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Research on accrued earnings and growth about future profitability in China

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ABSTRACT

After Sloan (1996) draws the idea that future earnings management is less persistent by using accrual method compared to the cash flow method, researchers keep tracking this issue within a decade. One group of argue rise accounting distortions as a main factor to explain the lower persistence of accrued earnings (Richardson et al. 2006; Wu and Fargher 2007; Dechow and Dichev 2002). The other people think this result is related to growth elements, such as return on assets (Fairfield et al. 2003). In this research paper, I follow the second stream to illustrate why it is less persistence by using accrual methods and the economic background is switched to the Chinese market. Empirically, I find both the growth on long-term net operating assets and accruals have negative coefficients with the one-year-ahead ROA. This showing result is partially due to accounting conservatism as well as the lower investment returns.

Key Words: Accruals; accruals anomaly; accounting distortions; growth on net operating assets; earnings and profitability.

JEL Classifications: G1, G12, G14

I. INTRODUCTION

The research path about accruals become much longer over the past 20 years. During the period, the wide literature investigates on a large range of questions, lots of papers talk about the statistical properties related to cash flows, accruals and profitability. Therefore, the issue of how people transform economic data into a periodic component of accruals or cash flow is caused by those variables (James 2014). Accrual is a crucial factor in measuring future profitability, but the accrual anomaly also exists in an unignored position that needs to be paid attention to. Some analysts think the earnings that reflected by accruals are not trustable, as they do not represent real cash. Also, some other accounting issues exist based on the relationship between accruals and future profitability. For example, why companies use accruals to measure earnings going forward? Do the positive or negative accruals data results reflect the potential and operating quality of firms? (Lewellen and Resutek 2018).

The Accrual basis of accounting is in conformity under Generally Accepted Accounting Principle (GAAP). The financial reports with the Securities and Exchange Commission (SEC) based on GAAP need to be filed by Publicly traded companies in the USA. When the amount of expenses and revenue are recognized as well as in which way the assets and liabilities sections are reported to the upper class or to the public, now the accrual basis method is showing different from the cash basis method. For many firms, there is a fiscal period to report the financial data, like a fiscal year in the middle or the end of a real year. Accrual basis of accounting mainly pay attention to two kinds of events happened in transaction. (Gnanarajah 2014). Firstly, an accrual is written in the debit and credit journal when a product has been sent or a service has been finished by a company, but the payment bill has not been received. On the contrary, as a buyer, accrual will be recorded when the product or the service has been received, but the payment term has not been made yet. The second point of the event, when a payment bill is received by a company before a product has

been sent or a service has been finished, under this circumstance, recording as a deferral will be a choice. Therefore, the accruals basis method is not perfect and complete to reflect a companies' cash flow even though accruals in accounting do provide accordant treatment and measurement of the business events for a firm. While using the accruals basis method, a separate report of cash flow situation need to be showed accompanied by the three sections in financial statements, which are balance sheet, income statement and statements of shareholders' equity for the investors and decision-makers to analyze properly (Gnanarajah 2014).

In accounting journals, the research about accruals is extensive and there are lots of papers in the accounting field related to accruals, as a keyword in the title, while those great journals just like the tip of an iceberg. It is not surprising that the accrual-based academic research is popular because accruals are one of the key factors for accountants to prepare financial statements. However, even though the researchers all focus on the same main topic, they try various ways to measure accruals (Larson, Sloan and Giedt 2017). A literature review confirms that there may have diverse methods to measure accruals, while most of the empirical researches misses the analysis about the structure of accrual and its interpretation (James 2014). He thinks that missing information makes it difficult to find if there are other alternatives to measure accruals. In this research paper, I am going to investigate accrued earnings and growth about the future profitability and the objection is to find whether accrual anomaly or less persistence of accrual component will influence the company's profitability. The main contribution of this paper is to explore this issue using Chinese listed companies' data.

Among Chinese firms, accruals also play an important role similarly like among U.S. firms (Kraft 2014). Because the economic environment in China is quite diverse and an accounting basis is complex, it is significant to set up a proper structure for Chinese

businesses to operate their accounting system. A paper examines the influence of ownership on the market price of accruals quality. They find that compared to state-owned firms, the market price influence of accruals quality is higher for non-state-owned enterprises in China and the results are still the same when they disintegrate accruals quality into discretionary accruals quality and innate (Wu et al 2017). Moreover, using the decomposition method, equity growth and explanatory power occupy 10% and 50% of accrual anomaly separately (Huang et al 2018). They find this results in the Chinese stock market, but they also say that it is not enough to explain accrual anomaly only using the indicators mentioned above. Thus, it is necessary to do more research under this topic using Chinese firms' data.

If there are two companies with the same profits, the one who has a higher proportion of accruals tends to receive fewer earnings return in the future (Zhang 2007). There are some connections between future profitability and accruals and the special link is significant for financial statement analysis, company evaluation and economy development in the long run. Sloan (1996) provides an important clue for us, which he calculates the accruals by using growth on working capital minus depreciation and amortization. It also represents the working capital accruals. In his research, the result shows the companies with higher accruals records get unmatched lower investment returns. He analyzes the reason for the showed-up result is because many investors have high profits expectations for accrual s, but it finally turns out the accruals component of earnings have lower persistence than cash flow component of earnings. Then, there are other two main streams talking about this issue and I put the expand explanation in the literature review section. One group thinks the accruals anomaly appear is because of accounting information distortion (Richardson et al. 2006; Wu and Fargher 2007; Dechow and Dichev 2002; Guo 2019;).

The second point of view is that accruals as a component of earnings have less persistent because of diminishing investment returns and conservatism accounting and

accruals anomaly may be a key attribution to the mispricing in the trading market, especially about the growth in net operating assets (Fairfield et al. 2003). To be specific, it is the link between working capital accruals and investment abnormal. Fairfield et al discover that the accruals component be mentioned in Sloan's paper refers to growth on net operating assets as well, not only for earnings or profitability. They interpret their results that the working capital accruals and growth on long-term operating assets have almost the same effect for future profitability, which is one-year-ahead ROA in their model. Besides, Wu et al (2010) and Fama and French (2006) provide another that accruals and investment will change together with proper and comprehensive variation in notable stock returns. Even though they emphasize different directions, the destination meets in the end. Under either description, they conclude that accrued earnings foresee stock returns and fluctuation is because accruals have a significant-close relation with investment.

Along with Fairfield's regression model, growth on net operating assets is made up of working capital accruals and growth on long-term net operating assets. Finally, the empirical result of this paper shows both accruals and growth on long-term net operating assets have similar negative coefficient to one-year-ahead return on assets by using data from Chinese listed companies financial statements, which is consistent with the previous logics: the higher accrued earnings and growth will predict lower future profitability. The negative relation between accruals and one-year-ahead return on assets is -0.003, while between growth on long-term net operating assets and one-year ahead return on assets is -0.004 and both the two coefficients are quite significant. I also find in the business market; the anomaly issue may overestimate the component of growth in net operating assets: working capital accruals expands to growth on long-term net operating assets. Besides, the r-square and adjusted r-square are more than 0.8, which means the model is well-established. In the next section, I will introduce the key streams of literature that pay efforts on the accruals and profitability

thesis.

II. LITERATURE REVIEW

Accounting information is useful because it provides valuable informant to outside investors, such as stockholders. While inside the company, using an accounting information system can fulfill three business functions, which are collecting and storing data, transforming data into information and providing adequate controls to safeguard the firm's assets (Romney and Steinbart 2018). With the accounting system development and improvement, accrual accounting has appeared as the accepted way of achieving this service (Richardson et al. 2006). The relation between the accrual component of profitability and cash flow component has been reflected in prior research, which implicates that accrual earnings are less profitable in the long-term (Sloan 1996). He concludes that even the cash accounting is less superior than accruals recording method, the accrual earnings should be put in a lower position in evaluating company growth and profitability. Sloan (1996) also says that some wrong investment decisions occurred because those investors do not understand accruals in a proper way. The cash-based operating future earnings perform better than measures of profitability that include accruals. Moreover, the cash-based method of accounting includes accruals in predicting average investment return" (Ray el at. 2016). They agree with the Sloan (1996), who proposes the negative cross-relation between accruals and returns. Researchers have identified that some detailed accruals such as working capital accruals (mentioned in below) take the largest responsibility for anomaly and the accruals anomaly issue and other economic (specifically in accounting) phenomena have been recognized as well (Collins et al 2003). Some investors try to obtain high positions in companies or organizations with low accruals as well as a lower position in firms with large accruals amount, but the investors' imagination does not happen finally. For the continuation of anomaly related to accruals basis in accounting, the anomaly not only exists but also the

size of it has not reduced over a long period of time (Lev and Nissim 2012).

Nevertheless, the other research provides a piece of new evidence find that contemporary accounting information distortions have a crucial influence on the lower persistence of the accrual earnings (Richardson et al. 2006; Wu and Fargher 2007). Moreover, they use analysis of SEC enforcement actions and extending Penman's (2001) model to deal with both temporary and permanent accounting information distortions. Similarly, this thesis is also mentioned by Dechow and Dichev (2002), who put forward the idea of accrual errors from both unintentional acts and intentional manipulation, which refers to macroscopically and microscopically (Guo 2019). Zhang (2007) also finds that the level of the accrual anomaly only increases with the investment information included in accruals, as measured by the co-variation between employee growth and accruals. On the contrary, he shows the evidence from the cross-sectional analysis which is inconsistent with the persistence argument. This is a severe problem risen by recent decades since the accounting information system computerized commonly. Especially in China, distorted accounting information impacts the overall information quality of public companies (Qin 2017; Wang 2008; Luo 2016). Luo thinks because the accounting information quality has efficiency and timeliness, it is significant to guarantee its authenticity within large and small enterprises.

Interestingly, some opposing voices also arise. For example, Sloan (1996) describes that when the succeeding stock price decrease associated with abnormally high levels of accruals record amount, the stock prices fluctuate as if those investors do not take part in. Nevertheless, a limitation of Sloan's study is that the relation between the stock prices and predictable profitability declines could be attributable to unknown potential risk factors or unidentified research design drawbacks" (Bradshaw et al 2001). Except for this paper, the other argument also mentions the drawback of Sloan's results. It is that the discovery belongs to more common growth and profitability effect, while the growth-related elements such as

reducing marginal returns to the next investment contributes to the lower persistence of accruals (Fairfield et al. 2003). They point out even though in the prior research, Sloan (1996) concludes the accrual component of profitability is less persistent than cash flow accounting, it is not enough to focus on future profitability. They propose that the cross-bonding of organization profitability and growth with the conservative prejudice in GAAP (generally accepted accounting principle) may lead to an inefficient consequence of the accrual component of earnings. Fairfield et al (2003) research on the firms' future profitability by separating it into growth in net operating assets in accruals level and growth in long-term net operating assets. The results they give are consistent with diminishing marginal returns on investments as well as the conservative accounting and accruals anomaly may be a key attribution to the mispricing in the business market, especially about the growth in net operating assets. In the meanwhile, another explanation tries to emphasize that accruals and investment will change together with proper and comprehensive variation in notable stock returns (Wu et al 2010; Fama and French 2006). Under either description, they conclude that accrued earnings foresee stock returns and fluctuation is because accruals have a significant-close relation with investment.

While I still find a third explanation about the accruals issue in product markets. They give the conclusion that high working capital accruals are going to predict lower future profitability of earnings and accruals may lead the future competition to go up (Lewellen and Resutek 2018).

After reading those articles, I gradually realize the importance of research on accrued earnings and future profitability using Chinese corporates data. I want to follow Fairfield et al (2003) idea to figure out the relations among growth in long-term net operating assets, growth in net operating assets of accruals, and the return on assets, whether their analysis is available under the economic background in China. Next, I will propose my hypothesis in

section II. Along with Sloan (1996) research, it is not clear to define the role of accruals and why it is less persistence. However, he contributes to the regression where he let the one-year-ahead ROA to be the future profitability (Fairfield et al. 2003). In addition, both the conservative accounting and diminishing marginal return theories indicate that companies invest more in net operating assets for certain years, they will undergo lower ROA for one-year-ahead compared to other companies. Therefore, instead of differing between current and long-term net operating asset growth, I would like to assume the opposition, which is my hypothesis:

H: Growth in long-term net operating assets and accruals may have negative relations with one-year-ahead ROA.

III. RESEARCH DESIGN

In the previous hypothesize, I presume the growth in long-term net operating assets and accruals, which are the two main parts of growth in net operating assets will have negative correlations with one-year-ahead ROA, when controlling the current ROA. Thus, consistent with Fairfield's (2003) modeling analysis, I am going to test my hypothesis by generating one regression model below. If the current profitability is determined in advance, the coefficient for GLTNOA (as β_1) should not have a large difference with the coefficient of ACC (as β_2) in this model.

$$\boldsymbol{ROA_{t+1} = \beta_0 + \beta_1 GLTNOA_t + \beta_2 ACC_t + \beta_3 ROA_t + e_{t+1}}$$

Where:

ROA= return on assets

ROA_{t+1}= one-year-ahead ROA

GLTNOA= growth on long-term operating assets

ACC= accruals

Basically, the sample I choose consists of companies' financial statements within 19 years from 1997 to 2016, which is the largest time range of Companies' financial statements. This sample range is different from prior researches of Sloan's (1996) and Fairfield's (2003) which use some firms' data of 30 years period.

During the research period, I realize it is difficult to estimate the accrual components and cash flow method directly for certain years. Following prior research design of Fairfield's (2003), they use an indirect approach which focuses on the connection between changes in accruals and working capital. I decide to try the similar way as it can control unnecessary variables and make the comparison more reliable.

The significant variables in the later regression analyses include accruals, cash flows, growth in net operating assets, growth in long-term net operating assets and current return on assets, and I am going to interpret each of them one by one. Return on assets is used to measure the efficiency of using the assets of a company. Except for some current assets like cash and inventory, there are long-term assets such as plant, machine, equipment, warehouses and buildings. It is better to have a higher return on assets ratio since it shows the company has a great ability to deal with the assets and make more net income, so it will attract more investors. Firstly, based on the research of Sloan (1996) and Fairfield (2003), I can define ROA as operating income divided by contemporaneous total assets on average:

$$ROA_t = \frac{OI}{AVG(TA_{t-1} + TA_t)}$$

Where:

OI= operating income

TA=total assets

Next, because of the indirect method, the accruals (ACC) can be defined as growth in operating working capital minus depreciation and amortization expense. Here, I add the operating cost and non-operating cost together then minus other kinds of expenses to get the depreciation and amortization data, which cannot be found in the CSMAR directly. In the targeted companies' financial statements, depreciation and amortization amounts are in cash flow (indirect method) section. So, the calculation of accruals (working capital accruals in specific) is:

$$ACC_t = GWC_t - DEPAM_t$$

And:

$$GWC_t = (\Delta AR_t + \Delta INV_t + \Delta OCA_t) - (\Delta AP_t + \Delta OCL_t)$$

Where:

GWC = growth in operating working capital

$DEPAM$ = depreciation and amortization expense

ΔAR = change in accounts receivable

ΔINV = change in inventories

ΔOCA = change in other current assets

ΔAP = change in accounts payable

ΔOCL = change in other current liabilities

In Fairfield et al. (2003) paper, they also calculate the variable of cash flows from operations, but I do not use this because the objective of this paper is to figure out the relationship between growth on long-term net operating assets, working capital accruals and one-year-ahead ROA based on the hypothesis. Then, I am going to compute the growth in net

operating assets and net operating assets in below. Indeed, in the prior research of Fairfield (2003), they also test cash flows and whether it is less correlated with companies' lower persistence than accruals. However, the test does not have a significant contribution to my hypothesis so I delete the last equation, which will not affect the overall:

$$GNOA_t = NOA_t - NOA_{t-1}$$

$$NOA_t = AR_t + INV_t + OCA_t + NCA_t + INTAN_t + OLTA_t - AP_t - OCL_t - OLTL_t$$

Where:

GNOA= growth on net operating assets

NCA= non-current assets

INTAN = net intangibles assets

OLTA = other long-term assets

OLTL= other long-term liabilities

The last variable needs to be defined is the growth on long-term net operating assets (GLTNOA) as follows, growth on long-term net operating assets is equal to growth on net operating assets minus working capital accruals. Assets can be divided into current assets and long-term assets (or non-current assets). The long-term assets mean that it needs to make profits for the company for more than one year and cannot have sale purpose while purchasing those assets (Schell 2018). He also says that under long-term operating assets, there are also two classifications: tangible assets and intangible assets.

$$GLTNOA_t = GNOA_t - ACC_t$$

Those direct variables will be downloaded from CSMAR and used to calculate the three main independent variables based on my expectation. In the next section, there will

have a specific interpretation about the regression results, including descriptive variables, correlations and coefficients.

IV. EMPIRICAL RESULTS

Sample Selection

I extract the financial statements' data from CSMAR (China Stock Market & Accounting Research), where provides users with data on returns of individual stocks and market return. All the useful variables can be found from the financial statements of China's listed companies. I decide to pick data size from 1997 to 2016, which is the largest range under all useful variables provided by CSMAR. However, there are some industries do not have data in 1997, I have to sharp the range, using the year 1998 as the start point and 19 years in all. Moreover, I have not chosen certain special industries in China as a sample, because I think to observe the statistic results of diverse industries can make my research more reliable. First, I calculate the main independent variables, such as return on assets (ROA), accruals (ACC), and growth in operating working capital (GLTNOA). For the selection data, I drop the sample firms' partial information with inadequate profitability data, zero and missing value as outliers. I find the independent variables are too small to show completely in the output result tables. Thus, I use the natural logarithm formula to scale the variables such as growth on long-term net operating assets and working capital accruals. Because there are lots of missing value exists in 1998 and 2016, these two years are dropped automatically. Overall, I finally obtain 10,307 observations as a sample database.

Empirical Results

Table 1 provides data description on the dependent variable: one-year-ahead ROA, control variable: current ROA, two independent variables: accruals and growth on long-term operating assets and other calculation variables like depreciation and amortization, growth on net assets and growth on working capital.

Table 1: Descriptive Statistics

Variable	Obs	Mean	Std.Dev.	Min	Max
ROA2	10307	.353	.333	0	6.186
GLTNOA	10307	18.91	1.684	7.937	25.494
ACC	10307	18.388	1.787	9.852	26.516
ROA	10307	.363	.336	0	6.186
DEPAM	10301	17.438	1.319	7.739	23.166
GNOA	10307	19.685	1.423	10.466	26.695
GWC	10306	18.973	1.404	11.422	26.519

NOTE: Obs stands for the total number of records. Mean stands for arithmetic mean. Std.Dev. stands for standard deviation. Min and Max stand for minimum value and maximum value, respectively. Variables are defined in Appendix.

Here, the mean number of accruals is positive (18.388). This result is consistent with Fairfield et al. (2003) paper that leads to a positive accrual result (11.4 percent) but differ with prior studies (Sloan, 1996). Moreover, the growth on net operating assets is equal to growth on working capital minus depreciation and amortization then plus growth on long-term net operating assets, and they all have positive mean value, the mean value of growth on long-term net operating assets is 18.91. Besides, the results of return on assets (ROA) and one-year-ahead of ROA (ROA2) are similar. Both the mean value of ROA and ROA2 are around 0.3 and the two minimum amounts are 0. The table also shows that the long-term net operating assets are growing more than four times faster than working capital. Nevertheless, the previous study points out these results have not considered the effects of counting long-term net operating assets will lead to a separated relation between the cash flow method and the accrual method using for companies' future profitability (Fairfield et al, 2003). In addition, because the amount of public companies is increasing year after year, the percentage of basing data also goes up.

Table 2: Matrix of Correlations

VARIABLES	(1) ROA2	(2) GLTNOA	(3) ACC	(4) ROA
(1) ROA2	1.000			
(2) GLTNOA	0.010***	1.000		
(3) ACC	0.027***	0.421**	1.000	
(4) ROA	0.936***	0.046***	0.061**	1.000

NOTE: Significance: "" stands for p<0.10, "**" stands for p<0.05, "***" stands for p<0,01.*

Table 2 indicates the correlations among different variables. The growth in long term operating assets and working capital accruals have a correlation with one-year-ahead ROA (ROA2), which are 0.01 and 0.027 separately. For ROA, it has a significantly positive correlation with ROA2 (0.936), but the correlation of ROA1 with the other two independent variables is not strong, 0.046 for growth on long-term net operating assets and 0.061 for accruals. In the meanwhile, the correlation between working capital accruals and growth on long-term net operating assets is quite significant as well, it is 0.421. Therefore, the correlation results show that the control variable ROA will affect the independent variable ROA2 the most, also, the two dependent variables: accruals and growth on long-term net operating assets are going to interact on each other.

Table 3: Regression Results

VARIABLES	(1) ROA2
GLTNOA	-0.004***
	(0.001)
ACC	-0.003***
	(0.001)
ROA	0.927***
	(0.017)
constant	0.891***
	(0.029)
Observations	10307
R-squared	0.881
Year FE	YES
Industry FE	NO
Adj. R-sq.	0.881

Standard errors are in parenthesis
*** *p<0.01*, ** *p<0.05*, * *p<0.1*

My hypothesis is Growth in long-term net operating assets and accruals may have negative relations with one-year-ahead ROA (the same as ROA2 in below), here in table 3, I find a significant negative coefficient on accruals (-0.003) and growth in long-term net operating assets (-0.004) after controlling the current ROA. The total observations are 10307 and the constant (or intercept) is 0.891. Also, β1 which represents the coefficient on growth in long-term net operating assets and β2 which is the coefficient on assets are similar. Moreover, I add the yearly effect in the regression model as dummy variables rather than industry effects. However, looking into the previous journal, they also use parameter tests to define a specific time range when the β1 does not significantly differ from β2 (Fairfield et al, 2003). Moreover, the r-squared and adjusted r-squared of my model is 0.88, which is quite high and means the variances are explained fully enough, and they are overall fit this model as expected.

V. CONCLUSION

Following Fairfield et al. (2003) idea, I figure out the relations among growth in long-term net operating assets, growth in net operating assets of accruals, and the return on assets, whether their analysis is available under the economic background in China. As mentioned before, even if Sloan (1996) contributes to the regression where he let the one-year-ahead ROA to be the future profitability, he does not define the role of accruals and why it is less persistence clearly to the readers (Fairfield et al. 2003). Thus, accounting to Fairfield et al. (2003), both the conservative accounting and diminishing marginal return theories indicate that companies invest more in net operating assets for certain years, they will undergo lower ROA for one-year-ahead compared to other companies. For future earnings and profitability, the growth on net operating assets has both positive and negative influences on it. Under evaluation, the future profitability (as the one-year-ahead ROA here) can be considered as an average of growth on net operating assets and current earnings, with the weights is conditional on the persistence of current net income (Li 2013). Even though plenty of researches in previous conclude a negative relation between growth on net operating assets, current earnings and future profitability. Li (2013) explores more and the empirical result of her paper find that the relation between growth on net operating assets and future profitability is not absolute and overall covered. She divided the time period into two parts, and the first sample period: from 1967 to 1988 shows a negative coefficient, then the result turns to positive after the mid-1990s. That means, the regression coefficient between growth on net operating assets and future profitability is fluctuating. For conservatism accounting which has both conditional and unconditional conservatism, it is going to affect the profitability of sales and purchases (Khalilov and Osma 2018).

Overall, the empirical result shows consistency with my hypothesis, which is both accruals and growth on long-term net operating assets have similar negative coefficient to

one-year-ahead ROA (ROA2). Also, the two components are included in growth on net operating assets, which means that the growth on net operating assets has a negative relation with ROA2. Previous researches conclude that the reason why accrual method has lower persistence is because the accounting conservatism stereotype exists and companies get fewer marginal returns when they invest in new opportunities which leads to undesirable economic profits (Fairfield et al, 2003). I think the regression results contribute on proving the less persistence of accruals which play an important role in testing future earnings and profitability, under the Chinese market circumstance.

The accruals anomaly stands for the inefficiency of the whole market to some degree, and people expect that knowledgeable investors can notice it and get away from the anomaly. However, it is not easy because the accruals anomaly still exists and even become more severe. Lev and Nissim (2012) find that some attributable institutional experts and investors have recognized and investigated the anomaly issue for years, yet the size of accruals-based transactions are rather small. They interpret this situation occurring is because a plenty of institutions keep away from extreme firms using accruals basis method who always attribute low future profitability, high investment risk and small size. It is the same as individual investors, which is almost impossible to get profit from using accruals information to do business transactions because of the unaffordable or unbalanced trading costs related to operating a long-term profitable accruals strategy plan.

When I prepare for this thesis, I come across several difficulties. First, the main independent variables cannot be found directly from CSMAR so that I need to use formulas to calculate them first. Also, some variables name in the regression model is not as same as the name showed in CSMAR (some descriptions of the accounting terms are different between China and the other countries), which is quite confused when I choose and download the useful data. Nevertheless, the prior research I followed is published in 2003, which is 16

years ago. The model may not satisfy the needs of companies established in recent years, because the economic background has changed a lot. In addition, I use all the Chinese listed companies' data from their financial statements, but as we know the basic economic structure or developing model is different with western countries, such as the United States, the British, Australia and Canada. Even if I have not expected the same result when I draw the hypothesis because of the various economic model, the empirical result gives a similar conclusion with previous researches, which means, the perspectives start from 2003 or even before which is related with working capital accruals, growth on long-term net operating assets and one-year-ahead ROA is reasonable and suitable for a long period developing research.

There are two main limitations that can be noticed and improved later. First of all, I have not selected a meaningful and specific time range to do research as the time selection rarely be mentioned in the prior papers and I do not figure out the relation between certain time periods in China and accruals' power to measure future profitability, either. In the previous researches, they choose a 30-year sample period from 1964 to 1996 (Sloan 1996; Fairfield et al 2003). Fairfield et al (2003) select the same time range with Sloan (1996) to ensure the replication of his research design, because they want to prove the accrual anomaly talked about in Sloan (1996) may be one aspect of a more general anomaly issue so the market mispricing growth in net operating assets. The second limitation is the industry effect has not been added during the regression test, which should be considered as a dummy variable. The various industries in China may lead to different empirical results.

In the end, for future researches, it is better to overcome those drawbacks: considering the industry effect and set a meaningful specific time range, then move forward to do deeper exploration about this accounting issue. There are some good directions to investigate: how to optimize the accrual method in accounting information system, improve persistence for future earnings management and diminish accounting information distortions. Additionally,

following Fairfield et al (2003)'s suggestion, researchers can also try to figure out the difference between earnings management and business investment related to balance sheet growth.

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APPPENDIX

Variables:

ROA_{t+1}	One-year-ahead return on assets, defined as operating income after depreciation and amortization at time t+1 divided by average total assets at time t+1;
ROA	Return on assets, defined as operating income after depreciation and amortization at time t divided by average total assets at time t;
ACC	Accruals, defined as the change in current operating assets minus the change in current operating liabilities (exclusive of tax liabilities) minus depreciation and amortization expense, divided by average total assets;
GNOA	Growth on net operating assets, where working capital is defined as current operating assets minus current operating liabilities, divided by average total assets;
GWC	Growth on working capital, where working capital is defined as current operating assets minus current operating liabilities, divided by average total assets;
DEPAM	Depreciation and amortization expense (shown as a negative value), divided by average total assets
GLTNOA	Growth on long-term net operating assets, calculated by growth on net operating assets minus working capital accruals;