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**The relationship between earnings quality and the cost of equity in China**

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# **The Relationship Between Earnings Quality and the Cost of Equity in China**

## **ABSTRACT**

This paper examines the relationship between earnings quality and the cost of equity in China under China's accounting system based on 2757 public firms from 1999 to 2015. Accruals quality and earnings persistence are two primary attributes of earnings quality to test the relationship. By following Dechow and Dechow's (2002) model, my findings show that accruals quality is negatively correlated with the cost of equity, and earnings persistence is positively correlated with the cost of equity. Besides, my results also indicate a stronger impact of accruals quality on the cost of equity compared to persistence. Therefore, earnings quality is negatively correlated with the cost of equity. Earnings-increasing discretionary accruals have a significant positive impact on the cost of equity, which shows a higher return to investors when firms adopt opportunistic earnings management. However, informative management leads to less cost of equity compared to opportunistic management.

**Keywords:** cost of equity; earnings persistence; earnings quality; accruals quality; opportunistic earnings management; informative earnings management.

**JEL Classification:** G31, M41.

## I. INTRODUCTION

This paper examines the relationship between earnings quality and the cost of equity in China. To better understand how accounting information influences investors' returns and decisions, it is crucial to know how the firms' earnings quality impacts the way investors allocate their resources and make investment decisions because the earning quality discloses important information of firms to the investor. According to Francis et al. (2004), they use the cost of equity on behalf of investors' decisions. The indicators of earnings quality are accruals quality and persistence, which are frequently applied in previous relevant studies. The purpose of this relationship examination is also to figure out whether and how these two earnings quality proxies influence the cost of equity and return to investors. As many empirical researches have been conducted in the US and UK, this study mainly focuses on the relation test based on Chinese data from 1999 to 2015.

Earnings quality is the core problem of accounting supervision and accounting theory research, since it reflects firms' financial conditions and accounting information quality. Good earnings quality helps firms to increase market shares, as well as shows a more stable and less risky image to the public. The accounting system in China has reformed several times, which dramatically improves the quality of accounting information. Chinese business accounting standards are becoming more and more similar to IFR in order to be consistent with international accounting standards, but cultural, economic, and environmental factors still keep these two accounting systems different (Liu & Zhang, 2010). It is exciting and necessary to test this relation in Chinese settings and compare the results with UK settings since there are many similarities between Chinese and UK's accounting system. Based on UK and US data, the negative relationship between earnings quality and cost of equity has been confirmed (Eliwa et al., 2016). Whether the same result will show or different results will be discovered in this paper is worth expectation.

Many previous studies only focus on accruals quality as the sole proxy of earnings quality (Gray et al., 2009). However, the results' reliability and generality can be questionable due to the lack of a multidimensional measure of accruals quality. Analyzing earnings quality from different dimensions with multiple proxies can help investors and managers to know which exact earnings quality proxy they should pay attention to during the investment and pricing process. It is more useful and valuable in terms of analyzing investing decisions for investors. In terms of firms, managers can analyze firms' financial status through various angles of earnings and evaluate whether the cost of equity meets and lives up to their expectations. According to the current earnings and the cost of equity, managers often manipulate earnings through opportunistic and informative earnings management. Opportunistic management inflates firms' earnings and attracts more investors who expect a higher return, but informative management decreases firms' earnings to avoid a large amount of tax.

Through analyzing 2757 Chinese public firms from 1999 to 2015, my final results present that earnings quality has a negative relationship with the cost of equity. To be specific, the coefficient of AQ1 is positive, with a value of 0.056. I comply with the Dechow and Dechow Model (2002), which is the modified and revised Jones Model to determine the quality of accruals. AQ1 represents the absolute value of residuals after the calculation from the DD Model. The meaning of residuals is the same as discretionary accruals or abnormal accruals, representing the amount of asset or liability, which is recorded but has not been realized. If the value of AQ1 is large, it will cause the accruals quality to be lower, leading to lower earnings quality. Because of the positive correlation between AQ1 and the cost of equity, the relationship between accruals quality and cost of equity is negative. Thus, bad or low quality of earnings cannot provide accurate information but increase the information risk to investors, leading to the high cost of equity, which is corresponding to the outcomes of Lambert et al.

(2012). For persistence, both mean and median values of persistence are very close to 1, indicating high earnings persistence. Earnings persistence shows how stable a firm's economic performance in the future based on current conditions. The high persistence through overall Chinese firms indicates good earnings quality of firms in the Chinese market. The results also show a positive coefficient of persistence and a positive correlation between persistence and the cost of equity, whereas the impact of persistence on the cost of equity is not significant. Overall, based on the stronger and more considerable impact of accruals quality (includes AQ1, AQ2, and AQ3) on the cost of equity than that of persistence, there is a negative relationship between the earnings quality and the cost of equity.

Besides, I also separate positive residuals (earnings-increasing accruals) and negative residuals (earnings-decreasing accruals) to examine the relationship. AQ2 (positive residuals) is earnings-increasing discretionary accruals, and AQ3 (negative residuals) is earnings-decreasing discretionary accruals. The result shows a significant positive relationship between AQ2 and the cost of equity. Thus, as one way of opportunistic earnings management, overstating accounting earnings allows investors to evaluate firm value better and get higher earnings return from investment (Sayari et al., 2013; Gul et al., 2003). However, the hidden purpose of opportunistic management is inducing investors and shareholders to believe the sound financial condition of firms by modifying and revising financial reports, which increases the risk firms need to take. According to Feng, Fonseka, and Tian (2017), their research results reveal a positive impact of the risk taken by firms on opportunistic earnings management. Besides, Information transparency is lower in companies where managers are confident and aggressive in managing business affairs. The market treats earnings decreasing discretionary accruals as informative earnings management, which is used by firms to smooth or decrease their earnings (Gul et al., 2003). Whereas, informative earnings management discloses relatively real, adequate, and hidden messages to investors. My findings show an insignificant

positive relation between AQ3 and the cost of equity, indicating the fact that investors are not in favor of or benefited a lot from the informative earnings management. However, the empirical study done by Lin and Liu (2016), suggests that informative earnings management is one approach of good corporate governance that can benefit the information transparency of firms.

A particular contribution of this study is that I test the relationship using multiple proxies of earnings quality based on Chinese data because there are few types of research about this topic in China. Although the Chinese accounting system resembles IFR, the result is not entirely the same. In my study, the positive relationship between persistence and cost of equity in this study is on the way around results in Eliwa et al.'s research. Another contribution is that I connect earnings management with the cost of equity, rather than stopping at finding the targeted relationship, I extend the analysis of relationship by sorting all discretionary accruals into earnings-increasing accruals and earnings-decreasing accruals, to explore how earnings management influences the cost of equity.

The rest of the study discusses the following parts: Section II introduces a literature review on earnings quality, the cost of equity, and the associations between them. According to the findings of prior work and personal focuses, there is a hypothesis development followed. Section III accounts for the research methodology that I follow. Section IV shows descriptive outcomes and empirical tests. Section V is the conclusion of this study.

## **II. LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT**

Earnings quality is the core of accounting regulations and financial reporting systems because it is related to the interest of lots of participants involved in the accounting and reporting process (Francis et al., 2006). Also, earnings quality can evaluate how firms perform during a period and how changes influence countries' accounting standards and financial

statements (Penman et al.,1999). From a financial analysis perspective, Penman et al. (1999), Dechow and Dechow (1994) all define the term "quality of earnings" as reported or sustainable earnings. If the earnings quality suggests good future earnings and increases the intrinsic value of the company, it can indicate earnings of high quality.

In Francis et al.'s (2006) analysis, earnings quality is influenced by two types of factors, which are innate and reporting (discretionary) sources or determinants. Innate determinants of earnings quality are on account of business models and operating environments. Reporting determinants contain management decisions, the quality of information systems, monitoring activities, governance activities, regulations, and reporting standards. Ewert and Wagenhofer (2013) measure earnings quality by using the equilibrium information from reported earnings. Earnings quality can be influenced by accruals, private nonfinancial information, operating risks, earnings management, as well as how precise the base earnings are. The reporting sources (discretionary) component of accruals quality is relevant to the deliberate behavior related to the managers' manipulation of earnings and profits. The innate component discloses the internal errors of firms caused by unintentional mistakes and external risks and the environment (Kent et al., 2010). Though both innate and reporting components affect the cost of equity, the innate component plays the leading role in determine accruals quality. (Eliwa et al., 2016). Francis et al.'s study (2008) shows documented evidence that good earnings quality is associated with more voluntary disclosure about the firms' accounting information and financial status. More voluntary disclosure leads to less cost of equity. Whereas, if earnings quality is regarded as an added variable to test the association between disclosure and the cost of equity, the effect of disclosure nearly disappears (Francis et al., 2008).

The cost of equity indicates the compensation and return to investors who take the risk of investment. Based on Ben-Nasr et al. (2014), firms that have a high cost of equity tend to have more or more substantial abnormal accruals. Moreover, less transparent earnings can also

lead to a relatively high cost of equity. Instead, companies with more independent audit committees result in a low cost of equity (Skaife, Collins & LaFond, 2004). Meanwhile, Hail and Leuz (2005) examine the function of the cost of equity in many countries, showing that the cost of equity capital is not only related with income and profits but also the degree of disclosure, securities regulations as well as enforcement mechanisms. Excellent and effective legal systems can protect outside investors, which increases the probability of raising external financing and increasing investment from investors.

Lambert et al. (2007) illustrate that the cost of equity is affected both directly and indirectly by accounting information. Accounting information quality is related to disclosure quality, which directly impacts the cash flow of firms, and indirectly impacts firms' decision-making process. Better information quality is bound to result in less cost of equity. Easley and Hara (2001) study the extent to which the role of information impacts the cost of equity capital. Asymmetry information arises from reporting inconsistent information to the public and internal company. Because informed investors hold more detailed and private information than uninformed investors, informed investors can get a higher return because they have more detailed and private information, while uninformed investors are at a disadvantage who master little information and face lower rates of return. Botosan and Plumlee (2000)'s study discusses how the information disclosure level of firms produces an effect on equity cost, and the result shows that a higher disclosure level or causing lower equity cost, since the higher disclosure level of information increases the transparency of the information which decreases the information risk.

The association between earnings quality and the cost of capital is essential because it provides crucial accounting information for investment decisions (Eliwa, et al., 2016). Information asymmetry brings information risk to firms, so it stimulates firms who want to improve information quality to use this relationship and do analysis (Easley & Hara, 2004).

This relationship is discussed in many empirical research papers based on different accounting principles. Empirical evidence provided by Francis et al.'s (2004) study is based on US data and US GAAP, and Eliwa et al. (2016) are based on UK data and IFRS. Many researches choose accrual quality as the only proxy to determine and measure earnings quality. Under accrual accounting, accruals play an essential role in assessing the company's performance and as well as earnings information quality, which can better reflect the economic condition of enterprises than cash flow (Dechow & Dechow, 1994). Therefore, accrual quality is a part of the critical measuring proxies of earnings quality. Penman (1999) illustrates that the measurement of accrual quality usually takes cash flow as a reference. The better the match between accrual items and cash flow, the higher the accrual quality. Good accrual quality can show the economic condition of firms and whether firms choose correct and appropriate accounting policies and standards. Richardson et al.'s results (2001) reveal that measuring earnings quality by using accruals is intuitive and robust. Also, the determined factors of the information in accruals related to earnings quality contain both current and non-current information.

However, Francis et al. (2004) choose multiple as well as diverse proxies of earnings quality to test the relationship. These multiple proxies involve accruals quality, earnings smoothness, predictability, persistence, timeliness, value relevance, and conservatism. They categorize accruals quality, earnings smoothness, predictability, and persistence into accounting-based attributes, and the rest are classified as market-based (Francis et al., 2004). They examine how each proxy affects the cost of equity as well as the correlations among them. Besides, to analyze this relationship, Francis et al. use two ways, which are the cross-sectional method and time-series method, to measure the cost of equity. Their findings indicate that accounting-based attributes are more influential than market-based attributes, among which accruals quality is the primary proxy of earnings quality. In addition, firms that have the highest

value among each attribute tend to have a lower cost of capital. Except for earnings predictability and conservatism, all other proxies reflect the significant relationship with the cost of equity. In the research done by Eliwa et al., each accounting-based earnings quality proxy has a negative correlation with the cost of equity. Besides, they also conclude that specific economic events can strengthen or weaken the relationship. Through the economic crisis, earnings quality is more sensitive to investors and makes a more significant and more profound impact on the cost of equity. Gray et al. (2009), who test the relation equity under the institutional environment of Australia, also present the same results that with the accruals quality becoming high, the cost of equity is declining.

This study focuses on examining the relationship between earnings quality and cost of equity-based on China's accounting standard, while many previous studies use data from the US, UK, and Australia. Prior work done by Francis et al. (2004), Gray et al. (2009), and Eliwa et al. (2016) all show an inverse relationship between each proxy of earnings quality and the cost of equity. While they test under different settings, they get very similar results. It is worthwhile to examine this relationship in China and see how the different accounting standards work in this relationship establishment. Therefore, my hypothesis is as follows:

H: There is a negative relationship between earnings quality and the cost of equity.

### **III. RESEARCH METHODOLOGY**

#### **Model Establishment**

The study aims at discussing the relationship between the cost of equity and earnings quality and how each proxy of earnings quality impacts the cost of equity, where the dependent variable is the cost of equity, and the independent variable is earnings quality. Other variables that describe firms' features should also be contained as control variables. Therefore, based on the study conducted by Fama and MacBeth (1973), the relationship between the cost of equity

and each earnings quality proxies as well as relevant financial control variables for each year t is examined using the following Model:

$$\text{Cost} = \gamma_0 + \gamma_1 \text{Size}_{c,t} + \gamma_2 \text{Growth}_{c,t} + \gamma_3 \text{Leverage}_{c,t} + \gamma_4 \text{EQProxy}^k_{c,t} + \gamma_5 \text{Industrydummies} + \gamma_6 \text{Yeardummies} + \delta_{c,t} \quad \text{Model (1)}$$

Where:

$\text{Size}_{c,t}$  is the log of total assets of the firm c in year t.

$\text{Growth}_{c,t}$  is the log of one plus the firm c's growth in book value of equity.

$\text{Leverage}_{c,t}$  is a firm c's interest-bearing debt deflated by total assets in year t.

$\text{EQProxy}^k_{c,t}$  represents each proxy of earnings quality.  $K \in \{\text{Accruals Quality, Persistence}\}$ .

Industry dummies and year dummies are two typical dummies to make the analysis more precise.

### **Earnings Quality Proxies**

In this study, I focus on two earnings quality proxies, which are accruals quality and earnings persistence. The reason for choosing these two proxies as the primary measurement of earning quality is that they illustrate and explain earnings quality from different angles, which can demonstrate earnings quality comprehensively. The accrual quality proxy can be used to test the association between reported earnings and cash flow. This is the key to investors' interest in terms of the return they can get (Francis et al., 2004). The smaller the difference between earnings and cash flow, the higher the earnings quality (Lyimo, 2014). Earnings persistence describes the stability of earnings and is shown as the link to information risk. The higher stability of earnings indicates a higher quality of earnings (Richardson et al., 2001).

## Accruals Quality

The quality of accounting information exposing firms' financial situation is critical to stakeholders. Accruals quality is one important dimension, especially discretionary accruals. A large number of prior studies have invented and discovered many measures of accruals quality to analyze the causes and effects accruals quality, but only few of them is valid and effectively represent accruals quality because most measures neglect some issues with economic features (Nezlobin et al.,2019). Dechow and Dichev Model (2002) is frequently used when measuring the quality of accruals and earnings. Dechow & Dichev (2002) mention Accrual quality is used to show how the changes in the operating liquidity available to a business reflect in operating cash flow realizations, where a larger difference or mismatch indicates low quality of accruals. Given the original Jones Model, Dechow and Dichev (2002) add cash flow from last year, future cash flow, and current cash flow to the Jones Model. In my study, I follow this modified Jones Model to calculate the accruals quality which is measured as follows:

$$\frac{TAc,t}{ASSETS_{c,t-1}} = \beta_{0,c} + \beta_{1,c} \frac{CFO_{c,t-1}}{ASSETS_{c,t-1}} + \beta_{2,c} \frac{CFO_{c,t}}{ASSETS_{c,t-1}} + \beta_{3,c} \frac{CFO_{c,t+1}}{ASSETS_{c,t-1}} + \beta_{4,c} \frac{\Delta REV_{c,t}}{ASSETS_{c,t-1}} + \beta_{5,c} \frac{PPE_{c,t}}{ASSETS_{c,t-1}} + V_{c,t} \quad \text{Model(2)}$$

Where:

TAc.t. means total current accruals in year t.

TAc.t. =  $\Delta CA_{c,t} - \Delta CL_{c,t} - \Delta Cash_{c,t} + \Delta STDEBT_{c,t}$ .

Assets<sub>c,t-1</sub>. = total assets of firm c in year t-1.

CFO<sub>c,t</sub>=operating cash flow of firm c in year t.

$\Delta CA_{c,t}$  = change in current assets of firm c between year t-1 and year t.

$\Delta CL_{c,t}$  = change in current liabilities of firm c between year t-1 and year t.

$\Delta Cash_{c,t}$  = change in cash of firm c between year t-1 and year t.

$\Delta STDEBT_{Ac,t}$  = change in debt in current liabilities of firm c between year t-1 and year t.

$\Delta Rev_{c,t}$  = change in revenues of firm c between year t-1 and year t.

$PPE_{c,t}$  = Total non-current assets of firm c in year t.

Previous studies show that accruals quality is determined by calculating the standard error of the residuals after running the regression using the DD model. Larger the value of the standard error of abnormal residuals shows worse accruals quality. There is another measurement using the absolute value of residuals according to quality (Ben-Nasr et al., 2015). I follow the latter to measure accruals quality.  $V_{c,t}$  is the residuals in Model 1, where the higher value of  $|V_{c,t}|$  illustrates the lower accruals quality as well as lower earnings quality. In addition, Dechow and Dichev (2002) research also regard the residual as discretionary accruals.

However, McNichols (2002) and Wysocki (2009) question the accuracy of the absolute variation of residuals because the change of the absolute value of residuals can be mechanically operated or induced. According to Gul et al. (2003), The incentives for earnings-increasing and earnings-decreasing discretionary accruals are disparate. Positive discretionary accruals ( $|V_{c,t}|$ ) mean earning increasing, and negative discretionary accruals ( $|V_{c,t}|$ ) represent earning decreasing. Negative residuals do not have to be harmful since it can be an approach of cash smoothing, which improves earnings quality (Wysocki, 2009). Therefore, I run the regression of absolute, positive, and negative value residuals to consider the relationship.

### **Earnings Persistence**

Earnings persistence measures how stable and durable the current earnings are. The higher persistent earnings show higher earnings quality (Lipe, 1990). Persistence is defined as

the current value of an estimated variation in future profits on account of the unpredictable benefit in the current situation. (Miller & Rock,1985). Persistent level directly connects to accounting revenue or profit, which is considered as a crucial role when investors assess the performance of firms. Accruals and cash flow components determine earnings persistence. Accruals components evaluation is more likely to occur mistakes and errors compared to cash components (Sloan et al., 2005). Sloan et al. (2005) confirm the result that one reason for causing lower earnings persistence is unreliable accruals, which is beyond expectation and could mislead investors and induce them to make wrong decisions with great loss. Therefore, unreliable accruals tend to result in high cost.

The measurement of Earnings persistence is calculating the coefficient of the linear regression, which reflects the effect of present revenue on previous revenue (Francis et al., 2004; Richardson et al., 2005). Thus, follow prior research (Eliwa et al., 2016), earnings persistence is calculated as follows:

$$\text{Earn}_{c,t} = \alpha_{0,c} + \alpha_{1,c} * \text{Earn}_{c,t-1} + V_{c,t} \text{ Model (3)}$$

Where:

$\text{Earn}_{c,t}$  = net income of firm c in year t.

$\text{Earn}_{c,t-1}$  = net income of firm c in year t-1.

$\alpha_{1,c}$  is used to measure the persistence of firm c. The closer the value of  $\alpha_{1,c}$  to 1, the more stable earnings persistence, corresponding to better earnings quality.

### **The Cost of Equity**

In prior researches, the cost of equity is widely determined by applying the inverse price-earnings ratio (Francis et al., 2004; Eliwa et al., 2016; Gray et al., 2009). Compared to

the implied cost of equity, which requires forecasts and predictions for the restricted and limited sample size, the strength or superiority of making use of the earnings-price ratio is the feasibility in working with a large dataset (Eliwa et al., 2016). The sample size in this study is large because all Chinese firms, except financial firms, are included. Thus, the earnings price ratio is a better fit and is deemed to be the primary proxy to represent the cost of equity capital. P/E ratio is calculated by dividing a firm's current share price to its earnings per share. Meanwhile, the P/E ratio is widely used when evaluating firms' market value and performance. Good quality of earnings tends to reveal better firms' conditions with a higher price-earnings ratio (Eliwa et al., 2016).

### **Control Variables**

Apart from accruals quality and persistence, other control variables that are financially relevant should also be considered. Prior literature provided by Francis et al. (2005) and Gray et al. (2009) mainly control four variables, which are beta, firm size, leverage, and growth. This study uses firms' size, growth, and leverage as the variables indicating characteristics of firms. The total assets of firms measure firm size, growth is based on the percentage change in equity, and leverage is the debt to asset ratio. In order to improve accuracy, year and industrial dummy variables are also included, which is a part of the robustness test.

## **IV. EMPIRICAL RESULTS**

### **Sample Selection and Data Source**

The sample covers Chinese public nonfinancial firms between 1990 and 2016, due to the particularity of financial firms. The data is derived and downloaded from CSMAR, the Chinese financial database developed by Hong Kong Polytechnic University and Shenzhen guotai 'an information technology company. In order to make less bias, some data from earlier

years are excluded because there are little data and information about companies. No cash flow information of the company exists during the period 1990-1998. There are two restrictions on the selected samples. First, given that accruals quality is calculated using 26 consecutive annual data, the firm should have data that contains at least 28 consecutive years. Second, data that are used to measure two proxies of quality of earnings should be found in each firm every year. In total, there are 2757 firms and 17 industrials.

### **Descriptive Results**

Table 1 shows descriptive outcomes and detailed statistics of each proxy of earnings quality and firms' characteristics, including the firm's size, growth, leverage. According to Francis et al. (2004), they set up the benchmark for the mean and median values of accruals quality, which are 0.028 and 0.002, respectively. Table 1 shows the mean of AQ1 is 0.053, the median of AQ1 is 0.034, the mean of AQ2 is 0.05, the median of AQ2 is 0.035, the mean of AQ3 is -0.055, and the median of AQ3 is -0.033. For persistence, Francis et al. (2004) regard 0.482 as the benchmark of mean, 0.52 as the benchmark of the median. Table 1 shows that the mean of persistence is 0.936, and the median is 0.93, which are very close to 1, indicating a high persistence of earnings and high earnings quality. In addition, the mean value of the cost of equity is 0.032, and the median value is 0.24. Table 1 also presents descriptive data of control variables that are relevant financial variables, including the firm's leverage, size, and growth. The mean of leverage is 0.569, and the median of leverage is 0.462, indicating low potential risks. The mean value of size is 21.597, and the median value of size is 21.464. The mean and median of growth are 0.104 and 0.058, respectively.

Table 2 reports the correlations among the cost of equity, earnings quality proxies, and other control variates. Although there is a positive and significant correlation between accruals quality and persistence, they still reflect different dimensions of earnings quality. According to

Eliwa et al. (2016), if the value of correlations is smaller than 0.3, it indicates that each proxy of earnings quality is one independent measurement or dimension of earnings quality. Therefore, the correlations shown in Table 2 confirm that accruals quality and persistence are two valid and vital aspects of measuring earnings quality. Besides, Table 2 also shows significant and positive correlations between the cost of equity and two proxies of earning quality as well as other control variables. Meanwhile, no multicollinearity exists among all variables, because the correlations among AQ, persistence, size, growth, and leverage are all less than 0.8, which is consistent with Eliwa et al.'s research (2016).

Table 1 descriptive statistics on earnings quality proxies and firm characteristics

	N	Mean	Median	St. Dev	Min	Max
Cost	23102	.032	.024	.033	0	.895
AQ1	28345	.053	.034	.075	0	3.286
AQ2	14802	.05	.035	.063	0	2.326
AQ3	13543	-.055	-.033	.086	-3.286	0
Persistence	28345	.936	.93	.358	-1.439	5.709
Leverage	26925	.569	.462	5.679	-.195	877.256
Size	28342	21.597	21.464	1.303	10.842	28.511
Growth	25230	.104	.058	.406	-5.869	8.86

Notes: AQ1= $|V_{c,t}|$ , the absolute value of the abnormal accruals (residuals).

AQ2 is all the positive value of  $V_{c,t}$ .

AQ3 is all the negative value of  $V_{c,t}$ .

Size is the log of total assets of the firm  $c$  in year  $t$ .

Growth is the log of one plus the firm's growth in book value of equity.

Leverage is a firm  $c$ 's interest-bearing debt deflated by total assets in year  $t$ .

Table 2 correlations among earnings quality proxies.

Variables	Cost	AQ1	Persistence	Leverage	Size	Growth
Cost	1.000					
AQ1	0.125***	1.000				
Persistence	0.032***	0.034***	1.000			
Leverage	0.032***	0.059***	0.001	1.000		
Size	0.371***	-0.099***	0.053***	-0.084***	1.000	
Growth	0.086***	0.031***	0.042***	-0.070***	0.146***	1.000

\*\*\* $p < 0.01$ , \*\* $p < 0.05$ , \* $p < 0.1$

## Regression Results

Table 3 shows the regressions of Model (1). The results show that the cost of equity is positively related to firms' leverage, growth, and size. Firms with high leverage are deemed to be high-risk companies because of the high value of debt to asset ratio. Therefore, these firms are expected to give more returns to investors and have a higher cost of equity. The positive coefficients of growth and size indicate that large and growing companies tend to increase or raise the funds of equity funds more cheaply. To be specific, in regression (1), the coefficient of size is 0.011 (t-statistic = 62.028), showing that companies with large total assets have more expected returns based on my sample. The coefficient of growth is 0.005 (t-test=8.495), showing that high growth companies have a higher cost of equity. The coefficient on leverage is 0.000, indicating a weak impact of leverage on the cost of equity. In other words, the association between the cost of equity and leverage is insignificant.

According to prior studies, a positive coefficient on AQ1 is expected, which indicates that lower earnings quality has higher costs of equity. From Table 3, the results from the Model (1) regression show that the cost of equity is negatively related to the earnings quality, which is consistent with my hypothesis. To be specific, the coefficient of AQ1 is 0.056 (t-test=16.906). Because I use  $|V_{c,t}|$  (absolute value of residuals) to represent AQ1, higher the value of  $|V_{c,t}|$  means lower accruals quality, which reveals a negative relationship between AQ1 and accruals quality (Ben-Nasr et al., 2015). Therefore, the positive coefficient of AQ1 indicates the negative relationship between the cost of equity and earnings quality. In other words, as a critical measuring standard, higher accruals quality suggests greater earnings quality, which is linked with high precise information. Therefore, the precise and accurate information can minimize the risk of a firm in terms of information risk of a firm, giving rise to a lower cost of equity (Ben-Nasr et al., 2015). In regression (1), persistence also has an impact on the cost of equity with a coefficient value of 0.002 and a t-statistic of 3.064. Besides, Year and industrial

dummies are contained in the Model, in line with Ben-Nasr et al. (2015), in order to capture the influence of time-series trends and industrial differences. Besides, Regression (1), (2), and (3) all indicate that a more marked and stronger effect of accruals quality on the cost of equity in comparison to persistence. Although a positive relationship exists between persistence and the cost of equity, this relation is not as significant as accruals quality. Therefore, given the stronger impact of AQ1, negative correlation dominates the overall correlation, illustrating the fact that the cost of equity declines as earnings quality becomes better.

In regression (2), AQ2 stands for all positive values of  $V_{c,t}$ . Positive  $V_{c,t}$  represents an increase in earnings or overstate accounting profits, which is one way of opportunistic earnings management. According to Dechow and Dechow (2002), the residual of Model (2) is also defined as discretionary accruals or abnormal value. The positive coefficient of AQ2 indicates that more discretionary accruals allow investors to evaluate firm value better and get higher earnings return (Sayari et al., 2013; Gul et al., 2003). However, the managers' manipulation of increasing firms' revenue on financial reports conceals the actual financial condition of firms and cheats on shareholders. It is good for the short-term investment, but not beneficial to the long-term development of firms, because they present an excellent financial status to the public though cooking the book all the time, but the reality can be the firms with a huge amount of loans. Although opportunistic management raises the return to investors, it covers up the bad aspect of firms' financial situation and influences long-term development (Jiraporn et al., 2008). In regression (3), AQ3 stands for all negative values of  $V_{c,t}$ , which represents a decrease in earnings. The market treats earnings decreasing discretionary accruals as informative earnings management, another behavior of earnings management used by firms to smooth or decrease their earnings to disclose relatively real and private information to investors (Gul et al., 2003). Regression (3) shows a positive coefficient of AQ3, but there is no significant impact of AQ3 on the cost of equity, indicating a lower cost of equity and lower return to investors compared

to the result from Regression (2). Investors are not in favor of or benefited a lot from informative earnings management. However, informative earnings management provides a more realistic financial status of firms by disclosing lower earnings to shareholders and investors. The empirical study done by Lin and Liu (2016), suggests that informative earnings management is one approach of good corporate governance that can benefit the information transparency of firms. This management helps firms to avoid tax to some degree, but managers are not supposed to do it continuously.

Table 3- Regressions of cost of equity on each earning quality proxy and control variables

VARIABLES	(1) Cost	(2) Cost	(3) Cost
AQ1	0.056*** (16.906)		
AQ2		0.097*** (19.872)	
AQ3			0.004 (1.073)
Persistence	0.002** (3.064)	0.001 (1.485)	0.003*** (3.281)
Leverage	0.000 (1.132)	0.001** (2.561)	0.001*** (4.196)
Size	0.011*** (62.028)	0.013*** (50.079)	0.009*** (41.854)
Growth	0.005*** (8.495)	0.004*** (3.906)	0.004*** (5.219)
Constant	-0.210*** (-43.198)	-0.254*** (-30.364)	-0.173*** (-26.538)
Observations	20,472	11,633	8,839
R-squared	0.286	0.326	0.286
Year FE	YES	YES	YES
Industry FE	YES	YES	YES
Adj. R-sq	0.284	0.324	0.283

t-statistics in parentheses \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Notes: AQ1=| Vc,t |, the absolute value of the abnormal accruals (residuals).

AQ2 is all the positive value of Vc,t.

AQ3 is all the negative value of Vc,t.

Size is the log of total assets of the firm c in year t.

Growth is the log of one plus the firm's growth in book value of equity.

Leverage is a firm c's interest-bearing debt deflated by total assets in year t.

## V. CONCLUSIONS

Prior studies have proven that as earnings quality becomes better, the cost of equity declines by taking advantage of US and UK data (Francis et al., 2002; Eliwa et al., 2016). This paper analyzes this relationship in China, using the data from 2757 Chinese firms downloaded from CSMAR during 1999 and 2015. Data from 1990 to 1998 are not taken into consideration due to the large amount of missing value of cash flows, since these missing values make the results of accruals quality occur errors when running DD model. I use both accruals quality and persistence to measure earnings quality, rather than being limited to only accruals quality, because multidimensional analysis of earnings quality is more precise and significant. The result shows a negative relationship between earnings quality and the cost of equity. To be specific, accruals quality has a significant negative correlation with the cost of equity, and earnings persistence has a positive correlation with the cost of equity. Because of the much more significant impact of accruals quality on the cost of equity than persistence, the relationship between earnings quality and cost of equity is still negative as a whole. Furthermore, improved quality of earnings makes information more accurate, transparent, and efficient. Thus, better earnings quality reduces information risk and cuts down the cost of equity, which is consistent with the findings of Sayari et al. (2013). For persistence, the mean value of persistence is very close to 1, indicating the high persistence and high earnings quality through the samples.

The results also indicate that overstating accounting earnings allows investors to better assess firms and get higher earnings return from investment (Sayari et al., 2013; Gul et al., 2003). However, the managers' manipulation of increasing firms' revenue on financial reports conceals the actual financial condition of firms and cheats on shareholders. Although opportunistic management raises the return to investors, it covers up the bad aspect of firms' financial situation and influences long-term development (Jiraporn et al., 2008). The market treats

earnings decreasing discretionary accruals as informative earnings management, which is used by firms to smooth or decrease their earnings, as well as disclose relatively real and private information to investors (Gul et al., 2003). According to an insignificant positive correlation between AQ3 and the cost of equity, indicating that investors get little return while facing informative earnings management of firms. However, informative earnings management provides a more realistic financial status of firms by disclosing lower earnings to shareholders and investors. Firms try to smooth their earnings by exposing more information about expenditures and less information about revenue to decline the profits (Tucker and Zarowin, 2006). In the view of firms, this negative information is the private information of firms that is not supposed to be shown to the public.

Accounting information is essential for both investors and managers to make decisions. How earnings quality influences the cost of equity gives direction to investors whether they should buy or sell the stocks they own. My study discusses the relation between each earnings quality proxy and the cost of equity, which discloses what factors should be considered and which factors are more important when determining the cost of equity. The findings are beneficial to firms when they decide to change management approaches to change earnings and the cost of equity. Meanwhile, based on this relationship, investors can try to analyze how much return they can get, as well as which factors are more valuable to consider while determining the firms to start their venture capital investment.

With respect to limitations in this study, one deficiency is ignoring the reverse causality of earnings quality and the cost of equity. This study focuses on the impact of earnings quality on the cost of equity, but it is likely to have a reverse causality showing corporates with the substantial cost of equity might lead to worse earnings quality. Furthermore, this paper only does a robustness test by adding industry and year dummies but lacks the robustness check by using the implied cost of equity proxies, which is the average of various measurements to

calculate a much more precise cost of equity. Later, these limitations should be taken into consideration in future studies.

## APPENDIX

### Variable Definitions

Size	the log of total assets of the firm c in year t.
Growth	the log of one plus the firm's growth in book value of equity.
Leverage	a firm c's interest-bearing debt deflated by total assets in year t.
EQProxy <sup>k</sup> <sub>c,t</sub>	represents each proxy of earnings quality. $K \in \{\text{Accruals Quality, Persistence}\}$ .
Cost	Earnings price ratio
AQ1	is $ V_{c,t} $ , the absolute value of the abnormal accruals (residuals).
AQ2	AQ2 is all the positive value of $V_{c,t}$ .
AQ3	AQ3 is all the negative value of $V_{c,t}$ .
TAc.t.	means total current accruals in year t.
Assets <sub>c,t-1</sub> .	total assets of firm c in year t-1.
CFOc.t	operating cash flow of firm c in year t.
$\Delta CA_{c,t}$	change in current assets of firm c between year t-1 and year t.
$\Delta CL_{c,t}$	change in current liabilities of firm c between year t-1 and year t.
$\Delta Cash_{c,t}$	change in cash of firm c between year t-1 and year t.
$\Delta STDEBTA_{c,t}$	change in debt in current liabilities of firm c between year t-1 and year t.
$\Delta Rev_{c,t}$	change in revenues of firm c between year t-1 and year t.
PPE <sub>c,t</sub>	Total non-current assets of firm c in year t.
Earn <sub>c,t</sub>	net income of firm c in year t.
Earn <sub>c,t-1</sub>	net income of firm c in year t-1.

Table 1 descriptive statistics on earnings quality proxies and firm characteristics

	N	Mean	Median	St.Dev	Min	Max
Cost	23102	.032	.024	.033	0	.895
AQ1	28345	.053	.034	.075	0	3.286
AQ2	14802	.05	.035	.063	0	2.326
AQ3	13543	-.055	-.033	.086	-3.286	0
Persistence	28345	.936	.93	.358	-1.439	5.709
Leverage	26925	.569	.462	5.679	-.195	877.256
Size	28342	21.597	21.464	1.303	10.842	28.511
Growth	25230	.104	.058	.406	-5.869	8.86

Table 2 Correlation among earnings quality proxies.

Variables	Cost	AQ1	Persistence	Leverage	Size	Growth
Cost	1.000					
AQ1	0.125***	1.000				
Persistence	0.032***	0.034***	1.000			
Leverage	0.032***	0.059***	0.001	1.000		
Size	0.371***	-0.099***	0.053***	-0.084***	1.000	
Growth	0.086***	0.031***	0.042***	-0.070***	0.146***	1.000

\*\*\* $p < 0.01$ , \*\* $p < 0.05$ , \* $p < 0.1$

Table 3- Regressions of Cost of equity on each earning quality proxy and control variables

VARIABLES	(1) Cost	(2) Cost	(3) Cost
AQ1	0.056*** (16.906)		
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Size	0.011*** (62.028)	0.013*** (50.079)	0.009*** (41.854)
Growth	0.005*** (8.495)	0.004*** (3.906)	0.004*** (5.219)
Constant	-0.210*** (-43.198)	-0.254*** (-30.364)	-0.173*** (-26.538)
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Industry FE	YES	YES	YES
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\*\*\* $p < 0.01$ , \*\* $p < 0.05$ , \* $p < 0.1$

## REFERENCES

- Botosan, C. and Plumlee, A. (2000). Disclosure Level and Expected Cost of Equity Capital: An Examination of Analysts' Rankings of Corporate Disclosure. Available at SSRN: <https://ssrn.com/abstract=208148> or <http://dx.doi.org/10.2139/ssrn.208148>
- Dechow, Patricia M. (1994). Accounting earnings and cash flows as measures of firm performance: the role of accounting accruals [ J ]. *Journal of Accounting & Economics*, 1994 (18): 3242
- Dechow, P., & Dichev, I. (2002). The Quality of Accruals and Earnings: The Role of Accrual Estimation Errors. *The Accounting Review*, 77, 35-59. Retrieved from <http://www.jstor.org/stable/3203324>
- Easley, D., & Hara, M. O. (2001). Information and the cost of capital [D]. Conell University working paper.
- Eliwa, Y., Haslam, J., & Abraham, S. (2016). The association between earnings quality and the cost of equity capital: Evidence from the UK. *International Review of Financial Analysis*, 48 (2016), pp. 125-139
- Ewert, Ralf and Wagenhofer, Alfred, Accounting Standards, Earnings Management, and Earnings Quality (2013). Available at SSRN: <https://ssrn.com/abstract=2068134> or <http://dx.doi.org/10.2139/ssrn.2068134>
- Fama, E. F., & MacBeth, J. D. (1973). Risk, return, and equilibrium: Empirical tests. *The Journal of Political Economy*, 81(3), 607–636.
- Francis, J., Olsson, P., & Schipper, K. (2006). Earnings quality. *Foundations and Trends® in Accounting*, 1(4), 259–340.
- Francis, J., LaFond, R., Olsson, P. M., & Schipper, K. (2004). Costs of equity and earnings attributes. *The Accounting Review*, 79(4), 967–1010.
- Feng, Hua and Fonseka, M. M. and Tian, Gao-Liang, Risk-Taking (2017). Opportunistic Earnings Management and Corporate Opacity: Evidence from China. Available at SSRN: <https://ssrn.com/abstract=3077910>
- Gray, P., Koh, P. S., & Tong, Y. H. (2009). Accruals quality, information risk and cost of capital: Evidence from Australia. *Journal of Business Finance & Accounting*, 36(1–2), 51–72.
- Gul, Ferdinand A., Leung, S., & Srinidhi, B. (2003). Informative and Opportunistic Earnings Management and the Value Relevance of Earnings: Some Evidence on the Role of Available at SSRN: <https://ssrn.com/abstract=429800> or <http://dx.doi.org/10.2139/ssrn.429800>
- Hail, L., & Leuz, C. (2005) International Differences in the Cost of Equity Capital: Do Legal Institutions and Securities Regulation Matter? ECGI - Law Working Paper No. 15/2003; Rodney L. White Center for Financial Research Working Paper No. 17-04; AFA 2005 Philadelphia Meetings. Available at SSRN: <https://ssrn.com/abstract=641981> or <http://dx.doi.org/10.2139/ssrn.641981>
- Jiraporn, Pornsit & Miller, Gary & Yoon, Soon & Kim, Young. (2008). Is Earnings Management Opportunistic or Beneficial? An Agency Theory Perspective. *International Review of Financial Analysis*. 17. 622-634. 10.1016/j.irfa.2006.10.005.
- Kent, P. & Routledge, J. (2010). Innate and Discretionary Accruals Quality and Corporate Governance. *Accounting & Finance*, Vol. 50, No. 1, pp. 171-195, March 2010. Available at SSRN: <https://ssrn.com/abstract=1558035> or <http://dx.doi.org/10.1111/j.1467-629X.2009.00321.x>
- Lambert, R. A., Leuz, C., & Verrecchia, R. E. (2012). Information asymmetry, information precision, and the cost of capital. *Review of Finance*, 16(1), 1–29.
- Lambert, R. A., Leuz, C., & Verrecchia, R. E. (2007). Accounting Information, Disclosure,

- and the Cost of Capital. *Journal of Accounting Research*, 45 (2), 385-420.  
<http://dx.doi.org/10.1111/j.1475-679X.2007.00238.x>
- Liu, Xianfeng & Zhang, Changchun. (2010). On the Construction of China's Accounting Standard System with International Convergence in Accounting Standards. *International Journal of Business and Management* Vol. 5, No. 4. Retrieved from <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.688.5988&rep=rep1&type=pdf>
- Lipe, R. (1990). The relation between stock returns and accounting earnings given alternative information. *The Accounting Review*, 65(1), 49–71.
- Lin, Zhijun and Liu Ming. (2016). The Impact of Corporate Governance on Informative Earnings Management in the Chinese Market Volume 52, Issue 4, *Abacus* pages: 781-781. Retrieved from <https://doi.org/10.1111/abac.12084>
- Lyimo, G. (2014). Accrual Quality and Stock Price Informativeness: Evidence from India. *Birla Institute of Management Technology. Research Journal of Finance and Accounting*. ISSN 2222-1697 (Paper) ISSN 2222-2847 (Online) Vol.5, No.12, 2014.
- McNichols, M., 2002. Discussion of „The quality of accruals and earnings: the role of accruals estimation errors. “ *The Accounting Review* 77 (Supplement), 61-69.
- Miller, M. H., & Rock, K. (1985). Dividend policy under asymmetric information. *The Journal of Finance*, 40(4), 1031–1051.
- Nezlobin, A., Sloan, Richard G. & Zha J.(2019). Measuring Accruals Quality: A Theoretical and Empirical Evaluation. Available at SSRN: <https://ssrn.com/abstract=3301083> or <http://dx.doi.org/10.2139/ssrn.3301083>
- Penman, Stephen H. and Zhang, Xiao-Jun, Accounting Conservatism, the Quality of Earnings, and Stock Returns (1999). Available at SSRN: <https://ssrn.com/abstract=201048> or <http://dx.doi.org/10.2139/ssrn.201048>
- Richardson, Scott Anthony and Sloan, Richard G. and Soliman, Mark T. and Tuna, Ayse Irem (2001). Information in Accruals About the Quality of Earnings. Available at SSRN: <https://ssrn.com/abstract=278308> or <http://dx.doi.org/10.2139/ssrn.278308>
- Sayari, S., Mraïhi, F., Finet, A. & Omri, A. (2013). The Impact of Earnings Management on Stock Returns: The Case of Tunisian Firms. *Global Journal of Management and Business Research*. Volume 13, Issue 10, Version 1.0 Type: Double Blind Peer Reviewed International Research Journal Publisher: Global Journals Inc. (USA) Online ISSN: 2249-4588 & Print ISSN: 0975-5853.
- Sloan, R. G., Richardson, S. A., Soliman, M. T., & Tuna, I. (2005). Accrual reliability, earnings persistence and stock prices. *Journal of Accounting and Economics*, 39(3), 437–485.
- Skaife, A. and Collins, W. and LaFond, R. (2004). Corporate Governance and the Cost of Equity Capital. Available at SSRN: <https://ssrn.com/abstract=639681> or <http://dx.doi.org/10.2139/ssrn.639681> <https://journal-archieves36.webs.com/104-117feb14.pdf>
- Tucker, Jennifer W. & Zarowin, P. (2006). Does Income Smoothing Improve Earnings Informativeness? *The Accounting Review*, 81(1), 251-270. Retrieved from [www.jstor.org/stable/4093136](http://www.jstor.org/stable/4093136)
- Wysocki, P.D. (2009). Assessing Earnings and Accruals Quality: U. S. and International Evidence.