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Article

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Cannot investors really price the book-tax differences correctly? Evidence from accelerated depreciation policies

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ABSTRACT

Extensive studies have found that investors misprice book-tax differences (BTDs). We take the accelerated depreciation policies of fixed assets implemented in China since 2014 as the research setting and investigate the following issues: When a temporary BTD is generated due to the tax preferential policies of accelerated depreciation, and the temporary BTD disclosed in financial statements can be clearly understood by investors, will investors still misprice it? We find that accelerated depreciation policy-induced temporary BTD (AccBTD) and other temporary BTD (OthBTD) are both informative. Furthermore, investors could correctly price AccBTD while misprice OthBTD. Finally, active institutional investors and analysts can promote the correct pricing of AccBTD but cannot alleviate the mispricing of OthBTD. Overall, our evidence suggests that investors do not always misprice BTDs. Specifically, when we decompose the specific components of BTDs and control the measurement errors effectively, we will have completely different findings.

KEYWORDS

Book-tax differences; temporary book-tax differences; asset pricing; market anomalies; accelerated depreciation

1. Introduction

Book income differs from taxable income due to many differences between accounting standards and income tax law in the basic objectives, following assumptions and business treatment, which create book-tax differences (BTDs). Since the ‘Accounting Standards for Business Enterprises’ were promulgated in November 1992, China’s accounting standards have experienced many major revisions. However, China’s corporate income tax law was only substantially revised once in 2008, which caused the gap between accounting standards and income tax law to gradually increase, and the BTDs of Chinese firms were constantly expanding (Chan et al., 2010). In fact, this phenomenon is found not only in China but also in U.S. listed firms (Desai, 2003).

In this context, scholars have begun to focus on the possible economic consequences of increasing BTDs. Some studies find that BTDs, which are induced by the continuous separation of accounting standards and income tax laws, contribute to earnings management, tax avoidance and other opportunistic behaviours (e.g. Frank et al., 2009; Hanlon, 2005; Lisowsky, 2010; Lu, 2017; Wang, 2014; Yan et al., 2019; Ye, 2006). Other scholars

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believe that BTDs can provide investors with valuation information besides accounting profit. However, it seems difficult for them to correctly price this information. For example, Hanlon et al. (2008) argues that the value relevance of book income decreases significantly when BTDs are reduced due to changes in accounting standards. Li and Ye (2017) proves that income tax expenses can provide incremental value-related information other than book income, which means that BTDs are informative. However, Chi et al. (2014) finds that investors misprice information contained in BTDs, especially temporary BTDs. Wu and Li (2007) and X. Xie (2015) reach the same findings based on Chinese listed firms.

Based on extant research, we further explore the following issues: when a policy exogenously leads to the expansion of BTDs and the detailed data of BTDs are disclosed in financial statements, will investors still misprice this part of BTDs? Our investigation is mainly based on the following limitations of existing studies: (1) Extant studies either regard BTDs as a whole or roughly divide them into permanent BTDs and temporary BTDs, without considering whether investors would misprice BTDs if they could have a clear understanding of the specific sources of BTDs. For example, Gupta et al. (2016) demonstrates the implementation of the Detailed Tax Disclosure requirement (FIN 48) in the United States significantly inhibited earnings management using tax reserve accounts to achieve earnings thresholds. Therefore, if investors could understand the specific sources of BTDs through the disclosure of tax-related information, it is worth further investigating whether investors' mispricing caused by BTDs still exists. (2) There are alternative explanations in extant studies. For instance, many studies have shown that BTDs are related to earnings management (Desai & Dharmapala, 2009; Frank et al., 2009; Lu, 2017; Tang & Firth, 2011; Wang, 2014; Yan et al., 2019), while Sloan (1996) and H. Xie (2001) find that investors cannot correctly price accruals. Therefore, the mispricing of BTDs found in previous studies is likely to come from investors' mispricing of accruals. In addition, some studies have found that the expansion of BTDs is often accompanied by the increase in tax avoidance and the deepening of information asymmetry. Overall, BTDs are the external manifestations of firms' normal business activities and other financial behaviours. It will be difficult to establish a true causal relationship between BTDs and investor mispricing if the impact of a firm's internal motivation is ignored.

Based on this, we take accelerated depreciation of fixed assets, a series of exogenous preferential tax policies implemented in China since 2014, as an opportunity to investigate investors' pricing of BTDs. Under the policies, firms can use accelerated depreciation methods for fixed assets in tax treatment while still maintaining the previous depreciation methods in accounting treatment. Therefore, the policies will create an exogenous BTD, namely, accelerated depreciation policy-induced temporary BTD (AccBTD). This temporary BTD is entirely caused by exogenous tax policies and is essentially unaffected by earnings management motivation and tax avoidance motivation. In addition, it will be disclosed in the footnotes of financial statements so that investors can clearly understand the reasons for this temporary BTD. Therefore, we decompose temporary BTDs into AccBTD and other temporary BTD (OthBTD). The empirical results show that: (1) OthBTD is negatively associated with future earnings growth, while AccBTD is positively associated with future earnings growth, which means that both types of temporary BTDs are informative and can predict firm performance; (2) Both annual and monthly stock return tests show that AccBTD is correctly priced, while OthBTD is mispriced by overestimating its impact on future stock returns. This means that while both types of temporary BTDs are

informative, investors react to them in very different ways; (3) When there are more active institutional investors or greater analyst following, investors are less likely to misprice AccBTD but investors' mispricing of OthBTD is not alleviated.

We contribute to the literature in three ways: (1) Existing studies have found that investors misprice BTDs (Chi et al., 2014; Wu & Li, 2007; X. Xie, 2015). However, as mentioned above, this question remains to be further explored. We find that when BTDs are not caused by earnings management and/or tax avoidance and investors can clearly understand it, investors will not misprice BTDs. This conclusion deepens our insights concerning prior research and reminds subsequent researchers to consider the composition of BTDs as well as econometric issues, such as controlling for omitted variables and endogeneity; (2) Our study supplements the literature on tax information disclosure. Graham et al. (2012) puts forward the 'mystery of tax-related information disclosure' in the literature review of income tax accounting. They point out that it is confusing that tax-related information helps explain future earnings and stock prices because this information is complex and rarely disclosed in financial statements. Our research shows that investors have certain rational cognition and analytical capabilities. Although tax-related information is less disclosed, as long as investors understand the source and essence of BTDs through limited tax-related information, investors' mispricing will be greatly alleviated; (3) Our study also has policy implications for information disclosure regulators and rule-setters. On the one hand, the information disclosure regulators can appropriately increase the disclosure requirements and refine the disclosure rules for detailed accounts of BTDs. On the other hand, the rule-setters should consider the interference of management's opportunistic motivation on tax-related financial information in the standard-setting process, and reduce the discretion for the corresponding part, so as to provide investors with fairer financial information, improving investors' decision-making efficiency.

2. Literature review

Theoretically, BTDs come from systemic differences in accounting standards and income tax law in the process of accounting for profits. Dai and Yao (2006) find that institutional differences between accounting standards and tax laws can explain more than 60% of the BTDs of Chinese firms. Due to objective existence of institutional differences, how to understand other causes of BTDs has an important impact on correct cognition of financial information. To this end, extensive scholars have conducted research and formed two main research paths. In one aspect, some studies have found that BTDs may come from the opportunistic behaviour of earnings management. For instance, Phillips et al. (2003) argues that temporary BTDs have high reliability in predicting earnings management. Dhaliwal et al. (2004) is the first to report that management opportunistically manipulates income tax expenses to achieve earnings thresholds at the fourth quarter. Based on data from listed firms in China, Lu (2017) finds that BTDs are a reliable indicator for identifying earnings management. In another aspect, other research argues that BTDs may be due to tax avoidance (Lisowsky, 2010; Wilson, 2009). Wilson (2009) proves that the BTDs of tax-aggressive firms are significantly larger than other firms. Lisowsky (2010) further confirms the positive correlation between BTDs and tax aggressiveness by combining confidential data from the IRS and financial reporting data of listed

firms. Finally, Frank et al. (2009) finds that tax reporting aggressiveness is positively associated with financial reporting aggressiveness. Tang and Firth (2011) demonstrate that after excluding the normal BTDs, earnings management and tax avoidance can explain 7.4% and 27.8% of abnormal BTDs, respectively.

Considering the possible opportunistic behaviour in BTDs, Lev and Nissim (2004) report that the greater the BTD, the lower the future earnings growth and the worse stock returns. Hanlon (2005) finds that temporary BTDs will significantly reduce earnings persistence. Blaylock et al. (2012) further proves that temporary BTDs due to earnings management will worsen earnings persistence, while temporary BTDs due to tax avoidance will alleviate the adverse effect of temporary BTDs on earnings persistence. Sun (2015) has the same findings based on Chinese listed firms. Chi et al. (2014) further decomposes BTDs into temporary BTDs and permanent BTDs, finding that above mentioned effects are mainly caused by temporary BTDs, and investors misprice them. Wu and Li (2007) and X. Xie (2015) reach the same findings based on Chinese listed firms.

The literature shows that investors engage in irrational pricing of BTDs, which is regarded as another 'market anomaly'. Given the numerous sources and the complex factors affecting BTDs, a natural question arises: If investors fully understand the source and amount of BTDs, will they still misprice BTDs? Based on this, we take the temporary BTD, which is produced by the exogenous tax policies of accelerated depreciation of fixed assets, as the research object and try to analyse investors' pricing of BTDs more clearly.

3. Institutional background and hypothesis

3.1. Institutional background

The manufacturing industry is not only an important engine of China's economic growth but also plays a vital role in China's economic transformation and upgrading as well as the realisation of the goal of moving towards the mid-to-high-end level. However, insufficient investment capacity, tight internal funds caused by overcapacity and high external financing costs severely restrict the renovation and transformation of fixed assets for manufacturing firms. For this purpose, on 24 September 2014, the 63rd executive meeting of the State Council deployed the accelerated depreciation policy for fixed assets, hoping to promote the transformation, upgrading and long-term development of manufacturing enterprises through macro-taxation policies.

On 20 October 2014, the Ministry of Finance and the State Administration of Taxation jointly issued the 'Notice on Improving the Corporate Income Tax Policy for Accelerated Depreciation of Fixed Assets' (Cai Shui [2014] No. 75). On 29 September 2015, the Ministry of Finance and the State Administration of Taxation jointly issued the 'Notice on Further Improving the Corporate Income Tax Policy for Accelerated Depreciation of Fixed Assets' (Cai Shui [2015] No. 106). On 7 May 2018, the Ministry of Finance and the State Administration of Taxation issued the 'Notice on the Corporate Income Tax Policy Concerning the Deduction of Equipment and Appliances' (Cai Shui [2018] No. 54).

Numerous research has focused on the accelerated depreciation policies. Researchers suggest that the accelerated depreciation policies significantly enhance the R&D investment (Li et al., 2017; S. Liu et al., 2020) and fixed asset investment (H. Liu et al., 2019a; Q. Liu et al., 2019b). Tong et al. (2020) reports some evidence that the policies significantly

alleviates financing constraints. Liu and Zhao (2020) argue that the policies has effectively promoted the human capital upgrading of pilot firms. Throughout extant research on the accelerated depreciation policies of fixed assets, scholars mainly focus on the economic consequences. In contrast, our research does not directly investigate the economic consequences but rather takes the policies as a research setting to clearly analyse investors' pricing of BTDs. Furthermore, we believe that it is an ideal research scenario. First, the policies are mainly applicable to investment in fixed assets, and investment in fixed assets is a routine financial behaviour of firms. In our study, the proportion of fixed assets in the total assets reached 22%. Therefore, the policies will have a greater impact on BTDs than other tax policies. Second, extant studies find that the policies will promote corporate investment (H. Liu et al., 2019a; Q. Liu et al., 2019b), which shows that firms have indeed responded to the policies. Finally, while OthBTD in our study may be subject to other tax policies, if we still find that investors misprice OthBTD, it means that part of OthBTD, which is affected by other exogenous tax policies, is not important.

Specifically, if a firm affected by the policies purchases or constructs fixed assets during the implementation of the policies, it can increase the deductible depreciation amount for the current period when calculating taxable income without changing the accounting depreciation method or depreciation amount. At this time, the book value and tax base of fixed assets will be different, so firms will form an AccBTD. Furthermore, we find that AccBTD is disclosed in the footnotes of financial statements so that investors can clearly understand the reasons for AccBTD.¹ In addition, since AccBTD is entirely derived from exogenous tax policies, it is unaffected by earnings management motivation and tax avoidance motivation. Given this, on one hand, in research design, we can decompose temporary BTDs into two parts: AccBTD and OthBTD; on the other hand, our analysis is immune to econometric problems such as endogeneity and alternative explanations.

3.2. Hypothesis

3.2.1. BTDs and future earnings growth

Before analysing the issue of investors' pricing of BTDs, we first follow the analytical framework of Lev and Nissim (2004) and Chi et al. (2014) to examine the impact of BTDs on future earnings growth. The reason is that the prerequisite for investigating whether there is any mispricing of BTDs is that BTDs have information content. Theoretically, the effect of AccBTD and OthBTD on future earnings growth is different.

First, we analyse the impact of OthBTD on future earnings growth. This part of the analysis is the same as prior studies on temporary BTDs. Specifically, compared with tax laws, accounting standards emphasise the relevance of investors' decision-making, which gives management greater discretion. However, firms that manipulate

¹Firms will disclose sources of all temporary BTDs on an item-by-item basis in the footnotes of financial statements (Accounting Standards for Business Enterprises No. 18-Income Tax). Thus, investors' mispricing is not due to firms failing to disclose specific sources of temporary BTDs. Although firms will disclose all components of BTDs, not all BTDs are exogenous. At the same time, investors cannot understand the reasons behind each BTD. For example, a large number of BTDs are formed due to opportunistic behaviour of management, resulting in mispricing by investors that cannot be accurately identified (Chi et al., 2014; Lev & Nissim, 2004; Wu & Li, 2007; X. Xie, 2015). However, AccBTD is different: it is an exogenous variable largely unaffected by management's opportunistic motivation (we will explain further below); thus, investors can clearly understand that AccBTD is due to the polices. To sum up, investors' mispricing of OthBTD is not entirely due to investors' cognitive biases, but because OthBTD is either not entirely exogenous or influenced by management's opportunistic motivation, leading investors to being unable to identify and understand it.

accounting accruals to increase book income have to make a choice in taxation: either increase taxable income and income tax expenses to coordinate taxable income with book earnings or increase BTDs to maintain a low tax burden. The former will cause firms to incur large income tax expenditures, which will increase the cost of earnings manipulation (Erickson et al., 2004), yet the latter increases book income while achieving the same or a slight increase in income tax expenditures, but will suffer a higher tax audit risk. However, the auditing power of tax authorities is generally weak, so the latter is the first choice for earnings manipulation (Desai, 2005). Therefore, to the extent that BTDs reflect the opportunistic behaviour of management (Frank et al., 2009; Hanlon, 2005; Hanlon & Heitzman, 2010; Lisowsky, 2010; Lu, 2017; Wang, 2014; Yan et al., 2019), researchers find a negative correlation between BTDs and future earnings growth (Chi et al., 2014; Lev & Nissim, 2004). Further analysis of BTDs divided into temporary BTDs and permanent BTDs shows that temporary BTDs contain more tax accruals and managerial professional judgement, which objectively provide greater space for manipulation. Therefore, the negative impact of BTDs on future earnings growth is mainly caused by temporary BTDs (Chi et al., 2014; X. Xie, 2015). Overall, we expect that after removing AccBTD from temporary BTDs, the remaining temporary BTDs (that is, OthBTD) will be negatively correlated with future earnings growth.

Next, we analyse the impact of AccBTD on future earnings growth. First, the main objective of accelerated depreciation policies is to encourage firms to increase investment. Researchers have found that the policies promote fixed asset investment, R&D investment and human capital upgrading (S. Liu et al., 2020; H. Liu et al., 2019a; Liu & Zhao, 2020; Q. Liu et al., 2019b). Therefore, adopting a policy and forming an AccBTD indicate that a firm's investment is relatively large and that there are more investment opportunities, so the future growth potential is greater. At the same time, accelerated depreciation policies essentially mean that the state grants an interest-free loan to firms. Firms that adopt the policies can reduce income tax expenses in the early stage while keeping the total income tax expense unchanged, thereby reducing the current value of income tax expenses, which alleviates the financial constraints. Therefore, the full use of accelerated depreciation policies reflects good growth expectations, thus sending a positive signal. Second, the policies are only applicable to the filing of tax returns, not to the preparation of financial accounting statements. Therefore, the policies will not affect accounting earnings, so the opportunistic behaviour of management will not affect AccBTD. Finally, AccBTD will be separately reported and disclosed in the footnotes of financial statements so that investors can clearly understand the reason and specific amount for AccBTD, which further inhibits management to use this account for manipulation. From the view of information content, AccBTD does not contain many factors that have been found to have adverse effects on future earnings growth. Based on this, we expect that AccBTD is positively associated with future earnings growth.

Based on the above discussion, we propose the following hypothesis:

H1: OthBTD has a negative correlation with future earnings growth, while AccBTD has a positive correlation with future earnings growth.

3.2.2. *BTDs and investor pricing*

Since AccBTD and OthBTD may have diverse effects on future earnings growth, it is important for investors to rationally recognise and correctly price them. Prior literature on BTDs and investor pricing finds that investors misprice temporary BTDs (Chi et al., 2014; Wu & Li, 2007; X. Xie, 2015). At the same time, some studies prove that BTDs are related to earnings management (Desai & Dharmapala, 2009; Frank et al., 2009), and investors also misprice accrual earnings (Sloan, 1996; H. Xie, 2001). Therefore, does the mispricing of BTDs found in extant studies stem from management's opportunistic behaviour or investors' cognitive biases? We can yield deeply insights through an analysis of AccBTD and OthBTD.

Specifically, AccBTD stems entirely from the exogenous tax policies, which gives management a very limited manipulative space. Therefore, AccBTD is basically unaffected by management's opportunistic behaviour. Moreover, AccBTD is disclosed in the footnotes of financial statements. Many studies find that investors are concerned about various types of information disclosed by firms and can make reasonable interpretations, applying them to investments (e.g. Chi et al., 2014; Dhaliwal et al., 2013; Donohoe & McGill, 2011; Frischmann et al., 2008; Lev & Nissim, 2004). Furthermore, we investigate the market reaction when China issued the policies. Specifically, we examine the difference in abnormal returns between firms affected by the policy (firms in the six major industries) and other firms when China first promulgated the implementation of an accelerated depreciation policy for fixed assets (20 October 2014). The unreported results show that the abnormal returns of affected firms are significantly higher than those of other firms on the policy announcement day. This shows that investors have realised the possible economic consequences of the policies and applied it to their investments. As a result, investors can clearly understand the reasons for AccBTD. Given this, we believe that if the mispricing of BTDs is mainly caused by opportunistic behaviour of management, then the degree of investors' mispricing of AccBTD is likely to be greatly alleviated or even disappear. On the other hand, in view of the complexity of tax accounting and the large amount of time and resources required to analyse information in the footnotes of financial statements, it is impossible for investors with limited rationality to fully understand the impact of AccBTD on future earnings. Even if there are a few sophisticated investors who can make rational pricing for AccBTD, limits on arbitrage may make the degree of mispricing of AccBTD still significant. Given this, we believe that if the mispricing of BTDs is caused by the cognitive biases of investors, then investors are likely to still misprice AccBTD.

In contrast, since the pricing of OthBTD is affected by multiple factors, such as the discretion afforded by accounting standards, the complexity of tax accounting, the opportunistic behaviour of management, the inherent cognitive biases of investors, and the limitations of rational investor arbitrage (Chi et al., 2014; Wu & Li, 2007; X. Xie, 2015), investors may still be unable to make a sufficient and rational analysis of OthBTD, which may lead to persistent mispricing. Based on the above discussion, we propose the following opposing hypotheses:

H2a: Investors can correctly price AccBTD, but there is still significant mispricing of OthBTD.

H2b: Investors significantly misprice both AccBTD and OthBTD.

4. Research design

4.1. Research data and sample

In view of the fact that the accelerated depreciation policy of fixed assets has been implemented since 1 January 2014, we obtain data of Shanghai and Shenzhen A-share listed firms from 2014 to 2019. Furthermore, our stock return data are as of April 2020 when analysing investor pricing. In addition, we process the data and screen out observations that are affected by the policies and have actually adopted the accelerated depreciation method as these firms have generated AccBTD. Specifically, we download footnote information on deferred income tax from the CSMAR database. First, the observations involving 'fixed assets' in the deferred income tax footnotes are screened out. Then, on the basis of manual analysis to identify keywords, the observations containing words such as 'accelerated', 'one-off', 'full amount', '500', '100', and '5000' are further filtered out.² Finally, we summarise data on multiple deferred income taxes generated by the same firm adopting more than one type of accelerated depreciation policies in the current year and obtain a total of 795 firm-year observations with AccBTD. Among them, 59 are in 2014, 99 in 2015, 132 in 2016, 153 in 2017, and 352 in 2018. The year-on-year increase in our observation also reflects the gradual spread of preferential tax policies for accelerated depreciation in different industries.

Furthermore, we screen observations as follows. (1) We delete the observations with pre-tax earnings of less than zero (Chi et al., 2014; Wu & Li, 2007; X. Xie, 2015). (2) We delete the observations with income tax expenses less than or equal to zero (Wu & Li, 2007; X. Xie, 2015). (3) We delete the observations with missing variables required for our research. Finally, our sample includes 561 observations for the analysis of earnings growth and 565 observations for the analysis of investor pricing. In addition, we winsorise all continuous variables at the 1% levels to mitigate the impact of outliers. All data come from the CSMAR database.

4.2. Measure of AccBTD and OthBTD

Following Hanlon (2005) and Chi et al. (2014), we calculate the total temporary BTD as follows:

$$TEMP = (Deferred\ tax\ expense / \tau) * (1 - \tau) \quad (1)$$

Deferred tax expense is the current deferred income tax expenses, and τ is the income tax rate applicable to the firm.

Furthermore, we take the similar way to obtain the accelerated depreciation policy-induced temporary BTD:

$$AccTEMP = (Deferred\ tax\ expense\ due\ to\ Acc / \tau) * (1 - \tau) \quad (2)$$

²Before the second step of screening, we manually analyse the results of the first step to determine the characteristic words related to the accelerated depreciation policies of fixed assets. Therefore, the second step of the screening process mainly considers keywords related to the policies.

Deferred tax expense due to Acc is the current deferred income tax expense due to the adoption of tax policies for accelerated depreciation. Thus, the other temporary BTd is:

$$OthTEMP = TEMP - AccTEMP \quad (3)$$

Furthermore, we divide the accelerated depreciation policy-induced temporary BTd and other temporary BTd by book income for standardisation (Chi et al., 2014) and obtain the variables *accBl* and *othBl*, respectively. Among them, *accBl* is *AccBTd*, and *othBl* is *OthBTd*.

4.3. BTds and future earnings growth

Following Chi et al. (2014), we construct the following empirical model to test the correlation between BTds and future earnings growth:

$$G_{i,t+1} = \alpha_0 + \alpha_{year} + \alpha_{industry} + \alpha_1 R_{othBl_{i,t}} + \alpha_2 R_{accBl_{i,t}} + \alpha_3 EM_{i,t} + \alpha_4 Size_{i,t} + \alpha_5 BM_{i,t} \\ + \alpha_6 Lev_{i,t} + \alpha_7 Div_{i,t} + \alpha_8 Age_{i,t} + \alpha_9 Beta_{i,t} + \varepsilon_{i,t} \quad (4)$$

Where $G_{i,t+1}$ is the earnings growth rate in year $t + 1$, which is the difference between the pre-tax book income of year $t + 1$ and the pre-tax book income of year t divided by total assets at the beginning of year $t + 1$. Considering the possible nonlinear relationship between earnings growth and BTds, we transform the two types of temporary BTds into quintile ranking variables, focusing on the effects of $R_{othBl_{i,t}}$ and $R_{accBl_{i,t}}$ (Chi et al., 2014; Lev & Nissim, 2004). Among them, $R_{othBl_{i,t}}$ is the quintile ranking variable of the ratio of other temporary BTd and book income sorted by industry and year; $R_{accBl_{i,t}}$ is calculated in the same way. In addition, we calculate the earnings growth rate in year $t + 2$ to investigate the persistence of the information content of temporary BTds. Specifically, we follow Lev and Nissim (2004) to calculate the earnings growth rate in the next two years, which is the difference between the average pre-tax book income of year $t + 2$ and year $t + 1$ and the pre-tax book income of year t divided by total assets at the beginning of year $t + 1$.³

We include the following control variables for future earnings growth: *EM* is the degree of earnings management, measured by the abnormal accruals calculated by performance-adjusted modified Jones model sorted by year and industry; *Size* is the size of firm, measured by the natural logarithm of book value of total assets; *BM* is the book-to-market ratio, measured by the ratio of book value of total assets to market value; *Lev* is the asset-liability ratio, measured by the ratio of book value of debt to book value of assets; *Div* is the dividend, measured by the ratio of dividends to total assets; *Age* is the year since the establishment of the firm; *Beta* is the systematic risk, which is measured from a regression of monthly raw returns on the value-weighted portfolio return over a 60-

³Chi et al. (2014), X. Xie (2015) and other research only use the earnings growth of the next period to investigate the information content of BTds. However, Lev and Nissim (2004) examines not only the growth of earnings in the next period but also the growth of earnings in the next three and five periods. Considering that the information contained in the temporary BTds is likely to have a certain continuity, we further extend the test to the next two period. Such a treatment tests whether the information content of BTds is persistent, and it will not greatly reduce observations of our study and explanatory power of the model.

month period prior to the abnormal return accumulation period; and α_{year} is the year fixed effect; α_{industry} is the industry fixed effect.

4.4. BTDs and investor pricing

4.4.1. BTDs and investor pricing: a long window stock return examination

Following Lev and Nissim (2004) and Hanlon (2005), we use the method of Fama and Macbeth (1973) to examine investor' pricing in the following regression:

$$R_{\text{year}}_{i,t+1} = \alpha_0 + \alpha_1 R_{\text{oth}}Bl_{i,t} + \alpha_2 R_{\text{acc}}Bl_{i,t} + \alpha_3 Size_{i,t} + \alpha_4 BM_{i,t} + \alpha_5 EP_{i,t} + \alpha_6 Beta_{i,t} + \alpha_7 Vol_{i,t} + \alpha_8 Mom_{\text{year}}_{i,t} + \varepsilon_{i,t} \quad (5)$$

Where R_{year} is the annual stock return considering the reinvestment of cash dividends. As the financial statements of year t should be reported before the end of April in year $t + 1$, we calculate the monthly stock compound return considering the reinvestment of cash dividends for 12 months, from May in year $t + 1$ to April in year $t + 2$ and use it as the annual stock return in year $t + 1$. EP is the earnings-price ratio, measured by the ratio of accounting earnings to market capitalisation at the fiscal year-end; Mom_{year} is the annual stock return momentum, measured by the monthly stock compound return, considering the reinvestment of cash dividends, for 12 months from May of year t to April of year $t + 1$; and Vol is the heterogeneous volatility, measured by the root-mean-squared error from the $BETA$ regression. Other variables are defined as in Model (4). Considering the possible heteroscedasticity and serial correlation problems of the regression models, we follow Hirshleifer et al. (2011) to test the regression model of Fama and Macbeth (1973) using Newey–West adjusted standard errors (Newey & West, 1987) and adjust with the lag order of the second period. This practice is also a common method in research on asset pricing.

4.4.2. BTDs and investor pricing: a short window stock return examination

Following Chi et al. (2014), we use monthly stock returns and the Fama and Macbeth (1973) method to examine whether investors correctly price AccBTD and OthBTD. Consistent with Chi et al. (2014), a five-month lag is used in forecasting stock returns to ensure that the financial statement data on which the forecast is based can be obtained. Specifically, the monthly stock returns in the regression model are updated monthly, and the corresponding financial statement variables are updated annually. For example, we use financial statement data from 2014 to forecast monthly stock returns for 12 months from May 2015 to April 2016, and the stock return momentum corresponding to the monthly stock returns is calculated month by month. Therefore, our forecast period is a 60-month period from May 2015 to April 2020, with 7,578 firm-year-month observations. Our regression model is as follows:

$$R_{\text{month}}_{i,t+1} = \alpha_0 + \alpha_1 R_{\text{oth}}Bl_{i,t} + \alpha_2 R_{\text{acc}}Bl_{i,t} + \alpha_3 Size_{i,t} + \alpha_4 BM_{i,t} + \alpha_5 EP_{i,t} + \alpha_6 Beta_{i,t} + \alpha_7 Vol_{i,t} + \alpha_8 Mom_{\text{month}}_{i,t} + \varepsilon_{i,t} \quad (6)$$

Where R_{month} is the monthly stock return considering the reinvestment of cash dividends. Mom_{month} is the monthly stock return momentum, which is measured by the 11-

month monthly stock compound return considering the reinvestment of cash dividends, from the 12 months before month t to the 2 months before month t (Chi et al., 2014; Hirshleifer et al., 2011). Other variables are defined as in Model (4). Moreover, taking the possible heteroscedasticity and serial correlation problems of the regression model into account, we test the regression model using Newey–West adjusted standard errors (Newey & West, 1987) and adjust it with a three-period lag order.⁴

5. Empirical results

5.1. Summary statistics

Table 1 presents the summary statistics of the main variables. The mean G_{t+1} is approximately 0.9%, while the standard deviation is 4.862, indicating that there is big difference in the earnings growth of different firms. In addition, in terms of scale, the values of OthBTD and AccBTD are relatively large, which illustrates that the implementation of the accelerated depreciation policies has an important impact on firms. Moreover, it can be seen that the standard deviation of the two types of temporary BTDs is large, suggesting that there is significant difference in the use of policies by different firms. Therefore, we convert them into quintile ranking variables to reduce the possible influence of extreme values to ensure the reliability of our conclusion (Chi et al., 2014; Lev & Nissim, 2004).

Table 2 reports Pearson correlations between the main variables. Note that OthBTD has a negative correlation with earnings growth in period $t + 1$, while AccBTD has a positive correlation with earnings growth in period $t + 1$. In addition, EM , BM and Age all have a significant negative correlation with future earnings growth.

Table 1. Summary statistics.

Variables	N	Mean	P5	Median	P95	SD
$G_{t+1}(\%)$	561	0.922	-4.865	0.770	7.245	4.862
$G_{t+2}(\%)$	256	2.109	-5.509	1.506	10.631	5.145
<i>othBl</i>	565	-0.146	-0.923	-0.075	0.457	0.871
<i>accBl</i>	565	0.093	-0.017	0.020	0.515	0.227
EM	561	-0.009	-0.122	-0.008	0.102	0.073
$Size$	565	22.330	20.640	22.200	24.380	1.138
BM	565	0.607	0.243	0.591	1.004	0.237
Lev	561	0.384	0.123	0.380	0.680	0.169
Div	561	0.020	0	0.012	0.072	0.022
Age	561	17.323	8	17	26	5.836
$Beta$	565	1.147	0.476	1.124	1.884	0.554
R_year	565	0.041	-0.418	-0.062	0.871	0.467
Mom_year	565	0.092	-0.405	-0.060	1.192	0.566
Vol	565	0.127	0.071	0.112	0.218	0.076
EP	565	0.042	0.006	0.032	0.113	0.036

⁴Since the number of periods in the long-window annual stock return examination and the short-window monthly stock return examination are 5 and 60, respectively, the optimal lag orders of Newey–West-adjusted standard errors calculated according to the number of periods are 2 and 3, respectively.

Table 2. Pearson correlations.

	G_{t+1}	G_{t+2}	<i>othBI</i>	<i>accBI</i>	<i>EM</i>	<i>Size</i>	<i>BM</i>	<i>Lev</i>
G_{t+2}	0.748***	1						
<i>othBI</i>	-0.047	-0.061	1					
<i>accBI</i>	0.032	-0.002	-0.199***	1				
<i>EM</i>	-0.197***	-0.128**	-0.011	0.037	1			
<i>Size</i>	-0.057	-0.091	0.021	-0.141***	0.121***	1		
<i>BM</i>	-0.120***	-0.128**	-0.018	0.033	0.146***	0.445***	1	
<i>Lev</i>	-0.022	0.001	-0.040	-0.010	0.162***	0.590***	0.351***	1
<i>Div</i>	-0.064	-0.012	0.079*	-0.099**	-0.204***	-0.121***	-0.177***	-0.395***
<i>Age</i>	-0.093**	-0.036	-0.044	0.118***	0.073*	0.178***	0.189***	0.158***
<i>Beta</i>	0.006	-0.006	-0.020	0.041	-0.056	-0.094**	0.054	0.048
<i>R_year</i>	0.283***	0.337***	-0.020	0.082*	-0.031	0.002	-0.005	-0.002
<i>AdjR_year</i>	0.295***	0.326***	-0.004	0.065	-0.064	0.017	-0.051	0.008
<i>Mom_year</i>	0.147***	0.107*	-0.020	-0.030	-0.093**	0.034	-0.102**	0.056
<i>AdjMom_year</i>	0.125***	0.126**	-0.081*	0.015	-0.092**	0.032	-0.073*	0.074*
<i>Vol</i>	0.057	0.105*	-0.027	0.108***	-0.019	-0.305***	-0.179***	-0.089**
<i>EP</i>	-0.267***	-0.227***	0.073*	-0.115***	0.022	0.418***	0.525***	0.199***
	<i>Div</i>	<i>Age</i>	<i>Beta</i>	<i>R_year</i>	<i>AdjR_year</i>	<i>Mom_year</i>	<i>AdjMom_year</i>	<i>Vol</i>
<i>Div</i>	1							
<i>Age</i>	-0.051	1						
<i>Beta</i>	-0.152***	-0.060	1					
<i>R_year</i>	0.053	-0.064	-0.013	1				
<i>AdjR_year</i>	0.044	-0.095**	-0.012	0.970***	1			
<i>Mom_year</i>	-0.026	-0.024	-0.063	-0.066	-0.007	1		
<i>AdjMom_year</i>	0.011	0.076*	0.002	0.034	0.029	0.705***	1	
<i>Vol</i>	-0.075*	-0.143***	0.487***	0.014	0.020	-0.039	0.014	1
<i>EP</i>	0.223***	0.224***	-0.094**	0.012	-0.012	-0.021	0.035	-0.215***

5.2. BTDs and future earnings growth

Column (1) of Table 3 shows the result of BTDs and earnings growth in period $t + 1$. It can be seen that R_{othBI} is significantly negative at the 5% level, while R_{accBI} is significantly positive at the 5% level. Furthermore, the result of BTDs and earnings growth in the next two periods reported in column (2) of Table 3 shows that R_{othBI} is still negative and significant at the 5% level, while R_{accBI} is significantly positive at the 5% level. Overall, there is a significant positive correlation between AccBTD and future earnings growth, while OthBTD is negatively related to future earnings growth. These results suggest that information contained in the two types of temporary BTDs is persistent, and the findings support Hypothesis H1.

As for other control variables, the coefficient of *EM* is significantly negative, which indicates that firms with a higher degree of earnings management will have worse earnings growth in the future; *BM* is significantly negative, suggesting that firms with poor growth will also experience weaker earnings growth in the future; and the coefficient on *Div* is negative and significant, indicating that firms with higher dividend payments will have lower earnings growth in the future. In addition, the coefficient of *Age* is also significantly negative, meaning that the earnings growth rate of old firms is slower than that of new firms. The results for these control variables are consistent with intuition.

Table 3. BTDs and future earnings growth.

	(1)	(2)
	G_{t+1}	G_{t+2}
<i>R_othBl</i>	-0.339** (0.03)	-0.622** (0.03)
<i>R_accBl</i>	0.309** (0.04)	0.542** (0.05)
<i>EM</i>	-13.911*** (0.01)	-8.296 (0.10)
<i>Size</i>	0.159 (0.47)	-0.461 (0.35)
<i>BM</i>	-2.916*** (0.00)	-3.353* (0.06)
<i>Lev</i>	0.713 (0.61)	4.398 (0.14)
<i>Div</i>	-27.177* (0.07)	-5.461 (0.74)
<i>Age</i>	-0.065** (0.04)	-0.026 (0.70)
<i>Beta</i>	-0.178 (0.53)	-0.252 (0.60)
Constant	-0.492 (0.91)	17.195 (0.11)
N	561	256
Adj. R ²	0.060	0.009
Year	Yes	Yes
Industry	Yes	Yes

***, **, and * denote significance at the 1%, 5%, 10% levels, respectively; *p* value is reported in the parentheses; Standard errors are clustered by firm level.

5.3. BTDs and investor pricing

Given that AccBTD and OthBTD are both informative, we next examine whether investors can make rational pricing decisions for them.

5.3.1. BTDs and investor pricing: a long window stock return examination

The results in column (1) of Table 4 show that *R_othBl* is significant (negative) at the 5% level, while *R_accBl* is not significant, which means that investors misprice OthBTD. In other words, investors cannot understand the complex composition of OthBTD and overestimate its impact on future stock returns, consistent with Wu and Li (2007), Chi et al. (2014), and X. Xie (2015)'s findings. In contrast, after controlling the main pricing factors, AccBTD has no significant relationship with future stock returns, indicating that investors realise the effect of AccBTD on future stock returns. Thus, the results of the long-window stock return test support Hypothesis H2a.

5.3.2. BTDs and investor pricing: a short window stock return examination

The results in column (2) of Table 4 show that the coefficient of *R_othBl* is negatively significant at the 5% level, while *R_accBl* is still insignificant. In conclusion, both the long-window and short-window stock return tests show that investors misprice OthBTD but correctly price AccBTD.

Table 4. BTDs and investor pricing.

	(1)	(2)
	A Long Window Stock Return Examination	A short Window Stock Return Examination
	$R_{year_{t+1}}$	$R_{month_{t+1}}$
R_{othBI}	-0.020** (0.03)	-0.002** (0.03)
R_{accBI}	0.017 (0.27)	0.001 (0.30)
$Size$	0.004 (0.91)	-0.004 (0.26)
BM	-0.186 (0.14)	-0.005 (0.61)
EP	1.238 (0.12)	0.079 (0.31)
$Beta$	0.022 (0.33)	0.006 (0.37)
Vol	0.219 (0.51)	0.021 (0.72)
Mom_{year}	0.061* (0.06)	
Mom_{month}		0.002 (0.76)
Constant	-0.047 (0.95)	0.079 (0.24)
Regression	Fama-Macbeth	Fama-Macbeth
Standard Errors	Newey-West	Newey-West
n (Years/Months)	5	60
N	565	7578
Avg. R^2	0.153	0.143

***, **, and * denote significance at the 1%, 5%, 10% levels, respectively; p value is reported in the parentheses.

5.4. Robustness tests

5.4.1. Test using size-adjusted excess stock return

Following Lev and Nissim (2004) and Chi et al. (2014), we use unscaled stock returns for our main testing, while Hanlon (2005) uses size-adjusted excess stock returns in their research on investor pricing. Therefore, in this section, we use size-adjusted excess stock returns as a robustness test.

Specifically, we first construct portfolios by year, industry, and quintile of size to calculate the average annual (monthly) stock returns for each portfolio. Then, we subtract the average annual (monthly) stock return of the portfolio in which the specific firm is located from the annual (monthly) stock return to obtain size-adjusted excess stock returns, named $AdjR_{year_{t+1}}$ and $AdjR_{month_{t+1}}$, respectively. In addition, when calculating stock return momentum, we scale it in the same way and obtain the size-adjusted annual stock return momentum $AdjMom_{year}$ and monthly stock return momentum $AdjMom_{month}$. Table 5 shows that R_{accBI} is still insignificant, whereas R_{othBI} is still significantly negative.

5.4.2. Deflating BTDs using average total assets

Following Lev and Nissim (2004) and Chi et al. (2014), we use book income to deflate the two types of temporary BTDs to ensure comparability. However, Sloan (1996), H. Xie

Table 5. Robustness test: using size-adjusted excess stock return.

	(1)	(2)
	A Long Window Stock Return Examination	A short Window Stock Return Examination
	$AdjR_year_{t+1}$	$AdjR_month_{t+1}$
R_othBI	-0.022** (0.04)	-0.002* (0.07)
R_accBI	0.018 (0.28)	0.001 (0.30)
Controls	Yes	Yes
Regression	Fama-Macbeth	Fama-Macbeth
Standard Errors	Newey-West	Newey-West
n (Years/Months)	5	60
N	565	7578
Avg. R^2	0.117	0.116

***, **, and * denote significance at the 1%, 5%, 10% levels, respectively; p value is reported in the parentheses.

(2001), and Hanlon (2005) all use average total assets to deflate the relevant variables. Therefore, in this section, we use average total assets to deflate the two types of temporary BTDs. Specifically, we divide AccBTD and OthBTD by average total assets to obtain $othAI$ and $accAI$, respectively. Furthermore, we convert $othAI$ and $accAI$ into quintile rank by year and industry, respectively, to obtain R_othAI and R_accAI , which we use to analyse the robustness of investor' pricing. Table 6 shows that the coefficient of R_othAI is significantly negative, whereas R_accAI is not significant.

5.4.3. Consider firms that also adjust accounting policy for depreciation of fixed assets

Some studies find that firms may adjust accounting policies in a manner consistent with accelerated depreciation method to establish 'cookie jar' due to the implementation of the policies (Chen, 2016). However, we do not believe this will have a serious impact on our conclusion. First, we manually collect the announcements of depreciation policies changes issued by all listed firms during the sample period (October 2014 to April 2020) and find that only six firms that adopt accelerated depreciation policies in accounting treatment because

Table 6. Robustness test: deflating BTDs using average total assets.

	(1)	(2)
	A Long Window Stock Return Examination	A short Window Stock Return Examination
	R_year_{t+1}	R_month_{t+1}
R_othAI	-0.029** (0.02)	-0.002*** (0.01)
R_accAI	0.026 (0.12)	0.001 (0.14)
Controls	Yes	Yes
Regression	Fama-Macbeth	Fama-Macbeth
Standard Errors	Newey-West	Newey-West
n (Years/Months)	5	60
N	566	7,590
Avg.- R^2	0.169	0.148

***, **, and * denote significance at the 1%, 5%, 10% levels, respectively; p value is reported in the parentheses.

of the implementation of the policies. Since the sample size is very small, it is less likely to have an important impact on our research. Second, according to the announcements on changes in depreciation policies issued by these firms and the studies of Chen (2016), we find that this part of firms does not generate the key variable, AccBTD, since those firms adopt accelerated depreciation policies in accounting treatment simultaneously, these observations are not included in our research. Third, because these firms are not included in our observations, it may lead to sample selection bias. Therefore, we add a test to include these firms in our observations. Specifically, we rerun the regression model by assigning a value of zero to AccBTD for these firms. Unreported results show no material change in our conclusion. Fourth, we manually search the sample firms and confirm that the firms that adjust accounting policies for the depreciation of fixed assets due to the policies are not in our sample. However, during the retrieval process, we also find that three firms have changed their depreciation method according to accounting standards and/or actual use of fixed assets. Furthermore, since these firms have changed the depreciation method by extending the depreciation period of some fixed assets and shortening the depreciation period of others, we believe that the nature of these three firms is significantly different from that of the firms studied by Chen (2016) in their motivation to use the policies to manipulate accounting earnings. However, to ensure the robustness of our conclusion, we rerun the regression model by removing these observations. Unreported results show that there is no substantial change in our conclusion.

5.5. A mechanistic examination of BTDs and future earnings growth

The previous analysis shows that AccBTD is informative and can predict future earnings growth. In this section, we further explore possible mechanisms. Specifically, we follow the hypothesis and analyse it from both positive and negative perspectives: on one hand, we test whether AccBTD contains information on fixed asset investment; on the other hand, we analyse whether AccBTD is unaffected by negative factors such as management's opportunistic motivation.

Given this, we construct the variable *Invest*, which is measured by the cash paid for the purchase of fixed assets, intangible assets and other long-term assets minus the net cash received from the disposal of fixed assets, intangible assets and other long-term assets and then divided by total assets. We take it as the dependent variable and the control variable remains unchanged. The results in Column (1) of Table 7 show that the coefficient of R_accBI is significantly positive, while the coefficient of R_othBI is not significant, indicating that AccBTD contains information about corporate investment, which can predict future earnings growth.

Furthermore, we construct the *absem* variable, which is used to measure the degree of earnings management. Since this part focuses on whether the firm is more likely to engage in earnings management, we take the absolute value of abnormal accruals (*EM*) calculated above as the dependent variable, and the control variables remain unchanged except for excluding earnings management (*EM*). The results in Column (2) of Table 7 show that the coefficient of R_accBI is not significant, whereas the coefficient of R_othBI is significantly positive, which indicates that AccBTD does not contain relevant information on accrual earnings management. In contrast, OthBTD is more likely to be influenced by management's opportunistic motivation, which is also consistent with prior findings.

Table 7. A mechanistic examination of BTDS and future earnings growth.

	(1)	(2)
	<i>Invest</i>	<i>absem</i>
<i>R_othBI</i>	0.001 (0.67)	0.003** (0.03)
<i>R_accBI</i>	0.007*** (0.00)	-0.000 (0.75)
Controls	Yes	Yes
Constant	-0.026 (0.67)	0.096* (0.07)
N	609	637
Adj. R ²	0.095	0.092
Year	Yes	Yes
Industry	Yes	Yes

***, **, and * denote significance at the 1%, 5%, 10% levels, respectively; *p* value is reported in the parentheses. standard errors clustered by firm.

5.6. Further analysis

The preceding analysis shows that investors correctly price AccBTD. However, it is possible that not all types of investors, or investors in all firms, will be able to properly price AccBTD. Given this, we conduct further analysis in this section.

5.6.1. The impact of active institutional investors

As an important participant in the capital market, institutional investors are more rational and professional than individual investors. Through professional information collection and analysis, institutional investors can more accurately value firms. However, the investment style of institutional investors is also affected by their own heterogeneity. For example, passive institutional investors (social security funds, pension funds, etc.) tend to invest in composite indices to obtain stable excess returns, while active institutional investors (stock funds, qualified foreign institutional investors, etc.) often resort to quantitative analysis, high-frequency trading and other means to filter stocks whose valuations deviate from fundamentals and gain excess return through arbitrage. Collins et al. (2003) finds that investors' mispricing of accruals can be significantly reduced only when the holdings of active institutional investors reach a certain threshold. Calluzzo et al. (2019) proves that active institutional investors have stronger motivation and ability to arbitrage through those anomalies. Since the investors' mispricing of BTDS found in our research is inherently a value divergence, we focus on the impact of active institutional investors.

Based on this, we construct a dummy variable for active institutional investors' shareholding levels and define stock funds, qualified foreign institutional investors and securities firms as active institutional investors. *D_Institution* equals one if the ratio of shares held by active institutional investors in the current year is greater than the median of the ratio in all firms in that year; otherwise, it is zero.

Table 8 reports that the coefficients of *R_accBI* are significantly positive, and the coefficients of *R_accBI*D_Institution* are significantly negative, both in the long-window and the short-window stock return test. This indicates that when the shareholding ratio of active institutional investors is low, investors tend to misprice AccBTD, which is manifested as underestimating AccBTD on future stock returns. However, when the ratio of

Table 8. The impact of active institutional investors.

	(1)	(2)
	A Long Window Stock Return Examination	A short Window Stock Return Examination
	R_year_{t+1}	R_month_{t+1}
R_othBI	-0.009 (0.40)	-0.001 (0.47)
R_accBI	0.046*** (0.01)	0.003** (0.02)
$D_Institution$	0.291*** (0.00)	0.019* (0.07)
$R_othBI*D_Institution$	-0.022 (0.16)	-0.001 (0.62)
$R_accBI*D_Institution$	-0.053** (0.01)	-0.004* (0.06)
Controls	Yes	Yes
Regression	Fama-Macbeth	Fama-Macbeth
Standard Errors	Newey-West	Newey-West
n (Years/Months)	5	60
N	563	7,554
Avg.-R ²	0.191	0.179
The sum of the coefficients: $R_accBI+R_accBI*D_Institution$	-0.007 (0.70)	-0.001 (0.65)

***, **, and * denote significance at the 1%, 5%, 10% levels, respectively; p value is reported in the parentheses.

active institutional investors' equity holdings is high, investors' underestimation of the impact of AccBTD on future stock returns will be significantly reduced. In fact, we test the sum of the coefficients of R_accBI and $R_accBI*D_Institution$ and find that the sum of the coefficients is not statistically significantly different from zero, implying that when institutional investor holdings are high, investors correctly price AccBTD. However, we find no evidence that active institutional investors can mitigate the mispricing of OthBTD, perhaps because even active institutional investors do not fully understand the complex information contained in OthBTD.

5.6.2. The impact of analyst following

With the continuous improvement of the capital market, analysts, as external information intermediaries, play an important role in delivering value-related information in a timely manner and reducing information asymmetry. Altinkılıç et al. (2016) reports that changes in analysts' recommendations are consistent with the long-term price trend, indicating that analysts have effectively identified the intrinsic value. Evidence in Ma et al. (2019) suggests that analyst reports contain information that is incrementally delivered to the market. We believe that if a firm has a large number of analysts following, more heterogeneous information and professional investment advice will be passed on to market participants through analysts, thus, helping investors reduce cognitive biases.

Given this, we construct the dummy variable for analyst following. If the amount of analyst following in the current year is greater than the median amount in all firms in that year, $D_analyst$ equals one; otherwise, it is zero. Table 9 shows that the coefficients of R_accBI are all positive, whereas the coefficients of $R_accBI*D_analyst$ are all significantly negative. The result demonstrates that investors still misprice AccBTD when the amount of analyst coverage is small, while investors' underestimation of the impact of AccBTD on

Table 9. The impact of analyst following.

	(1)	(2)
	A Long Window Stock Return Examination	A short Window Stock Return Examination
	$R_{year_{t+1}}$	$R_{month_{t+1}}$
R_{othBI}	-0.009 (0.70)	-0.002 (0.17)
R_{accBI}	0.045* (0.06)	0.003 (0.14)
$D_{analyst}$	0.259 (0.13)	0.014 (0.11)
$R_{othBI} * D_{analyst}$	-0.025 (0.37)	0.001 (0.75)
$R_{accBI} * D_{analyst}$	-0.053** (0.04)	-0.006* (0.10)
Controls	Yes	Yes
Regression	Fama-Macbeth	Fama-Macbeth
Standard Errors	Newey-West	Newey-West
n (Years/Months)	5	60
N	565	7,578
Avg.-R ²	0.197	0.180
The sum of the coefficients:		
$R_{accBI} + R_{accBI} * D_{analyst}$	-0.008 (0.76)	-0.003 (0.56)

***, **, and * denote significance at the 1%, 5%, 10% levels, respectively; *p* value is reported in the parentheses.

future stock returns will be significantly reduced when there is a larger amount of analyst coverage. Moreover, we test the sum of the coefficients of R_{accBI} and $R_{accBI} * D_{analyst}$ and find that the sum of the coefficients is not statistically significantly different from zero, which means that investors correctly price AccBTD when analyst coverage is high. However, we find no evidence that analysts can mitigate the mispricing of OthBTD.

6. Conclusions

In view of the fact that BTDs reflect management's opportunistic behaviour, numerous studies have investigated the relationship between BTDs and future earnings growth and investor pricing. However, existing studies either regard BTDs as a whole or roughly divide them into permanent BTDs and temporary BTDs, while there are very few studies focusing on the sources of BTDs, making them a 'black box'. In addition, there are not only alternative explanations but also econometric problems such as missing variables in the extant research. Therefore, we take the accelerated depreciation policies of fixed assets as an entry point to investigate the impact of BTDs from different sources on future earnings growth and investors' pricing.

The empirical results show that (1) OthBTD and AccBTD are both informative and can predict firm performance; (2) Stock return tests show that AccBTD is correctly priced, while OthBTD is mispriced, which is manifested as an overestimation of its impact on future stock returns; (3) When there are more active institutional investors or greater analyst following, investors are less likely to misprice AccBTD, but investors' mispricing of OthBTD is not alleviated. Our research shows that if investors can understand the source of BTDs through tax-related information disclosure, the degree of investor mispricing will be significantly alleviated.

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