ANALYSIS THE FACTORS IMPACT ON EARNINGS MANAGEMENT
(CASE STUDY IN ELECTRICAL MACHINERY AND EQUIPMENT MANUFACTURING COMPANIES LISTED ON SHANGHAI STOCK EXCHANGE: 2014_2016)

SKRIPSI

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Presented to
The Faculty of Economics, President University
In partial fulfillment of the requirements
For
Bachelor Degree in Economics, Major in Accounting

President University
Cikarang Baru – Bekasi
Indonesia
2018
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RECOMMENDATION LETTER

This skripsi entitled “Analysis the factors impact on earnings management (Case study in electrical machinery and equipment manufacturing Companies Listed On Shanghai Stock Exchange: 2014–2016)” prepared and submitted by Wang Mengke in partial fulfillment of the requirements for Bachelor Degree in Economics - Major in Accounting, has been reviewed and found to have satisfied the requirements for a thesis fit to be examined. We therefore recommend this thesis for Oral Defense.

Cikarang, Indonesia, January 24th 2018

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This thesis entitled "Analysis the factors impact on earnings management (Case study in electrical machinery and equipment manufacturing Companies Listed On Shanghai Stock Exchange: 2014–2016)" prepared and submitted by Wang Mengke, in partial fulfillment of the requirements for Bachelor Degree in Economics Major in Accounting has been reviewed and found to have satisfied the requirements for a thesis fit to be examined. I therefore recommend this thesis for Oral Defense.

Cikarang, Indonesia, January, 2018

Researcher,

Wang Mengke

Wang Mengke

008201400117
ABSTRACT

The objective of this research is to analyze the factors that give impact on earnings management in electrical machinery and equipment manufacturing companies listed on Shanghai Stock Exchange for the period of 2014_2016. The factors in this research referred to sales growth, firm size, asymmetry information and managerial ownership. Discretionary accrual by Modified Jones Model is a proxy to measure the level of earnings management.

In this research, 19 companies are used as the samples that meet the purposive criteria. The researcher adopts multiple regression models to examine these four factors impact on earnings management.

The conclusion shows: sales growth and managerial ownership have the significant impact on earnings management, while firm size and asymmetry information do not have the significant impact on earnings management. However, sales growth, firm size, asymmetry information and managerial ownership have the simultaneously significant effect on earnings management.

**Keywords:** earnings management, sales growth, firm size, asymmetry information, managerial ownership, accounting theory.
ABSTRAK

Tujuan dari penelitian ini adalah untuk menganalisis faktor-faktor yang mempengaruhi “earnings management” perusahaan bata perusahaan mesin dan peralatan elektronik yang terdaftar di Shanghai Stock Exchange dalam periode 2014-2016. Faktor-faktor yang dimaksud dalam penelitian ini adalah pertumbuhan penjualan, ukuran perusahaan, asimetri informasi dan kepemilikan managerial. “Discretionary accrual” berdasarkan Modified Jones Model digunakan sebagai proksi untuk mengukur “earnings management”.

Dalam penelitian ini, 19 perusahaan digunakan sebagai sampel yang sesuai dengan purposive kriteria. Peneliti menggunakan model regresi liner berganda untuk meneliti keempat faktor yang dapat mempengaruhi “earnings management”.

Kesimpulan dalam penelitian ini menunjukkan: pertumbuhan penjualan dan kepemilikan managerial memiliki pengaruh yang signifikan terhadap “earnings management”. Denagan demikian, pertumbuhan penjualan, ukuran perusahaan, asimetri informasi dan kepemilikan managerial memiliki pengaruh yang signifikan terhadap pendapatan manajemen.

**Keywords**: earnings management, pertumbuhan penjualan, ukuran perusahaan, asimetri informasi, kepemilikan managerial, teori akuntansi.
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ACKNOWLEDGMENT

Thanks to Mr. Gatot Imam Nugroho, AK, MBA, CA, my thesis advisor. I would like to present my great thanks to you. During my thesis writing, you always give me useful advice, opinion, and encouragement, which helps me finish my thesis as soon as possible.

1. Thanks to all the teachers who have taught or helped me during my university life. Thanks for teaching me plenty of valuable knowledge.

2. Thanks to all my friends in President University. You are always accompanied and supported me in these years' university life.

3. Thanks to my family, especially my parents. Thanks for supporting me whenever I met difficulty in my life.

Cikarang, January 24th 2018

My deeply gratitude

Wang MengKe
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CHAPTER I
INTRODUCTION

1.1 Background

Financial statements are made by business managers to provide the information regarding the company financial situation and business activities. The primary objective of financial statements is showing comprehensive and systematic disclosure of the financial status of a certain period, operating results and cash flow. The preparation of the financial statements in the PRC is based on the accounting law of the People's Republic of China. People's Republic of China accounting law allows the use of accrual basis.

Driven by various interests, the financial statement maker intentionally does not disclose the details of the financial statements. When the financial statement deviates from the actual level of income, it is easy to mislead other stakeholders to understand the actual profit. This behavior is often referred to as earnings management (Marai & Pavlović, 2013). Managers are free to choose accounting policies under the GAAP guidelines, which makes easy to maximize the benefits. It is called earnings management (Nikoomaram et.al.2012). Earnings management is always considered materially misleading. The intentional misstatement is viewed as the fraud. Earnings management uses the method of application accounting to control and adjust the earnings of financial statements, which means the managers intend to get some kinds of private gain or the company's market value to maximize earnings management practices also lead to some scandals. Tesco accounting scandal (2014) has caused a discussion of earnings management practice around the world.

Tesco scandal has attached corporate executive’s importance to public trust and corporate reputation's relationship, the significance of outsourced accounting services to a robust financial condition, and the importance of the company's internal systems and financial reporting rigor. There also have some earnings management cases occurred in China. Datang Telecom Technology Industry Group is a large high-tech central enterprise specialized in the development, production, and sales of electronic information system equipment. It has been detected for earnings management. Datang Telecom announced in 2006 three reports of all earnings: The first quarterly report, the semi-annual report, and
the third quarterly report showed the net profit of 8.17 million Yuan, 22.68 million Yuan, and 27.61 million Yuan respectively. The company audited by Shenzhen UTS. On April 5, 2007, a notice was released stating that its 2006 annual performance report will be at a loss.

Wang (2013) in accounting communication use discretionary accruals profits to measurement earnings management with 422 samples. The time horizon of research is from 2007 to 2011. This research shows the auditing quality affected by the business management education background, age, power.

Sales growth is also thought may affect earnings management practices. When the companies have high sales growth, it could have less possible use earnings management practices due to the company can get profit from a strong market share (Abbadi et.al.2016). On the other hand, as we all know. The Return on assets (ROA) can be getting by dividing net income plus interest expense on the average total assets. So the managers may use earnings management practices to make the firm have more attractive.

Firm size is one of the variable factors that influence earnings management practices. Larger firms have more sophisticated internal control systems than small firms. An efficient internal control system helps control inaccurate disclosure of financial information to the public. Kim et.al (2003) explained that large firms have usually development with a long history which they have a good appreciation of the market environment, better internal control over their operations than small firms.

Asymmetry information is one of the factors that could influence earnings management practices. Agency theory indicates that conflict may arise even though the difference interest amongst the agent and principles. The asymmetry information may occur when the manager knows more information than the shareholders do. Within the influence of management opportunistic behavior, the manager may take some measures toward profit to the implementation of performance.

Managerial ownership also is considered as the factor impact earnings management. In order to improve the relationship between agents and principles, management conducts management evaluation by taking incentives, share ownership and facilities. Managers may intend to prioritize shareholders’ interests. Incentives to the manager may not be able to
achieve the incentive effect. Some manager's behavior may appear to manage opportunistic tendencies, which make the company shows good performance and earnings for obtaining their maximize interest.

According to the research background that has been described in this article, researcher pays attention to the variable effect of sales growth, firm size, asymmetry information and managerial ownership impact toward earnings management of listed electrical machinery and equipment manufacturing companies listed on Shanghai Stock Exchange for the period of 2014_2016.

1.2 Problem Statement

There are some controversial accounting issues in the practice of corporate earnings management, most of which are caused by financial statements editors. Earnings management is an important subject in the study of modern accounting theory. A lot of research and studies are used to detect earnings management practices.

In this study, the researchers used the Jones model to test the earnings management practices of Chinese listed manufacturing companies. The selection of the Dechow & Sloan (1996) modified Jones model. In this study, the researchers focused on the impact of sales growth, firm size, manager ownership and asymmetric information on earnings management. This research objective is to analysis the factors impact on earnings management in electrical machinery and equipment manufacturing companies listed on Shanghai Stock Exchange for the period of 2014_2016.

1.3 Research Questions

The questions which will be examined are as follows:

1. Does sales growth have any significant impact on earnings management in China listed company of electrical machinery and equipment manufacturing for the period of 2014_2016?
2. Does firm size have any significant impact on earnings management in China listed company of electrical machinery and equipment manufacturing for the period of 2014_2016?

3. Does asymmetry information have any significant impact on earnings management in China listed company of electrical machinery and equipment manufacturing for the period of 2014_2016?

4. Does managerial ownership have any significant impact on earnings management in China listed company of electrical machinery and equipment manufacturing for the period of 2014_2016?

5. Do managerial ownership, asymmetry information, debt contracts, sales growth and firm size have a simultaneously significant effect on earnings management in China listed company of electrical machinery and equipment manufacturing for the period of 2014_2016?

1.4 Research Objectives

The main objective is the factor affect earnings management, for finish this main objective. The objectives of this study are as follows:

1. Analysis the sales growth, firm size, asymmetric information and management ownership impact on earnings management in the period of 2014-2016 China's manufacturing sector listed companies.

2. To study the impact of sales growth, firm size, management ownership and asymmetric information on earnings management in some of the listed companies in China's manufacturing in period of 2014-2016.
1.5 Significance of Study

This research result is expected have significance to many parties.

**Investors**

The investors need to pay more attention to sales growth, firm size, manager ownership and asymmetric information. The investors might consider these factors in making the decision of company business.

**Accountants**

This research can help manager have a good understanding of earnings management and the usefulness of net income.

**Auditor**

The firm could according to the auditing service give a comment on the audit quality. In addition, auditor needs to improve audit quality for keeping the integrity and credibility.

**The Future Researchers**

This research expected beneficial to the other researchers in earnings management problem. The future researcher could enhance analyze of earnings management practices.

1.6 Limitation of Study

In order to resonate with the reader and the researcher, the following points need to be explained in particular. First of all, the earnings management context in this research is the level of discretionary accruals (accrual generates from management policy). The population in this research is manufacturing index on Shanghai Stock Exchange-listed companies for the period of 2014-2016. In order to resonate with the reader and the researcher, the following points need to be explained in particular.

The limitations of this study have the following points:

1. The data used in this study are secondary data, so the integrity and analysis of the data is highly dependent on the publication of the financial statements.
2. The variables used in this study included sales growth, firm size, asymmetric interest, and management of ownership. In addition, there are political factors, government regulations and corporate governance and other external factors, while this study is not involved these factors.

1.7 Thesis organization

The analysis of the factors impact to earnings management of Chinese listed company including five chapters, the list of contents in follows:

Chapter 1 is the introduction. This chapter focuses on explaining the research background, problem statement, research questions, research objectives, and the significance of the study, limitations, and thesis organization.

Chapter 2 is the literature review, the researcher presents and explanations the literature review focusing on the factors effect on earnings management including dependent variables and independent variable, then it shows the previous research and research gaps.

Chapter 3 is methodology. It describes the research framework, hypotheses, operational definitions, research design, and sampling plan.

Chapter 4 is analysis and results. It shows the data analysis and results, including descriptive analysis, inferential analysis, and interpretation by SPSS 21.

Chapter 5 is conclusion and recommendation. This chapter explains the hypothesis answers and provides the recommendation for future.
CHAPTER II
LITERATURE REVIEW

2.1 earnings management

2.1.1 Definition of earnings Management

There is no clear consensus on the definition of earnings management. Some parties think that earnings management practice is acceptable within accounting standards. The author of financial accounting theory (Scott, 2009) put forward that the earnings management was economic consequences under the choice of accounting policies for some special goal. In addition, Schiper (1989) indicated that earnings management is the intentional intervention for some private interests in the financial report. Healy & Wahlen (1999) explained the business manager in financial report preparation was easy to use personal experiences to change some details about the financial report, which misleading some stakeholder of company's economic benefits or affect the contract result according to the accounting data recorded in the report.

Earnings management which is the business manager alters the financial report for private gain even misleads stakeholders about organization's business performance.

2.1.2 Two types of earnings management

Real earnings Management

For achieving expected earnings level, the company might choose the accounting methods used to represent those underlying activities which deviate from the normal business operating activities. Even though this measurement would produce negatively affect company future economic (Rowchowdhury 2006).
Table 2.1 Definition of real earnings management

Accrual-Based Earnings Management

Demonstrate the true performance of the firm through recording revenues and expenses to the period in which they are incurred, rather than presenting the cash inflows and outflows is the main objective of accruals. Accrual-based earnings management is applied only for the specific periods and times (Zang, 2012). According to Zang(2012), The preference of the firm using one specific earnings management strategy depend on the relative cost of those strategies.

2.2 Agency Theory

Jensen & Meckling (2000) put forward an agency relationship was considered as a contract that the principal engages the agent to makes decisions and acts on their behalf which involves delegating some decision-making authority to the agent. When the principal and agent these two parties want to make the relationship utility maximizes. It is hard to assure that the agent always acts for the principal best interests.

The agency theory mentioned by Jensen & Meckling (2000) focuses on how to make contracts in which the agent performance can be measured and incentive for meeting principal's interests. Due to the different employees have diverse goals, the two problems
related agency are followed: the one is how to set the conflicting goals between principals and agents. Another one is how to ensure the agents perform as principals expect them to do. These two problems will occur when the managers make a self-interested decision and manipulate information on performance. The agent may use creative accounting or by moving numbers to present better performance figures. In this situation, the principal is hard to verify the agent has performance appropriately. Earnings management might be considered as the fraud because of its degrees of untruth (Ramos & Rogo 2014).

2.3 Positive Accounting Theory

Bonus plan hypothesis, debt covenant hypothesis, and political cost hypothesis are the three hypotheses in Positive Accounting Theory.

Bonus plan hypothesis

Managers are possible to use accounting policies that shift reported earnings from future periods to the current period. This measure can increase managers bonuses by reporting the desired level of profitability. Managers always choose their own interests in the accounting policy.

Debt covenant hypothesis

The debt covenant hypothesis show that the closer a firm to the default accounting-based debt covenants, the managers more possible choose accounting procedures that shift reported earnings from future periods to the current period. The main objective of debt contract is to require managers to act according to certain principles for protecting legitimate rights and interests of creditors.

The Political Cost Hypothesis

The political cost hypothesis declares that when a firm face the heavy pressure of political cost, the managers are more likely to select accounting policies for deferring reported earnings from current period to future periods. In this hypothesis, politics be introduced to the accounting policy choice. The big firms with high profit attract media and consumer highly concerned. Great attention generally brings the increase of political cost for the firm.
2.4 Audit Quality

There is a perception that insiders may feel nervous about whether or not to hire a Big Four accounting firm when considering the discretionary power of financial reporting, and that insiders depriving outside investors may be more willing to hire non-Big 4 auditors to help conceal their transfer, so that the financial statements of the company's performance information to reduce. Another view is that listed companies with political background are more likely to employ the Big Four auditors. On the one hand, high-quality auditors will help to cope with some of the agency issues and, on the other hand, will help companies mitigate information asymmetry. The study points out that the earnings management of related enterprises that choose the Big Four accounting firms is lower than the earnings management of the related enterprises that choose non-Big four accounting firms.

Below the figure of top 10 public accounting firms in China in the number of revenue generate in 2015 according to China Accounting Blog

<table>
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<th>Top 10 CPA firms in China in 2015</th>
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<tr>
<td>1 PwC</td>
<td>腾华永道中天会计师事务所</td>
<td>4,117</td>
</tr>
<tr>
<td>2 Ruihua(RSM/Crowe Horwath)</td>
<td>瑞华会计师事务所</td>
<td>4,090</td>
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<tr>
<td>3 BDO</td>
<td>立信会计师事务所</td>
<td>3,702</td>
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<td>4 Deloitte</td>
<td>德勤华永会计师事务所</td>
<td>3,385</td>
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<td>5 E&amp;Y</td>
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Source: CICPA

Table 2.2 Big 10 public accounting firm rank 2015

2.5 Sales Growth

According to the bonus plan hypothesis, the manager who has bonus plan is considered possible to choose suitably accounting methods that shift reported the earnings from future periods to the current period. Akhgar (2012) set forth that sales growth is
generally considered as one of the factors that affect earnings management. Some parts think that companies with good sales growth no need to implement earnings management to raise company profits, whereas companies which have low sales growth are going to implement earnings management to raise revenue for reaching the expected level. Others think that regardless of the level of sales growth, some companies will implement earnings management. Dechow et.al. (1995) consider that the factor of sales growth must be considered when forecasting earnings management. Dechow & Dichev (2002) shows that sales volatility affects earnings management. Purbaningsih (2015) indicated that managers manage earnings by increasing revenue, especially those companies which have slow sales growth. Sales growth is also thought may affect earnings management practices of electrical machinery and equipment manufacture companies.

2.6 Firm Size

Firm size is described as the natural log of total assets (Ahmed, 2012). The political cost hypothesis shows that big company has higher political cost, and the manager will possible to use accounting methods to postpone reported earnings from the current period to the future periods for minimizing reported earnings. Llukani (2013) stated that both large size and small size firms all manage earnings for avoiding report small earnings decrease in the Albanian market. While the other parties indicated that the large firm due to the great reputation cost, the manager must consider the cost of lost reputation. Since the large firm has the big effect on economy and society which have higher public attention. The financial activities of the large firm are always disclosure by the public. This is the reasons that the large firm doesn't engage in earnings management practices. Firm size is one of the variable factors that influence earnings management practices of electrical machinery and equipment manufacturing companies.

2.7 Asymmetry Information

Asymmetric information is a situation where economic agents in the transaction master different information (Stiglitz, 1993). There have two types of asymmetric information:
Adverse selection

Adverse selection is a situation in which insiders in the company know more about the situation and prospects of a company than the outside investors. Facts that required information may impact shareholders to make the decision are not submitted by the manager.

Moral Hazard

Moral Hazard is a situation where the activity carried out by the manager is not entirely known by the leaders and shareholders. This phenomenon may lead managers to take the behavior of breach of contract; ethics may not be able to restrain managers' breach of contract behavior. When ownership and control are separated, moral hazard may arise. That also a characteristic mostly occur in the large companies.

There have a method for measurement the asymmetric information.

Bid-ask spread are widely applied as a proxy to measure asymmetry information (Attiget et al. 2006). Due to the disadvantages of information, external shareholders would share widely bid-ask spread with the public for decrease the potential loss in stock prices. The benefit of wider bid-ask spread is that before market adjusts the share prices to real value, controlling shareholders could realize abnormal profits. If the external shareholders buy or hold the shares, the external shareholders’ profit will decrease. When the asymmetry information is high, stakeholders do not have enough sufficient incentives, resources or access to relevant information to monitor manager’s actions, which gives rise to the practice of earnings management (Warfield et al. 1995). Rahmawati and Baridwan (2006) indicated that information asymmetry have positive and significant impact on earnings management. Asymmetry information is one of the factors that could influence earnings management practices of electrical machinery and equipment manufacturing companies.

2.8 Managerial Ownership

Managerial ownership is defined as shareholding by managers’ members who actively participate in firm decision making. The objective of managerial ownership is to give properly reward to loyalty managers for their excellent performance. While the managerial
ownership may deviate from balance the potential interest conflict between the managers and the external stockholders. Many studies show that management could manage earnings for protecting their ownership in the company. Hence, management ownership may affect manager’s decision making. Spinos (2013) showed that decrease the managerial ownership would affect the applying of earnings management. When the managerial ownership is high, the insider manager who has a high level of management may prevent other insiders to make value-maximizing decisions and hence to increase the earnings management (Cornet et.al, 2009). Managerial ownership also is considered as the factor impact earnings management of electrical machinery and equipment manufacturing companies.

2.9 Previous Researches

In the past research on the factors affecting the earnings management were the most realistic and important. Through data collection and data analysis, it was determined which factors were the most important. Table 2.1 shows previous authors, studies, variables, and conclusions:

<table>
<thead>
<tr>
<th>No</th>
<th>Previous Researcher</th>
<th>Title of Research</th>
<th>Variable</th>
<th>Conclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Authors</td>
<td>Title</td>
<td>Relevant Factor(s)</td>
<td>Findings</td>
</tr>
<tr>
<td>---</td>
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<td>----------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------</td>
</tr>
<tr>
<td>2</td>
<td>Putri (2015)</td>
<td>Analysis of factors affecting the earnings management (empirical study on the manufacturing company go public in Indonesia)</td>
<td>leverage, age, value offering, auditor's reputation, amount of the board of directors</td>
<td>It shows that the size of the company’s age, company, leverage, auditor’s reputation, the value of the stock offering, auditor’s reputation, And the amount of the board of directors does not affect earnings management.</td>
</tr>
<tr>
<td>3</td>
<td>Llukani (2013)</td>
<td>Earnings management and firm size: an empirical analyze in Albanian market</td>
<td>firm size</td>
<td>Both large size and small size firms all manage earnings for avoiding report small earnings decrease in the Albanian market.</td>
</tr>
<tr>
<td>4</td>
<td>Spinos (2013)</td>
<td>Managerial Ownership and Managerial Ownership</td>
<td></td>
<td>Decrease the managerial</td>
</tr>
<tr>
<td></td>
<td></td>
<td>earnings management in times of Financial Crisis: Evidence from the USA</td>
<td>ownership would affect the applying of earnings management.</td>
<td></td>
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<td>---</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Lasdi (2013)</td>
<td>The effect of information asymmetry on earnings management through accrual and real activities during global financial crisis.</td>
<td>Information asymmetry affects earnings management. The company with high level of asymmetry information is evidence of shareholders without enough incentives, resources or access to relevant information to manager’s action, which may result in earnings management.</td>
<td></td>
</tr>
</tbody>
</table>

### 2.10 Research Gaps

Nurdiniah (2015) researched the factors affecting the motivation of earnings management and identified the factors that affect the motivation of earnings management. Through bonuses, debt contract, companies size these three factors to study the impact on the motivation of earnings management. In this study, the researcher uses the four factors of
sales growth, firm size, asymmetry information, managerial ownership to investigate the impact of research on the factors affecting the motivation of earnings management. Relative to its research content is more targeted and comprehensive, and looking for breakthroughs from four different aspects, and establish an effective research direction.

Putri (2015), the author put forward six factors of size, leverage, age, value offering, auditor's reputation, amount of the board of directors that effect of earnings management. In this study, the researcher uses the four factors of sales growth, firm size, asymmetry information, managerial ownership to investigate the impact of research on the factors affecting the motivation of earnings management. Relative to its research content is more targeted, looking for breakthroughs from four different aspects, and establish an effective research direction.

Llukani (2013) showed that both large size and small size firms all manage earnings for avoiding report small earnings decrease in the Albanian market. After examining how managerial ownership affects earnings management. Spinos (2013) observed decrease the managerial ownership would affect the applying of earnings management. The high managerial ownership will result in the occurrence of earnings management.

Lasdi (2013) analyzed the relationship between information asymmetry and earnings management and concluded that Information asymmetry affects earnings management. The company with high level of asymmetry information is evidence of shareholders without enough incentives, resources or access to relevant information to manager’s action, which may result in earnings management.

**2.11 Theoretical Framework**

Agency theory and positive accounting theory are the basic theory in this research. Positive Accounting Theory including 3 hypotheses. There are political cost hypothesis, bonus plan hypothesis, and debt covenant hypothesis. The political cost hypothesis points out that firm size has a relationship relates to earnings management. The bonus plan hypothesis indicates that sales growth relates to earnings management. The debt covenant hypothesis shows that the debt contracts and earnings management's relationship. The
research is expected to use modified Jones model (1991) to measure the level of earnings management.

Table 2.4 Theoretical Framework

Scheme of relationship between independent variables and dependent variable

*Source: Salah Abdelmoula, 2010*

### 2.12 Hypothesis

Based on the explanation of the problem and the state of the concept as above, the hypothesis of this research as follows:

H1: Sales growth have a significant impact on earnings management in China listed company of electrical machinery and equipment manufacturing for the period of 2014-2016.
H2.: Firm size has a significant impact on earnings management in China listed company of electrical machinery and equipment manufacturing for the period of 2014-2016.

H3: Asymmetry information have a significant impact on earnings management in China listed company of electrical machinery and equipment manufacturing for the period of 2014-2016.

H4: Managerial ownership has a significant impact on earnings management in China listed company of electrical machinery and equipment manufacturing for the period of 2014-2016.

H5: Managerial ownership, asymmetry information, debt contracts, sales growth and firm size have the simultaneously significant effect on earnings management in China listed company of electrical machinery and equipment manufacturing for the period of 2014-2016.

**Independent variables**

![Diagram showing relationships between variables](source_from_researcher)

*Figure 2-1 the Relationship between Dependent Variable and Independent Variables*

*Source from researcher*
CHAPTER III
RESEARCH METHOD

3.1. Research design

The theoretical part and hypotheses of this research have already presented in previous chapters. The empirical part will be provided in chapter III. The research will begin with assessing the research approach followed by research methodology. After assessing, the research will determine all variables for testing the hypotheses then the sample by selected will be displayed. Last but not least, the model that be used for test hypotheses will be expounded. After that, the researcher will give a complete analysis process of state this study.

3.2. Operational Definition of Variables

To examine the impact of the sales growth, firm size, asymmetry information, managerial ownership on earnings management in listed manufacturing companies from 2014 to 2016. The researcher uses two kinds of variables which have been analyzed by some previous researchers. The operational definition is an indicator that how the variables are measured. To make a better analysis and understand, the researcher use formula and explanation for each variable.

3.2.1 Earnings Management

Discretionary accrual method is generally used for appraising earnings management in the company. Cash and accounting adjustment which is also known as accrual are two main components included earnings. Due to the accrual is serious effect by management, the accrual direction and measurement will easily be manipulated. There have two components of total accrual, the one is discretionary accrual, and the other one is non-discretionary accrual. Palupi (2015) indicated that the accruals approach have the advantages which to find the ways of raise or lower profits by the manager. Since earnings management has upward and downward earnings management, the absolute value of the calculated
discretionary accrual is used to indicate the earnings quality. The larger the absolute value of the discretionary accrual, the poorer the earnings quality. The steps of calculating the discretionary accrual is presented as below:

\[ TA_{i,t} = N_{i,t} - CFO_{i,t} \]

The total accrued profit (TAC) is estimated by the regression equation of ordinary least squares (OLS) as follows:

\[ \frac{TA_{i,t}}{A_{it-1}} = \beta_1 \frac{1}{A_{it-1}} + \beta_2 \frac{\Delta REV_{i,t}}{A_{it-1}} + \beta_3 \frac{PPE_{it}}{A_{it-1}} + \epsilon_{it} \]

Non-discretionary accruals (NDA) are calculated as follows:

\[ NDA_{i,t} = \beta_1 \frac{1}{A_{it-1}} + \beta_2 \frac{\Delta REV_{i,t} - \Delta REC_{it}}{A_{it-1}} + \beta_3 \frac{PPE_{it}}{A_{it-1}} \]

Discretionary accruals (DA) equal the total accruals less non-discretionary accruals, and the formula is presented as follows:

\[ DA_{i,t} = \frac{TA_{i,t}}{A_{it-1}} - NDA_{i,t} \]

*Source: Dechow et. al., 1995*

Where

- DA_{i,t}: earnings management of company i in year t
- TA_{i,t}: Total accruals of company i in year t
- NDA_{i,t}: Non-discretionary accruals of company i in year t
- A_{i,t-1}: Total assets of company i in year t - 1
- \Delta SALES_{i,t}: changes in sales of firm I in period t
- \Delta REV_{i,t}: Revenue changes of company i in year t
- \Delta REC_{i,t}: Receivable changes of company i in year t
PPE i.t: Fixed assets of company i in year t

\( \beta_1, \beta_2, \beta_3 \): the parameters for each variable

i.t: Error term in year t for firm i

### 3.2.2 Sales Growth

According to bonus plan hypothesis, the more profit firm earns the more bonuses that managers obtain. Hence low profit will easily cause management to manage the earnings to measure up the expected level. The sales growth percentage of changes is presented as follows:

\[
SG_{it} = \frac{Net \, Sales_{it} - Net \, Sales_{it-1}}{Net \, Sales_{it-1}}
\]

*Source: Nurdiniah, 2015*

Where

Net Sales \( i.t-1 \) = Net sales of the company i in year \( t-1 \)

Net Sales \( i.t \) = Net sales of the company i in year \( t \)

SG \( i.t \) = sales growth of the company i in year \( t \)

### 3.2.3 Firm Size

Firm size usually is defined as the natural log of total assets (Hasanand Ahmed, 2012). According to previous research, Firm size can be categorized based on the natural logarithm of total sales (Nuryaman, 2008), market capitalization (Halim, 2005), logarithm of total assets (Marihot and Doddy, 2007). Firm size in this research applying the proxy total year-end asset.

\[
Size_{i.t} = \ln \, Total \, Assets_{i.t}
\]

*Source: Nurdiniah, 2015*
Where

Total Assets \( t \) = Total Assets of company i in year \( t \)

### 3.2.4 Asymmetry Information

Asymmetric information is also known as information failure when the manager obtains the company's prospects information which not owned by outside parties of the company. The asymmetric information will be measured as below:

\[
\text{SPREAD} = \frac{\text{ask}_i, t - \text{bid}_i, t}{(\text{ask}_i, t + \text{bid}_i, t)/2} \times 100\%
\]

*Source: Lasdi, 2013*

Where

\( \text{ask}_i, t \) = highest ask price in the company i stock that is shown in day \( t \)

\( \text{bid}_i, t \) = lowest ask price in the company i stock that is shown in day \( t \)

### 3.2.5 Managerial Ownership

Management ownership refers to the existence of the company's management or directors' shares. According to the agency theory, management will make maximum use of their company. Hence, management ownership may have significance on earnings management practices. Managerial ownership will be expressed as follows:

\[
\text{MO} = \frac{\text{Share Capital Owned by Management } t}{\text{Total Outstanding Share Capital } t}
\]

*Source: Hong & Nguyen, 2014*
### Table 3.1 definition of the variables

<table>
<thead>
<tr>
<th>Dependent variable</th>
<th>Code</th>
<th>Proxies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Earnings management</td>
<td>DA</td>
<td>The difference between Total Accruals and Non-Discretionary accruals year of i in the firm.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Independent variables</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Sales growth</th>
<th>SG</th>
<th>the change of sales in year $t$ divided by sales in year $t-1$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Firm size</td>
<td>SIZE</td>
<td>natural logarithm of the total asset year of i in the firm</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Asymmetric information</th>
<th>SPREAD</th>
<th>the difference between the lowest and highest share price by the end of the year $t$ which divided by half value of the lowest and highest share price by the end of the year $t$ in the firm</th>
</tr>
</thead>
<tbody>
<tr>
<td>managerial ownership</td>
<td>MO</td>
<td>the ratio of share capital owned by Management to total unallocated capital year of i in the firm</td>
</tr>
</tbody>
</table>

*Source from researcher*

#### 3.3 Sampling Design

In this study, the samples are obtained from the Shanghai Stock Exchange from 2014–2016 year period. The research uses the purpose sampling method for selecting useful information from electrical machinery and equipment manufacturing industry. The criteria defined as following intent to make bias lower in data analysis. The criteria for sample selection in this study are:

The researcher selects from electrical machinery and equipment manufacturing industry as the object for research. It is to prevent a bias because of differences in business characteristics.
1. A large number of studies show that Chinese companies will adjust their earnings to increase profits before the initial public offering of shares, so excluding newly listed companies from 2014 to 2016.

2. Exclude companies whose ROE is above 100%.

3. Select companies which have the positive earnings after-tax profit during the period 2014-2016. In order to avoid the influence of outliers on the estimation of model parameters, the researcher carries out 1% and 99% tail process.

According to the previous criteria eliminate sample:

<table>
<thead>
<tr>
<th>No.</th>
<th>CRITERIA</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Electrical machinery and equipment manufacturing industry</td>
<td>33</td>
</tr>
<tr>
<td>2</td>
<td>Companies newly listed companies from 2014 to 2016</td>
<td>-3</td>
</tr>
<tr>
<td>3</td>
<td>Companies whose ROE is above 100%</td>
<td>-5</td>
</tr>
<tr>
<td>4</td>
<td>Companies have negative earnings after tax for the period of 2014--2016</td>
<td>-6</td>
</tr>
<tr>
<td></td>
<td>Sample companies</td>
<td>19</td>
</tr>
</tbody>
</table>

*Source from researcher*

**Table 3.2 Samples companies**

### 3.4 Data Collection Method

This quantitative research uses secondary data. In this research, the researcher collects data from Shanghai Stock Exchange.

The official website is www.sse.com.cn. Besides, all the variables data in this research are from CSMAR and Wind database

### 3.5 Data Analysis Method

This researcher uses multiple regression analysis for data analysis. Nurdiniah & Putri (2015) also use regression analysis for testing data. One advantage of regression analysis is
that regression analysis can accurately measure the degree of correlation between the various factors and the level of regression fit. Prior to the regression analysis, the data in this study need to do descriptive statistics and correlation analysis. The researcher use SPSS 21 software to simplify the analysis process.

3.5.1 Descriptive Statistics Analysis

The descriptive statistics involve the process of organizing, summarizing and presenting data in the informative way that presented the analysis result formally to make readers have an overall understanding of data being analyzed (Rusmanto et al. 2014). Results show that whether the data is intended to determine the level of goodness models and the influence of each independent variable on the dependent variable or not (Dade & Linda, 2015).

3.5.2 Correlation analysis

Correlation analysis is used to determine whether the variables have the linear association or not. Correlation analysis is aiming to analyze the relationship between earnings management among sales growth, firm size, spread and managerial ownership. There have two types of correlation relationship. The one is a negative correlation, the other one is a positive correlation. When the correlation coefficient below than 0.05, it means that the independent variable and dependent variable pass the significance test of 5% significance level. The positive correlation shows that the bigger of the independent variable, the bigger of the dependent variable. While the negative correlation indicates that if the independent variable is large, the dependent variable is small.

3.5.3 Regression analysis

This research uses multiple regression analysis for determining the relationship between variables which dependent variable is earnings management and the independent variables are sales growth, firm size, asymmetry information and managerial ownership.

According to analysis the factors impacts of earnings management, the researcher use the multiple regression formula for testing the above model.
\[ |DA| = \beta_0 + \beta_1 SG + \beta_2 SIZE + \beta_3 SPREAD + \beta_4 MO + \varepsilon \]

*Source from researcher*

Where

\[ |DA|: \text{Absolute value for earnings Management of companies } i \text{ of year } t \]

SG \text{i.t}: Sales growth for company \text{i of year } t

SIZE \text{i.t} = \text{Firm size for company } I \text{ of year } t

SPREAD \text{i.t} = \text{asymmetry information for company } i \text{ of year } t

MO \text{i.t} = \text{Managerial ownership for company } i \text{ of year } t

\[ \beta_1 - \beta_4: \text{Regression coefficients} \]

\[ \beta_0: \text{Constant} \]

**3.5.4 Classical Assumption Test**

Classical assumption test is statistical and testing the assumption that must suffice the multiple linear regression analysis. In order ensure that the data is suitable, these data should meet the following assumptions. The statistical tests are as follows:

**3.5.5 Normality Test**

The first step in classical assumption test is data normality test. Based on the models of the research and before the data processed, the data normality test must be done for research purpose which is inferential. The objective of normality test is testing whether the residual value has the normal distribution or not in the regression model. According to research the t test and F test assumes that the value of residuals follows a normal distribution. There are two ways to detect whether the residuals are normally distributed or not that is the statistical tests and graph analysis (Ghozali, 2013). Normality will be checked through Kolmogorov-Smirnov Test (K-S test) by comparing the Asymptotic Significance. The criteria to determine whether data is normally distributed are as follows:
The criteria in the normality test through K-S test (Sekaran, 2009):

a. If the value Asymp.Sig. > 0.05, then the data is normally distributed in the research.

b. If the value Asymp.Sig. < 0.05, then the data is not normally distributed in the research.

3.5.6 Multicollinearity Test

The multicollinearity test with the view of examine if in the regression model exists correlation between independent variables. There will be free of correlations in a good regression model between independent variables. In other words, the variables are orthogonal where the correlational value between them is equal to zero (Ghozali, 2013). The researcher analysis variance inflation factor (VIF) and tolerance (TOL) value in multicollinearity. The criteria for multiple collinearity tests are summarized as follows:

If the VIF value < 10 and the tolerance value > 0.10, in the regression model there will be no multicollinearity inter independent variables.

If the VIF value > 10 and the tolerance value < 0.10, in the regression model there will be multicollinearity inter independent variables.

3.5.7 Heteroscedasticity test

Heteroscedasticity test is generally used to check whether the residual variance in observation period differs with another observation period or not. There is no heteroscedasticity in the good regression model. About heteroscedasticity test method is as follows: Graphics test, Goldfeld - Quandt test, White test, Park test and Gleiser test.

In this research, the researcher uses scatterplot for checking whether there has heteroscedasticity issue or not. The scatterplot can be used for check whether there have heterocedascity or not. If there shown a clear trend or the scatter plot to present a specific shape or follow a regular pattern, it means the heterocedascity exists. If there doesn't show a clear trend and the scatter plot doesn't present a specific shape or follow a regular pattern, it indicates that there do not have the heteroscedastic problem. In a regression model, if there hasn't existed heterosedascity which indicated that the regression model could be used (Malhotra, 2011).
3.5.8 Autocorrelation Test

The purpose of autocorrelation test is to check whether the linear regression model has any correlation between the residual errors in the prior period (t-1) and period t (Ghozali, 2013). If there is any correlation, it is called autocorrelation problem. Autocorrelation problem arises on time series data. Each of the data population of independent variable has a correlation with the other data in the same variable. There is no autocorrelation in the good regression model. Using Bruesch-Godfrey to detect the absence or presence of autocorrelation, and the Bruesch-Godfrey is also called Language multiplier (LM). The criteria for deciding whether have autocorrelation in a regression model as follows:

1. If $\text{Sig res}^2 \geq \alpha (0.05)$, then there is no autocorrelation;
2. If $\text{Sig res}^2 \leq \alpha (0.05)$, then there is autocorrelation.

3.5.9 Coefficient of Determination (R2)

The coefficient of determination (R2) is applied to measure the contribution degree of independent variables to the dependent variable. The determination of test coefficient is aiming to evaluate the benefits of regression equation model, which shows the percentage of the proportion of the total variation in the dependent variable explicited by the independent variables. Adjusted R2 is used for modified measure the coefficient of determination, which considers the number of all the independent variables included in the sample size and regression equation.

3.5.10 F Test (Simultaneous Test)

F test is used for conducting whether sales growth, firm size, spread, managerial ownership simultaneous impact earnings management. The probability value is 0.05.

1. if the significant value $>\text{probability value}$, it means sales growth, firm size, spread, managerial ownership don't have the simultaneous impact on earnings management.
2. if the significant value $<\text{probability value}$, it means sales growth, firm size, spread, managerial ownership have the simultaneous impact on earnings management.
Then hypotheses for f-test will as below:

\[ H_0: \beta_1 = \beta_2 = \beta_3 = \beta_4 = 0 \]

Ha: \( \beta_i \neq \beta_2 \neq \beta_3 \neq \beta_4 \neq 0 \)

There has a method for conducting test:

1. through comparing 0.05 with the significance level, which for determining to accept the hypothesis \( H_0 \) or reject.

   A, if the significance bigger than 0.05, hence \( H_0 \) is accepted while \( Ha \) will be rejected.

   B, if the significance less than 0.05, hence \( H_0 \) is rejected while \( Ha \) will be accepted.

3.5.11 T Test (Partial Test)

T-test is generally used to confirm whether the independent variables in this research have the partial impact on the dependent variable which is earnings management or not. The significance level is 0.05. Through comparing the value of the significant test table and 0.05, which determines whether all of the independent variables in this research have the partial impact on the dependent variable. The criterion for determining the significance of the test value in the T-test as below:

1. if the significant value \( \text{Sig} < 0.05 \), then independent variables have a significant impact on the 5% significant level.

2. if the significant value \( 0.1 > \text{Sig} > 0.05 \), then independent variables have a significant impact on the 10% significant level.

Then hypothesis for t-test will as follow:

\[ H_0: \beta_1 = \beta_2 = \beta_3 = \beta_4 = 0. \]

Ha: \( \beta_1 \neq \beta_2 \neq \beta_3 \neq \beta_4 \neq 0. \)
CHAPTER IV
ANALYSIS AND RESULTS

4.1. Data Description

This research is aiming to analyze the factors impacting on earnings management of electrical machinery and equipment manufacturing companies which listed on Shanghai stock exchange during the period of 2014-2016. In this study, earnings management is the dependent variable, the independent variables are sales growth, firm size, asymmetry information and managerial ownership. The data processed in this study are the secondary data of the audited financial report 2014-2016.

4.1.1 Descriptive Statistic

The descriptive statistics are also called as narrative statistics in the statistical term. Descriptive statistics is to describe the basic situation of observations. The calculated result of descriptive statistic is showing the below table:

<table>
<thead>
<tr>
<th>Table 4.1 Descriptive statistics of the main variables.</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
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<tr>
<td></td>
</tr>
<tr>
<td>Valid N</td>
</tr>
</tbody>
</table>

Source: SPSS21

Table 1 shows the descriptive statistics of 57 samples with the main variable. | DA | represents the performance of earnings quality, which the larger the value, the poorer the
earnings quality. As shown in Table 1, |DA| sample is ranging from 0.003 until 0.160 with the average 0.052. The median is 0.039. TELLHOW have the best earnings quality in 2014 with earnings Quality Level of 0.003, while BENEFO has the worst earnings quality performance number was 0.160. Half of the 57 samples reported earnings quality | DA | greater than 0.039, the standard deviation is 0.041 which reflects the degree of difference of the research sample on the earnings quality. The small values indicate that the earnings quality performance of the different research samples is slightly different.

SG (Sales Growth) is ranging from -20.752 times to 49.610 times. The average of SG (sales growth) is 6.587%. There is half of the sample companies increase in sales during 2014_2016. The maximum sales growth comes from Camel Group in 2015, while the minimum sales growth comes from Smarter Energy in 2015.

SIZE (Firm Size) of sample companies is ranging from 21.122 until 27.962. The average is 23.096. This means that bigger the number is, bigger is the firm size or total assets. The smallest value of SIZE comes from China Western Electricity in 2014. The biggest value comes from BAOSHENG SCI in 2016.

Spread represents asymmetric information, which has an average of 0.416032. This number indicated that there is asymmetry information existing during 2014_2016. The maximum value of spread is 146.793% (shaangu Power, 2015), and the minimum value of spread is 36.223% (Baoguang Shares, 2016).

MO (Managerial Ownership) is ranging from 0.000 to 54.364 with the average 4.907, which means there are some companies don't have their management own the company share.

4.2 Result and Discussion

4.2.1 Correlation analysis

In order to analyze the relationship between earnings management among sales growth, firm size, Spread and managerial ownership, this study makes related analyzes which results are shown in Table 3:
Correlation analysis showed that the correlation coefficient of SG and earnings management is -0.446, which passed the significance test of 5% significance level. This means that the relationship between sales growth and earnings management have the negative correlation significant. Hence, if the SG is large, the earnings management is small, the earnings management performance is better. The correlation between SIZE and earnings management is 0.308, which passed the significance test of 5% significance level. This result shows that firm size and earnings management have a significant positive correlation. The large firm size, the bigger earnings management, and the earnings management performance are worse.

The correlation coefficient between Spread and earnings management is -0.287, which passed the significance test of 5% significance level. The result shows that the bigger SPREAD, the smaller the earnings management, the better performance of earnings management.

The correlation coefficient of MO and earnings management is 0.323, which passed the significance test of 5% significance level. This result indicates the significant positive correlation between MO and earnings management. Then, the higher proportion of equity owned by management in the total unallocated capital, the greater earnings management, the poorer the earnings quality performance;

In addition, through observing the correlation coefficient between independent variables, the research obtains that the largest absolute value of the independent variables is
0.360, which indicating that the correlation between the independent variables is generally low. Then, there is no serious multicollinearity between the independent variables.

4.2.2 Regression analysis

In this research, through analyzing the impact of earnings management, the researcher establishes the multiple regression models. The author estimates the model parameters by the least square method. The multiple regression models are as follows:

**Table 4.3 Coefficient table**

<table>
<thead>
<tr>
<th>Source: SPSS21</th>
</tr>
</thead>
<tbody>
<tr>
<td>DA= -0.027-0.001SG+0.004SIZE-0.0002Spread+0.001MO</td>
</tr>
</tbody>
</table>

The least square method is used to estimate the parameters of the model, and the parameter estimation satisfies the validity and consistency requirements. Then the model estimation satisfies the classical assumption that the model residuals satisfy the positive distribution hypothesis, that there is not much between the independent variables in the multicollinearity and there is no heteroscedasticity and the sequence related situation. In the
following, before the model parameter estimation is carried out, firstly, whether the model satisfies the classical assumptions is verified.

4.2.3 Normality Test

The normality test is aiming to test whether the residuals value has the normal distribution or not in the regression model. Normal distribution signifies the data in this research are unbiased. P-P and Kolmogorov-Smirnov test can be used to test whether the model residuals are positive or not. The results are shown as follows:

![Normal P-P Plot of Regression Standardized Residual](image)

*Source: SPSS21*

**Figure-4- 1 Normality Test**

The P-P plot shows the dots distributed on either side of the diagonal, which shows the meeting point of obtained values and the expected value. The normality of P-Plot assumes that the data is distributed around and follow the diagonal line. This means that the data is normally distributed.

Following, Kolmogorov-Smirnov is used for testing whether the normalized residuals are in positive distribution or not.
Table 4.4 Normality Test

<table>
<thead>
<tr>
<th></th>
<th>Standardized Residual</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>N</strong></td>
<td>57</td>
</tr>
<tr>
<td>Normal Parameters(^a)</td>
<td>Mean 0.000</td>
</tr>
<tr>
<td></td>
<td>Std. Deviation 0.034</td>
</tr>
<tr>
<td>Most Extreme Differences</td>
<td>Absolute 0.120</td>
</tr>
<tr>
<td></td>
<td>Positive 0.120</td>
</tr>
<tr>
<td></td>
<td>Negative -0.079</td>
</tr>
<tr>
<td>Kolmogorov-Smirnov Z</td>
<td>0.910</td>
</tr>
<tr>
<td>Asymp. Sig. (2-tailed)</td>
<td>0.380</td>
</tr>
</tbody>
</table>

Test distribution is Normal.

*Source: SPSS21*

As shown in the table above, the value of Asymp.Sig 0.380 is bigger than 0.05. Through K-S test (Sekaran, 2003) in the normality test: when the value of Asymp.Sig is bigger than 0.05, the data are normally distributed; when the value of Asymp.Sig is smaller than 0.05, the data are not normally distributed. Then the data in this study are normally distributed.

The result of P-Plot graphic test, Kolmogorov-Smirnov test shows that the data in this study are normally distributed and the data are unbiased.

4.2.4 Multicollinearity Test

Multicollinearity test is aiming to test whether there are correlations between the independent variables or not. It related more than two independent variables. Multicollinearity can be tested by checking the tolerance value and variance inflation factor (VIF). If the value of tolerance is exceeded 0.10 or VIF under 10, it can be summarized there is no multicollinearity among the independent variables in the regression.
Table 4.5 Multicollinearity Test

<table>
<thead>
<tr>
<th>Model</th>
<th>Collinearity Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Tolerance</td>
</tr>
<tr>
<td>1 (Constant)</td>
<td></td>
</tr>
<tr>
<td>SG</td>
<td>.829</td>
</tr>
<tr>
<td>SIZE</td>
<td>.897</td>
</tr>
<tr>
<td>SPREAD</td>
<td>.866</td>
</tr>
<tr>
<td>MO</td>
<td>.936</td>
</tr>
</tbody>
</table>

Source: SPSS21

The result shows that the tolerance value of all the independent variables exceeds 0.1 and VIF value of all the independent variables under 10. Hence, all the independent variables are free from multicollinearity

4.2.5 Heteroscedasticity Test

Heteroscedasticity test is aiming to check whether the residual variance in observation period differs with another observation period or not. There is no heteroscedasticity in the good regression model. Through checking figure plots between predict value of the independent variables (ZPRED) with residual value (SRESID), which can detect the presence or absence of heteroscedasticity. The result of heteroscedasticity test as follows:
Figure 4.2 Heteroscedasticity Test

The results in Figure 2 show that the regression model and the dependent variable (ZPRED) doesn't show a clear trend and the scatter plot doesn't present a specific shape or follow a regular pattern. It means that there is no heteroscedastic problem in the model residuals.

4.2.6 Autocorrelation Test

Estimating the parameters of multivariate linear regression model by using the least square method also requires that there is no sequence related problem in the model residuals. That is, there is no obvious correlation between the residuals in model t and the model residuals in other periods. When there is a correlation between the model residuals of t-phase and t-1 phase, it indicates that the model has first-order sequence correlation.
When the Sig-res2 bigger than alpha (0.05), there doesn't exist autocorrelation. The autocorrelation test result shown in the below table.

Table 4.6 Autocorrelation Test

<table>
<thead>
<tr>
<th>Model</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 (Constant)</td>
<td>.984</td>
</tr>
<tr>
<td>SG</td>
<td>.969</td>
</tr>
<tr>
<td>SIZE</td>
<td>.956</td>
</tr>
<tr>
<td>SPREAD</td>
<td>.988</td>
</tr>
<tr>
<td>MO</td>
<td>.978</td>
</tr>
<tr>
<td>RES_2</td>
<td>.228</td>
</tr>
</tbody>
</table>

*Source: SPSS21*

The Breusch-Godfrey test is used to test the sequence dependence of the model residuals, with a test statistic of 1.304349 and sig = 0.228 (0.228≥0.05), which demonstrates that there is no sequence-related problem for the model.

4.2.7 Coefficient of Determination (R2)

The coefficient of determination (R2) is applied to measure the contribution of independent variables to dependent variable. The determination of test coefficient is aiming to evaluate the benefits of regression equation model, which shows the percentage of proportion of the total variation in the dependent variable explicited by the independent variables. Adjusted R2 is used for modified measure the coefficient of determination, which considers the number of all the independent variables included in the sample size and regression equation.
The adjusted $R^2$ is equal to 0.256, which indicating that there have 25.6% ability of independent variables to explain the dependent variable and the rest 74.4% will be explicated by other factors that not analysis in this study.

### 4.2.8 F Test (Simultaneous Test)

To check whether the regression model is the good model and whether sales growth, firm size, spread, managerial ownership together impact discretionary accrual, F tests is used for conducting. The F-test shows the value of the probability or significance in ANOVA. This test will represent the appropriateness of the regression model. If the probability value is less than 0.05, it will be considered good. The result of F test is presented as below:

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.556</td>
<td>0.309</td>
<td>0.256</td>
<td>0.035136</td>
</tr>
</tbody>
</table>

a. Predictors: (Constant), SG, SIZE, SPREAD, SG, MO

b. Dependent Variable: DA

Source: SPSS21
Table 4.8 F Test (Simultaneous Test)

ANOVA\(^b\)

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>.029</td>
<td>4</td>
<td>.007</td>
<td>5.813</td>
<td>.001(^a)</td>
</tr>
<tr>
<td>Residual</td>
<td>.064</td>
<td>52</td>
<td>.001</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>.093</td>
<td>56</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\(^a\) Predictors: (Constant), SG, SIZE, SPREAD, MO

Dependent Variable: DA

Source: SPSS21

The above F-test showed that the F statistic was 5.813, the significance (P value) was 0.001, and the P value was less than 0.05. At the significance level of 5%, the null hypothesis was rejected, which indicates that \(\beta_1\), \(\beta_2\), \(\beta_3\), and \(\beta_4\) are significantly different from 0. Then, all of the independent variables, which including sales growth, firm size, asymmetric information, and manager ownership have a significant impact on dependent variables.

4.2.9 T Test (Partial Test)

T-test is generally used to confirm whether the independent variables in this research have the partial impact on the dependent variable which is earnings management or not. The significance level is 0.05. The result of t-test is shown as below:
Table 4.9 t Test

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
</tr>
<tr>
<td>1 (Constant)</td>
<td>-0.027</td>
<td>0.080</td>
</tr>
<tr>
<td>SG</td>
<td>-0.001</td>
<td>0.000</td>
</tr>
<tr>
<td>SIZE</td>
<td>0.004</td>
<td>0.003</td>
</tr>
<tr>
<td>SPREAD</td>
<td>-0.0002</td>
<td>0.000</td>
</tr>
<tr>
<td>MO</td>
<td>0.001</td>
<td>0.000</td>
</tr>
</tbody>
</table>

a. Dependent Variable: DA

Source: SPSS21

From the above table, the multiple linear regression model as follows:

\[ |DA| = -0.027 - 0.001SG + 0.004SIZE - 0.0002Spread + 0.001MO \]

The following regression coefficient T-test results were analyzed:

1. The SG coefficient is -0.328, which means when sales growth increase 1%, |DA| will decrease 32.8% as the other variables constant.

2. The SIZE coefficient is 0.155, which means when firm size increase 1%, |DA| will increase 15.5% as the other variables constant.

3. The SPREAD coefficient is -0.136, which means when spread increase 1%, |DA| will decrease 13.6% as the other variables constant.

4. The MO coefficient is 0.235, which means when managerial ownership increase 1%, |DA| will increase 23.5% as the other variables constant.

T-test is used to test the coefficient and significance of the dependent variable for the dependent variable which can be done by observing the significant probability (Sig.).
As we all know, the significance level is 0.05, if the significant value less than 0.05, then the hypothesis can be accepted.

The result of T-test regression coefficient and the hypothesis testing as below:

H1: sales growth has a significant impact on earnings management in China listed company of electrical machinery and equipment manufacturing for the period of 2014-2016.

SG and the significance level is less than 0.05 (0.013<0.05). It Indicates that there has the significant effect of SG on earnings management for the sample of electrical machinery and equipment manufacturing during the period of 2014-2016. Then, H1 is accepted.

H2: Firm size has a significant impact on earnings management in China listed company of electrical machinery and equipment manufacturing for the period of 2014-2016.

SIZE and the significance level more than 0.05 (0.209>0.1). It Indicates that firm size has no significant effect on earnings management for the sample of electrical machinery and equipment manufacturing during the period of 2014-2016. Then, H2 is rejected.

H3: Asymmetry information has a significant impact on earnings management in China listed company of electrical machinery and equipment manufacturing for the period of 2014-2016.

SPREAD and the significance level is more than 0.05 (0.276>0.1). It indicates that SPREAD has no significant effect on earnings management for the sample of electrical machinery and equipment manufacturing during the period of 2014-2016. Then, H3 is rejected.

H4: Managerial ownership has a significant impact on earnings management in China listed company of electrical machinery and equipment manufacturing for the period of 2014-2016.

MO and the significance level is more than 0.1 (0.054<0.1). It indicates the significant at 10% significance level. There has significant effect of managerial ownership on earnings management for the sample of electrical machinery and equipment manufacturing during the period of 2014-2016. The researcher can get the conclusion from the previous study, the
samples companies which have less managerial ownership have earnings management practices. Then, H4 is accepted.

H5: Managerial ownership, asymmetry information, debt contracts, sales growth and firm size have the simultaneously significant effect on earnings management in China listed company of electrical machinery and equipment manufacturing for the period of 2014_2016.

Due to $\beta_{1,2,3,4,5,6} \neq 0$ and the significant value in F test is 0.001, which is lower than 0.05. It shows that sales growth, firm size, asymmetry information and managerial management have a simultaneously significant effect on earnings management in China listed company of electrical machinery and equipment manufacturing for the period of 2014_2016. Then, H5 is accepted.
CHAPTER V
CONCLUSIONS AND RECOMMENDATIONS

5.1. Conclusion.

Based on the foregoing analysis, the test results and discussions in Chapter 4, the conclusion of the impact of sales growth, firm size, asymmetric information and managerial ownership on earnings management in China listed company of electrical machinery and equipment manufacturing for the period of 2014_2016 be summarized as follows:

Sales growth has significant impact on earnings management in China listed company of electrical machinery and equipment manufacturing for the period of 2014_2016. The significance value of SG is less than 0.05 (0.013<0.05). It indicates that there has the significant effect of SG on earnings management for the sample of electrical machinery and equipment manufacturing during the period of 2014_2016.

Firm size does not have the significant impact on earnings management in China listed company of electrical machinery and equipment manufacturing for the period of 2014_2016. The significance value of SIZE is more than 0.05 (0.209> 0.1). It indicates that firm size has no significant effect on earnings management for the sample of electrical machinery and equipment manufacturing during the period of 2014_2016.

Asymmetry information does not have the significant impact on earnings management in China listed company of electrical machinery and equipment manufacturing for the period of 2014_2016. The significance value of SPREAD is more than 0.05 (0.276> 0.1). It indicates that the SPREAD has no significant effect on earnings management for the sample of electrical machinery and equipment manufacturing during the period of 2014_2016.

Managerial ownership has significant impact on earnings management in China listed company of electrical machinery and equipment manufacturing for the period of 2014_2016. The significance value of MO is more than 0.1 (0.054 <0.1). It indicates the significant at 10% significance level. There has the significant effect of managerial
ownership on earnings management for the sample of electrical machinery and equipment manufacturing during the period of 2014_2016.

Managerial ownership, asymmetry information, debt contracts, sales growth and firm size have the simultaneously significant effect on earnings management in China listed company of electrical machinery and equipment manufacturing for the period of 2014_2016. Due to $\beta_{1, 2, 3, 4, 5, 6} \neq 0$ and the significant value in F test is 0.001, which is lower than 0.05. It shows that sales growth, firm size, asymmetry information and managerial management have a simultaneously significant effect on earnings management in China listed company of electrical machinery and equipment manufacturing for the period of 2014_2016. The sample companies with high managerial ownership do not implement earnings management, while the sample companies with relatively small managerial ownership may implement earnings management.

5.2. Limitations and Recommendation.

The adjusted R2 is 0.256, which means four independent variables including sales growth, firm size, asymmetry information and managerial ownership in this study impact of earnings management is about 25.6%. The rest of 74.4% is impacted by the other factors that not analyzed in this study. While the political factors, government regulations and corporate governance and other external factors are not involved in this research. The future researcher can analyze the political factors, government regulations, corporate governance, and other external factors that effect on earnings management.

The data used in this study are secondary data, and then the integrity and analysis of the data are highly dependent on the publication of the financial statements.

5.3. Implications.

a) For future researcher:

1. The future researcher can conduct analyses of non- electrical machinery and equipment manufacturing company.
2. The future researcher can use the other year’s data for measuring the earnings management.

b) For company:

1. Select the financial statements audit business professional and reputable accounting firm, which to enhance the public's trust for company financial statements.

2. Increase the disclosure of company financial statement detail information and bonus plans and reduce the earnings management issues.

c) For public accounting firm:

1. Improve accounting rules that make it easier for users of financial statements to understand, thereby reduce the issue of earnings management.

2. Improve the audit quality of listed company’s financial statement, and strictly control the issue of earnings management.

d) For investors:

1. The investors need to pay more attention to sales growth and manager ownership. Hence, the investors might consider properly these two factors when making the decision.

2. The investors need to pay more attention to accounting process prepared and earnings management problem.
REFERENCES


Salah Abdelmoula, (2010). Earnings management in the years following the integrated corporate income tax within dutch housing association

Sellami Mouna (2015). Incentives and Constraints of Real Earnings Management: The Literature Review


**Internet**

Shanghai Stock Exchange.

www.sse.com.cn

www.cfi.net.cn/
APPENDIX

Appendix 1. List of Basic Industry and Chemical Sector as Sample in 2012-2014

<table>
<thead>
<tr>
<th>no</th>
<th>code</th>
<th>Companies Name</th>
<th>Auditing firm</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>TBEA</td>
<td>TBEA CO., LTD.</td>
<td>Grant Thornton</td>
</tr>
<tr>
<td>2</td>
<td>GWE</td>
<td>Lanzhou GREATWALL ELECTRICAL CO., LTD</td>
<td>E&amp;Y</td>
</tr>
<tr>
<td>3</td>
<td>HPEC</td>
<td>HENAN PINGGAO ELECTRIC CO., LTD</td>
<td>Ruihua Certified Public Accountants</td>
</tr>
<tr>
<td>4</td>
<td>BVEA</td>
<td>ShaanxiBaoguangVacuumElectronic ApparatusCo. Ltd</td>
<td>Shinewing</td>
</tr>
<tr>
<td>5</td>
<td>BENEF</td>
<td>TIANJIN BENEF ORG ELECTRIC CO., LTD</td>
<td>BDO</td>
</tr>
<tr>
<td>6</td>
<td>Eco-Energy</td>
<td>Shuangliang Eco-Energy Systems Co., Ltd</td>
<td>SKYRUN</td>
</tr>
<tr>
<td>7</td>
<td>ZXDQ</td>
<td>SHANGHAI ZHIXIN ELECTRIC CO., LTD</td>
<td>Ruihua certified public accountants</td>
</tr>
<tr>
<td>8</td>
<td>BAOBIAN</td>
<td>BAODING TIANWEI BAOBIAN ELECTRIC CO., LTD</td>
<td>BDO</td>
</tr>
<tr>
<td>9</td>
<td>TJSW</td>
<td>TONGLING JINGDA SPECIAL MAGNET WIRE CO., LTD</td>
<td>Maple Tianjian</td>
</tr>
<tr>
<td>10</td>
<td>WOLONG ELECTRIC</td>
<td>WOLONG ELECTRIC GROUP CO., LTD</td>
<td>BDO</td>
</tr>
<tr>
<td>11</td>
<td>TELLHOW</td>
<td>TELLHOW SCI-TECH CO., LTD</td>
<td>WUYIGE</td>
</tr>
<tr>
<td></td>
<td>Smarter Energy</td>
<td>Far East Smarter Energy Co., Ltd</td>
<td>GZTYCPAGROUP, LLC</td>
</tr>
<tr>
<td>---</td>
<td>----------------</td>
<td>-------------------------------</td>
<td>-------------------</td>
</tr>
<tr>
<td>12</td>
<td>Hongfa</td>
<td>Hongfa Technology Co., Ltd.</td>
<td>E&amp;Y</td>
</tr>
<tr>
<td>13</td>
<td>BAOSHENG SCI</td>
<td>Baosheng Science and Technology Innovation Co., LTD.</td>
<td>BDO</td>
</tr>
<tr>
<td>14</td>
<td>SIFANG</td>
<td>BEIJING SIFANG AUTOMATION CO., LTD</td>
<td>KPMG</td>
</tr>
<tr>
<td>15</td>
<td>China XD</td>
<td>CHINA XD ELECTRIC CO., LTD</td>
<td>PWC</td>
</tr>
<tr>
<td>16</td>
<td>Camel Group</td>
<td>Camel Group Co., Ltd</td>
<td>zhaopin</td>
</tr>
<tr>
<td>17</td>
<td>ShaanGu</td>
<td>XI’AN SHAANGU POWER CO., LTD.</td>
<td>KPMG</td>
</tr>
<tr>
<td>18</td>
<td>CHINT ELECTRICS</td>
<td>ZHEJIANG CHINT ELECTRICS CO., LTD</td>
<td>PCCPA</td>
</tr>
</tbody>
</table>
Appendices 2. Sample Data of electrical machinery and equipment manufacturing industry

<table>
<thead>
<tr>
<th>No</th>
<th>Code</th>
<th>Year</th>
<th>DA</th>
<th>SG (%)</th>
<th>SIZE</th>
<th>SPREAD (%)</th>
<th>MO (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>TBEA</td>
<td>2014</td>
<td>0.0993</td>
<td>-10.6435</td>
<td>22.8714</td>
<td>71.0438</td>
<td>0.0000</td>
</tr>
<tr>
<td>2</td>
<td>GWE</td>
<td>2014</td>
<td>0.0154</td>
<td>18.6149</td>
<td>22.2799</td>
<td>46.3192</td>
<td>0.0000</td>
</tr>
<tr>
<td>3</td>
<td>HPEC</td>
<td>2014</td>
<td>0.1112</td>
<td>4.9085</td>
<td>22.0482</td>
<td>48.8479</td>
<td>0.0426</td>
</tr>
<tr>
<td>4</td>
<td>BVEA</td>
<td>2014</td>
<td>0.0357</td>
<td>7.8435</td>
<td>22.0559</td>
<td>76.3338</td>
<td>0.0267</td>
</tr>
<tr>
<td>5</td>
<td>BENEFO</td>
<td>2014</td>
<td>0.16</td>
<td>-15.0015</td>
<td>27.7381</td>
<td>36.8845</td>
<td>54.3636</td>
</tr>
<tr>
<td>6</td>
<td>Eco-Energy</td>
<td>2014</td>
<td>0.0243</td>
<td>8.1547</td>
<td>22.2144</td>
<td>106.2765</td>
<td>0.0000</td>
</tr>
<tr>
<td>7</td>
<td>ZXDQ</td>
<td>2014</td>
<td>0.0577</td>
<td>37.9633</td>
<td>22.6260</td>
<td>71.9346</td>
<td>0.0096</td>
</tr>
<tr>
<td>8</td>
<td>BAOBIAN</td>
<td>2014</td>
<td>0.0402</td>
<td>-6.3282</td>
<td>24.1422</td>
<td>72.3179</td>
<td>0.0000</td>
</tr>
<tr>
<td>9</td>
<td>TJSMW</td>
<td>2014</td>
<td>0.1367</td>
<td>-16.9468</td>
<td>27.5379</td>
<td>77.2563</td>
<td>0.1392</td>
</tr>
<tr>
<td>10</td>
<td>WOLONG ELECTRIC</td>
<td>2014</td>
<td>0.0061</td>
<td>-5.4328</td>
<td>22.2292</td>
<td>45.2555</td>
<td>0.0000</td>
</tr>
<tr>
<td>11</td>
<td>TELLHOW</td>
<td>2014</td>
<td>0.0032</td>
<td>22.8215</td>
<td>22.8810</td>
<td>93.1423</td>
<td>0.1537</td>
</tr>
<tr>
<td>12</td>
<td>Smarter Energy</td>
<td>2014</td>
<td>0.0144</td>
<td>11.2452</td>
<td>22.6226</td>
<td>71.0623</td>
<td>0.0000</td>
</tr>
<tr>
<td>13</td>
<td>Hongfa</td>
<td>2014</td>
<td>0.0746</td>
<td>10.2896</td>
<td>23.9462</td>
<td>77.2240</td>
<td>0.0238</td>
</tr>
<tr>
<td>14</td>
<td>BAOSHENG SCI</td>
<td>2014</td>
<td>0.0026</td>
<td>37.3420</td>
<td>23.5467</td>
<td>94.3470</td>
<td>0.0126</td>
</tr>
<tr>
<td>15</td>
<td>SIFANG</td>
<td>2014</td>
<td>0.0798</td>
<td>11.1305</td>
<td>22.1411</td>
<td>105.6338</td>
<td>54.3636</td>
</tr>
<tr>
<td>16</td>
<td>China XD</td>
<td>2014</td>
<td>0.039</td>
<td>13.6153</td>
<td>21.1215</td>
<td>56.5505</td>
<td>0.3540</td>
</tr>
<tr>
<td></td>
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Appendices 3. Output SPSS of Sample Companies data

Descriptive statistics

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## Appendices 4. Output SPSS of Sample Companies data

### (Classical Assumption Test)

#### Correlation analysis

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Note: *, **, respectively 5% and 1% significant level of significance.

#### Normality Test

![Normal P-P Plot of Regression Standardized Residual](image)
## One-Sample Kolmogorov-Smirnov Test

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a. Test distribution is Normal.

## Multicolinearity Test

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Heteroscedasticity Test

![Scatterplot showing heteroscedasticity](image)

Autocorrelation Test

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Coefficient of Determination (R²)

**Model Summary**

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**F Test**

**ANOVA**

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a. Predictors: (Constant), SG, SIZE, SPREAD, SG, MO
b. Dependent Variable: DA

**T Test**

**Coefficients**

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b. Dependent Variable