of the hot topics in corporate governance research. Some scholars point out that executives with financial backgrounds may achieve earnings management goals through manipulating real activities like research and development (R&D) expenses and supply chain finance, due to their familiarity with capital market rules and financing channels (Ramalingegowda et al., 2021). Other studies argue that the risk awareness cultivated through financial work experience may inhibit excessive earnings manipulation behavior (Paul and Sharma, 2023). Regarding the governance effect of institutional ownership, the mainstream view holds that institutional investors can effectively curb management opportunism due to their professional capabilities and supervisory motivations (Abdesslem et al., 2025). However, some research emphasizes that short-term speculative institutional investors may condone or even collude in earnings management to obtain short-term gains (Debnath et al., 2021). Furthermore, existing literature pays little attention to the interaction between executive characteristics and institutional ownership, especially the mechanisms by which they jointly influence real earnings management. In terms of heterogeneity, private enterprises face stronger financing constraints and have more flexible governance mechanisms, making their earnings management behaviors more sensitive to executive backgrounds and institutional ownership. In high-tech enterprises, characterized by intensive R&D and high degrees of information asymmetry, the supervisory effectiveness of institutional investors may be more pronounced, although relevant empirical evidence remains to be supplemented.

2. Research hypotheses

2.1. EFB and real earnings management

EFB significantly promotes real earnings management in enterprises, primarily due to the unique resources and professional capabilities conferred by work experience in the financial sector. Executives with financial backgrounds are typically more familiar with the operational rules of capital markets, approval processes for debt financing, and networks within financial institutions, enabling them to accurately identify and leverage policy loopholes or regulatory gaps to manipulate earnings by adjusting real operational activities (such as production decisions, expenditure, and sales strategies) (Bashir et al., 2024). The financial industry emphasizes risk management and profit maximization, a mindset that may lead executives to favor short-term financial tactics to embellish performance, rather than relying on long-term strategic investments. Furthermore, the complex transaction structuring abilities cultivated by financial work experience enable executives to design more concealed methods of real earnings management, such as through related-party transactions, supply chain finance, or asset disposals, thereby reducing the risk of detection by external

regulators or investors (Davis and García-Cestona, 2023). Additionally, executives with financial backgrounds often maintain close ties with financial institutions and may face performance pressure during the financing process, leading them to engage in earnings management to meet debt covenant requirements or maintain credit ratings, further amplifying their motivation to manipulate earnings (Yu, 2024). Therefore, we propose Hypothesis 1.

Hypothesis 1: EFB significantly promotes real earnings management in enterprises.

Compared to state-owned enterprises (SOEs), PEs have relatively limited financing channels and rely more heavily on external financial institutions. The bank relationships, credit networks, and capital market resources accumulated through EFB become crucial for obtaining key financing. In this context, executives may be more inclined to adjust financial performance through real earnings management to meet loan approval, credit rating, or equity financing performance thresholds (Al-Duais et al., 2022). Moreover, PEs often have shorter decision-making chains with concentrated management power, where the professional judgment skills and risk preferences conferred by financial backgrounds may directly lead enterprises to reduce R&D spending, delay equipment upgrades, or manipulate supply chain finance to smooth profits, and external supervision is relatively weak (Eissa et al., 2025). Additionally, PEs face more intense market competition and survival pressures; the short-term performance-oriented mindset fostered by EFB may further reinforce the motivation to maintain market confidence or attract investors through earnings management, while weaker internal controls and transparency in PEs provide operational space for executives to implement concealed real earnings management, ultimately resulting in a more prominent driving effect of financial backgrounds on the earnings manipulation behaviors of PEs (Cho and Chung, 2022). Therefore, we propose Hypothesis 1a.

Hypothesis 1a: Compared to SOEs, EFB has a more significant impact on real earnings management in PEs.

2.2. Institutional ownership and real earnings management

The inhibiting effect of institutional ownership on real earnings management arises from the unique advantages of institutional investors in professional capabilities, resource integration, and supervisory motivations. Institutional investors are typically equipped with professional financial analysis teams, possessing stronger information extraction and financial identification abilities, enabling them to penetrate complex transaction structures of enterprises and accurately identify earnings management behaviors masked by real activities (such as production manipulation, expense manipulation, and sales strategy adjustments) (Ningrum, 2021). Compared to small and medium shareholders, institutional investors possess larger shareholding scales and longer investment

horizons and are more focused on long-term corporate value rather than short-term fluctuations. Thus, they are motivated to substantively constrain corporate earnings management behaviors through governance participation, exercising voting rights, or publicly questioning management actions. Furthermore, as significant participants in the capital market, the supervisory actions of institutional investors create a demonstration effect, guiding other investors to pay attention to the company's operational quality, which can pressure the management to reduce opportunistic behaviors. Additionally, institutional investors often collaborate with auditing firms, analysts, and other external supervisory forces to strengthen information disclosure requirements and promote governance mechanism improvements, thereby constraining the operational space for firms engaged in real earnings management (Chai et al., 2025). Therefore, we propose Hypothesis 2.

Hypothesis 2: Institutional ownership significantly inhibits real earnings management in enterprises.

High-tech companies focus on R&D innovation as their core competitive advantage; R&D expenditures are relatively high and tend to have long cycles. Management may adjust earnings through reducing R&D spending or manipulating the progress of R&D projects to meet market expectations for short-term performance. This form of earnings management is highly concealed and difficult to identify through traditional financial metrics, but institutional investors, leveraging their professional analysis capabilities and industry research resources, can more accurately penetrate complex transaction structures to identify the earnings manipulation motives behind adjustments in R&D spending (Saleh et al., 2024). Furthermore, as high-tech enterprises tend to have a high proportion of intangible assets and volatile cash flows, with strong financing needs primarily reliant on equity markets, the shareholding proportions and supervisory powers of institutional investors directly influence the companies' financing costs and sustainability. To maintain long-term investment value, institutional investors are more inclined to promote the establishment of transparent and standardized R&D management systems, thereby suppressing short-term behaviors that manipulate earnings through real activities (Bhatti et al., 2022). Therefore, we propose Hypothesis 2a.

Hypothesis 2a: Compared to non-high-tech enterprises, institutional ownership has a more significant impact on real earnings management in high-tech enterprises.

2.3. EFB, institutional ownership, and real earnings management

EFB typically indicates stronger capital operation capabilities and risk preferences, which may lead to manipulating earnings through adjustments in R&D spending, supply chain finance, or related-party transactions to meet performance targets or financing needs. However, institutional investors,

through their professional financial teams and industry insights, can penetrate the complex transaction structures of enterprises more deeply, identifying the concealed earnings management methods designed by executives with financial backgrounds (Jiao et al., 2024). When the proportion of institutional ownership is high, its supervisory motivation strengthens, potentially constraining executives from manipulating earnings using financial resources through means such as participating in board decisions, exercising voting rights, or publicly questioning management. At the same time, institutional investors, as important participants in the capital market, convey confidence in the long-term value of the enterprise through their holding behavior, which can alleviate the motivations of executives to engage in short-term earnings manipulation driven by performance pressure (Oussii and Klibi, 2023). Additionally, institutional investors often form a governance synergy with other major shareholders and independent directors, enhancing internal control mechanisms and strengthening information disclosure requirements to limit the operational space for executives to manipulate earnings through real activities (Alkebsee et al., 2022). Under continuous supervision by institutional ownership, the resource advantages of EFB are more likely to be directed toward enhancing the core competitiveness of enterprises rather than being used for earnings management, thus significantly altering the causal pathway between financial backgrounds and real earnings management (Velte, 2024). Therefore, we propose Hypothesis 3.

Hypothesis 3: Institutional ownership moderates the relationship between EFB and real earnings management.

3. Research design

3.1. Data sources

This study examines A-share listed companies in China from 2013 to 2023 as the research sample. Original data were filtered according to the following criteria: first, removing financial companies; second, excluding samples with missing or anomalous key variables; third, to mitigate the influence of extreme values, all continuous variables were winsorized at the 5th percentile. After this screening, a total of 30,637 sample observations were obtained. The corporate-level data used in this study are sourced from the CSMAR database and Wind database.

3.2. Variable selection

3.2.1. Dependent variable

Real earnings management (REM): This study adopts a composite index (REM) to measure the degree of real earnings management in enterprises, based on relevant literature (Cohen et al., 2008). The REM index consists of three sub-indicators: abnormal cash flows from operating activities (ACFO), abnormal

discretionary expenses (ADISX), and abnormal production costs (APROD). Considering that to enhance reported profit, enterprises would lower cash flows (ACFO<0) and discretionary expenses (ADISX<0), while simultaneously increasing production costs through overproduction (APROD>0), the first two indicators are taken as negative values and summed with the third indicator. A higher REM value indicates a greater degree of real earnings management. The calculation formula for REM is as follows:

$$REM = APROD - ADISX - ACFO \quad (1)$$

For the degree of real earnings management, this study measures the sum of the three sub-indicators: abnormal cash flows from operating activities, abnormal expenses, and abnormal production costs (REM). A higher REM value represents a higher degree of real earnings management in an enterprise.

3.2.2. Independent variables

EFB: This study uses the proportion of board members, supervisors, and senior management with financial backgrounds among all board members, supervisors, and senior management as a key indicator to measure the degree of financial background within the executive team.

Institutional ownership (IS): This study measures the institutional ownership level as the total equity held by institutional investors divided by the total shares of the listed company.

3.2.3. Moderating variables

Institutional ownership (IS): The definition and interpretation of institutional ownership remain consistent with the definition in the independent variables.

3.2.4. Control Variables

This empirical model incorporates the following control variables: firm size (Size), firm age (Age), debt-to-asset ratio (Level), growth rate of operating revenue (Growth), proportion of independent directors (Indep), audit fees (Fee), and proportion of the largest shareholder (Top1).

3.3. Model specification

To ensure the reliability of regression results and to exclude the influence of individual and temporal changes on the estimated coefficients, this study sets up an individual and time-fixed effects model, as shown in formulas (2) and (3):

$$REM_{i,t} = \alpha_0 + \alpha_1 EFB_{i,t} + \sum_{k=1}^n \alpha_k Controls_{i,t} + \varphi_i + \omega_t + \varepsilon_{i,t} \quad (2)$$

$$REM_{i,t} = \beta_0 + \beta_1 IS_{i,t} + \sum_{k=1}^n \beta_k Controls_{i,t} + \varphi_i + \omega_t + \varepsilon_{i,t} \quad (3)$$

Where *REM* represents the dependent variable, indicating the degree of real

earnings management of the enterprise; EFB represents the independent variable, indicating the degree of EFB; IS represents the independent variable, indicating the level of institutional ownership of the enterprise; Controls represents the set of control variables; φ_i is the individual fixed effect, and ω_t is the time fixed effect. ε is the random disturbance term.

Moreover, this paper establishes a moderating effect model, as presented in formula (4).

$$REM_{i,t} = \mu_0 + \mu_1 EFB_{i,t} + \mu_2 IS_{i,t} + \mu_3 EFB_{i,t} * IS_{i,t} + \sum_{k=1}^n \mu_k Controls_{i,t} \quad (4)$$

$$+ \varphi_i + \omega_t + \varepsilon_{i,t}$$

3.4. Descriptive statistics

The descriptive statistics are presented in Table 1. The dependent variable, real earnings management (REM), has a minimum value of -0.3926 and a maximum value of 0.2883, with a standard deviation of 0.1716, indicating significant differences in the degree of real earnings management across different enterprises. The EFB's minimum and maximum values are 0.0000 and 0.4082, respectively, with a standard deviation of 0.1376, demonstrating significant differences in the financial background of executives across enterprises. Institutional ownership (IS) ranges from a minimum of 0.0290 to a maximum of 0.7750, with a standard deviation of 0.2258, highlighting considerable variation in the levels of institutional ownership among different enterprises. The control variables overall exhibit differentiated characteristics.

Table 1

Descriptive statistics of variables.

| VarName | Obs | Mean | SD | Min | Median | Max |
|---------|-------|---------|--------|---------|---------|---------|
| REM | 30637 | -0.0005 | 0.1716 | -0.3926 | 0.0173 | 0.2883 |
| EFB | 30637 | 0.0750 | 0.1376 | 0.0000 | 0.0000 | 0.4082 |
| IS | 30637 | 0.3989 | 0.2258 | 0.0290 | 0.4102 | 0.7750 |
| Size | 30637 | 22.3697 | 1.1840 | 20.5668 | 22.2044 | 24.8629 |
| Age | 30637 | 2.4073 | 0.6315 | 1.2710 | 2.4776 | 3.2986 |
| Level | 30637 | 0.4346 | 0.1930 | 0.1223 | 0.4279 | 0.7870 |
| Growth | 30637 | 0.1056 | 0.2380 | -0.3038 | 0.0805 | 0.6640 |
| Indep | 30637 | 0.3882 | 0.0776 | 0.2500 | 0.3750 | 0.5455 |
| Top1 | 30637 | 0.3315 | 0.1386 | 0.1253 | 0.3091 | 0.6087 |
| Fee | 30637 | 13.7902 | 0.5723 | 12.8992 | 13.7102 | 15.0094 |

4. Empirical results analysis

4.1. Baseline regression

4.1.1. EFB and real earnings management

This study employs a progressive strategy for regression analysis, sequentially introducing control variables such as firm size and age following the inclusion of the core independent variable EFB. The baseline regression results are shown in Table 2. In all regression results, the coefficient for EFB is consistently significantly positive, indicating that EFB has a significant positive impact on real earnings management in enterprises, thereby supporting Hypothesis 1.

Table 2

EFB and real earnings management.

| VARIABLES | (1) REM | (2) REM | (3) REM |
|--------------|----------------------|-------------------------|--------------------------|
| EFB | 0.0156** (2.1482) | 0.0177** (2.4467) | 0.0204*** (2.8819) |
| Size | | 0.0011 (1.1621) | 0.0045*** (3.5864) |
| Age | | 0.0246*** (14.1764) | 0.0116*** (6.6014) |
| Level | | | 0.2097*** (35.7704) |
| Growth | | | -0.0086** (-2.0421) |
| Indep | | | -0.0298** (-2.2700) |
| Top1 | | | -0.0670*** (-9.1536) |
| Fee | | | -0.0426*** (-18.3264) |
| Constant | -0.0016 (-1.4547) | -0.0854*** (-4.2494) | 0.4005*** (15.2056) |
| Ind FE | YES | YES | YES |
| Year FE | YES | YES | YES |
| Observations | 30,637 | 30,637 | 30,637 |
| R-squared | 0.1018 | 0.2096 | 0.2589 |

4.1.2. Institutional ownership and real earnings management

Based on formula (2), the regression results presented in Table 3 were obtained by adjusting the number of control variables. As shown in column (3) of Table 3, the coefficient for institutional ownership (IS) is significantly negative at the 1% level, which fully demonstrates that institutional ownership can significantly inhibit real earnings management in enterprises, thereby validating Hypothesis 2.

Table 3
Institutional ownership and real earnings management.

| VARIABLES | (1) REM | (2) REM | (3) REM |
|--------------|--------------------------|--------------------------|--------------------------|
| IS | -0.0585*** (-12.9848) | -0.0925*** (-18.9246) | -0.0800*** (-15.2437) |
| Size | | 0.0072*** (7.2708) | 0.0082*** (6.4726) |
| Age | | 0.0291*** (16.7191) | 0.0175*** (9.7532) |
| Level | | | 0.2067*** (35.3641) |
| Growth | | | -0.0057 (-1.3497) |
| Indep | | | -0.0397*** (-3.0315) |
| Top1 | | | -0.0180** (-2.2527) |
| Fee | | | -0.0413*** (-17.8570) |
| Constant | 0.0229*** (11.1804) | -0.1948*** (-9.3581) | 0.3070*** (11.3918) |
| Ind FE | YES | YES | YES |
| Year FE | YES | YES | YES |
| Observations | 30,637 | 30,637 | 30,637 |
| R-squared | 0.1072 | 0.2209 | 0.2658 |

4.2. Endogeneity testing

To enhance the reliability of empirical results and mitigate endogeneity biases caused by omitted variable and reverse causality, this research uses lagged EFB (L.EFB) and lagged institutional ownership (L.IS) as instrumental variables for endogeneity testing. The estimation results in columns (1) and (3) of Table 4 indicate a significant positive correlation between L.EFB and current EFB, as well as between L.IS and current IS, initially validating the correlation condition for the instrumental variables. The second-stage regression results in columns (2) and (4) indicate that the promoting effect of EFB on real earnings management remains significant, and the inhibitory effect of IS also remains robust, consistent with the core conclusions of the baseline regression. Furthermore, both the LM statistic and F statistic are significantly greater than the critical value, verifying the efficacy of the chosen instrumental variables.

Table 4
Endogeneity test.

| VARIABLES | (1) | (2) | (3) | (4) |
|-----------|-----|-----|-----|-----|
|-----------|-----|-----|-----|-----|

| | Phase one EFB | Phase two REM | Phase one IS | Phase two REM |
|--------------|-------------------------|--------------------------|--------------------------|--------------------------|
| L.EFB | 0.6496*** (146.2035) | | | |
| EFB | | 0.0341*** (3.0546) | | |
| L.IS | | | 0.7939*** (230.0787) | |
| IS | | | | -0.0912*** (-13.0942) |
| Size | -0.0018** (-2.2061) | 0.0045*** (3.4365) | -0.0072*** (-8.6802) | 0.0085*** (6.3166) |
| Age | -0.0009 (-0.7110) | 0.0159*** (7.8655) | 0.0010 (0.7875) | 0.0214*** (10.3591) |
| Level | -0.0040 (-1.0651) | 0.2089*** (33.7157) | 0.0086** (2.2258) | 0.2056*** (33.2384) |
| Growth | 0.0022 (0.8062) | -0.0029 (-0.6584) | -0.0131*** (-4.7140) | -0.0001 (-0.0289) |
| Indep | -0.0045 (-0.5198) | -0.0234* (-1.6709) | 0.0435*** (4.9827) | -0.0355** (-2.5372) |
| Top1 | -0.0134*** (-2.7908) | -0.0705*** (-9.0067) | -0.2094*** (-39.5428) | -0.0093 (-1.0120) |
| Fee | 0.0034** (2.2608) | -0.0403*** (-16.5677) | -0.0033** (-2.2112) | -0.0387*** (-15.9912) |
| Constant | 0.0264 (1.5520) | 0.3467*** (12.0611) | 0.1641*** (9.2289) | 0.2548*** (8.6249) |
| Ind FE | YES | YES | YES | YES |
| Year FE | YES | YES | YES | YES |
| LM value | | 1.2e+04 | | 1.8e+04 |
| Cragg-Donald | | 2.1e+04 | | 5.3e+04 |
| Wald F value | | | | |
| Observations | 26,674 | 26,674 | 26,674 | 26,674 |
| R-squared | 0.4699 | 0.1595 | 0.7901 | 0.1645 |

4.3. Moderating effect analysis

Table 5 displays the regression results obtained from the moderating effect model. As seen in column (1), EFB still significantly promotes real earnings management in enterprises, whereas institutional ownership (IS) significantly inhibits real earnings management. According to the results in column (2), the interaction term (EFB*IS) is significantly negative at the 10% level, indicating that institutional ownership plays a significant negative moderating effect on the relationship between EFB and real earnings management in enterprises. Thus, Hypothesis 3 is validated.

Table 5

Moderating effect analysis.

| VARIABLES | (1) REM | (2) REM |
|--------------|--------------------------|--------------------------|
| EFB | 0.0205*** (2.9101) | -0.0127** (-2.1948) |
| IS | -0.0800*** (-15.2488) | -0.0844*** (-14.7191) |
| EFB*IS | | -0.0592* (-1.9064) |
| Size | 0.0083*** (6.5524) | 0.0083*** (6.5424) |
| Age | 0.0176*** (9.7942) | 0.0177*** (9.8334) |
| Level | 0.2067*** (35.3840) | 0.2070*** (35.4235) |
| Growth | -0.0058 (-1.3793) | -0.0059 (-1.3981) |
| Indep | -0.0398*** (-3.0359) | -0.0403*** (-3.0738) |
| Top1 | -0.0171** (-2.1323) | -0.0167** (-2.0858) |
| Fee | -0.0416*** (-17.9719) | -0.0416*** (-17.9791) |
| Constant | 0.3069*** (11.3866) | 0.3089*** (11.4532) |
| Ind FE | YES | YES |
| Year FE | YES | YES |
| Observations | 30,637 | 30,637 |
| R-squared | 0.1660 | 0.1661 |

4.4. Heterogeneity discussion

4.4.1. Ownership heterogeneity of enterprises

Table 6, Columns (2) - (3) report the results of group regression based on the nature of enterprise ownership. The results indicate that the regression coefficient of EFB in the SOEs subsample is 0.0131, while the regression coefficient of EFB in the PEs subsample is 0.0315, both of which are significant. Further comparison reveals that, compared to SOEs, EFB has a more pronounced effect on the real earnings management of PEs. Therefore, Hypothesis 1a is confirmed.

Table 6

Heterogeneity analysis (1).

| VARIABLES | (1) | (2) | (3) |
|-----------|-----|-----|-----|
|-----------|-----|-----|-----|

| | Full samples | SOEs | PEs |
|--------------|--------------------------|-------------------------|--------------------------|
| EFB | 0.0204*** (2.8819) | 0.0131* (1.9082) | 0.0315*** (3.5935) |
| Size | 0.0045*** (3.5864) | -0.0009 (-0.4894) | 0.0028 (1.5964) |
| Age | 0.0116*** (6.6014) | 0.0050* (1.7321) | -0.0007 (-0.2978) |
| Level | 0.2097*** (35.7704) | 0.1898*** (22.2445) | 0.2197*** (27.4503) |
| Growth | -0.0086** (-2.0421) | 0.0023 (0.3527) | -0.0114** (-2.0602) |
| Indep | -0.0298** (-2.2700) | -0.0065 (-0.3307) | -0.0177 (-1.0048) |
| Top1 | -0.0670*** (-9.1536) | -0.0381*** (-3.5366) | -0.1227*** (-11.9313) |
| Fee | -0.0426*** (-18.3264) | -0.0269*** (-8.4560) | -0.0498*** (-14.9249) |
| Constant | 0.4005*** (15.2056) | 0.3224*** (9.1523) | 0.5661*** (14.5346) |
| Ind FE | YES | YES | YES |
| Year FE | YES | YES | YES |
| Observations | 30,637 | 12,056 | 18,581 |
| R-squared | 0.2589 | 0.2640 | 0.2584 |

4.4.2. Technological attribute heterogeneity of enterprises

Columns (2) to (3) of Table 7 present the grouped regression results segmented by industry technological attributes. The result in column (2) indicates that the regression coefficient for institutional ownership (IS) in high-tech industry enterprises is -0.0927 and is significant at the 1% level, whereas the coefficient for institutional ownership (IS) in non-high-tech industry enterprises is only significant at the 5% level. The results in Table 7 confirm Hypothesis 2a: compared to non-high-tech companies, institutional ownership has a more significant influence on real earnings management in high-tech enterprises.

Table 7
Heterogeneity analysis (2).

| VARIABLES | (1) | (2) | (3) |
|------------------|--------------------------|---------------------------|-------------------------------|
| | Full samples | High-tech industry | Non-High-tech industry |
| IS | -0.0800*** (-15.2437) | -0.0927*** (-18.7009) | -0.0275** (-2.4969) |
| Size | 0.0082*** (6.4726) | 0.0029 (0.8481) | 0.0094*** (7.0319) |
| Age | 0.0175*** | -0.0075 | 0.0236*** |

| | | | |
|--------------|--------------------------|-------------------------|--------------------------|
| | (9.7532) | (-1.6295) | (12.3129) |
| Level | 0.2067*** (35.3641) | 0.2577*** (17.3921) | 0.1698*** (26.8965) |
| Growth | -0.0057 (-1.3497) | -0.0222** (-2.0104) | -0.0013 (-0.2877) |
| Indep | -0.0397*** (-3.0315) | -0.0744** (-2.2086) | -0.0228 (-1.6287) |
| Top1 | -0.0180** (-2.2527) | -0.0805*** (-3.7706) | -0.0214** (-2.5200) |
| Fee | -0.0413*** (-17.8570) | -0.0221*** (-3.5325) | -0.0427*** (-17.4500) |
| Constant | 0.3070*** (11.3918) | 0.1776** (2.4362) | 0.3061*** (10.7317) |
| Ind FE | YES | YES | YES |
| Year FE | YES | YES | YES |
| Observations | 30,637 | 5,425 | 25,212 |
| R-squared | 0.2658 | 0.2759 | 0.2648 |

5. Research conclusion

Based on data from China's A-share listed companies from 2013 to 2023, this study empirically examines the relationship between EFB, institutional ownership, and real earnings management. The research finds that EFB significantly promotes real earnings management, while institutional ownership notably suppresses it. Further analysis indicates that institutional ownership plays a negative moderating role in the relationship between EFB and real earnings management, weakening the financial background's facilitating effect on earnings management. Heterogeneity analysis reveals that in PEs, the effect of EFB on real earnings management is more pronounced, while institutional ownership has a more significant impact on real earnings management in high-tech firms. The research conclusions provide theoretical foundations and practical insights for optimizing corporate governance structures and mitigating opportunistic behaviors.

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