Effect of Firm's Internal Factors to Firm Performance: A Case Study of
Real Estate Sector in Chinese Stock Exchange During 2009 To 2012

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Abstract

The information of the relationship of firm's internal factors and firm performance can kindly help the manager of finance department in a company, to make decision for the right or proper capital structure. This study aims at examining the effect of firm's internal factors to firm performance: as a case study of Real Estate in Chinese stock exchange during 2009 and 2012. There are eight independent variables (debt ratio, debt to equity ratio, short-term debt ratio, long-term debt ratio, size, growth opportunity, asset tangibility ratio, and age) and three dependent variables that will determine the relationship to the performance of firm in this study.. The dependent variables in this study are measurements of firm performance that is classified as financial performance (return on asset, return on equity) and market performance (Tobin's Q). The most common method to conduct research is Ordinary Least Square (OLS) what is also used in this study. And the multiple regression models is adopted in this research to test hypotheses that firm's internal factors impact on firm performance. The data conclude four years database from year 2009 to 2012, on a total of 117 firms in both Shanghai stock market and Shenzhen stock market of China.

The result showed that in year 2009, debt ratio and debt to equity ratio has significant relationship with return on equity; and short term debt ratio, long term debt ratio and asset tangibility ratio has significant relationship with Tobin's Q. In year 2010 and 2011, debt ratio, short term debt and long term debt has significant relationship with return on equity; and debt to equity ratio, short term debt ratio, long term debt ratio and asset tangibility ratio has significant relationship with Tobin's Q. In year 2012, debt ratio, short term debt, long term debt and sales has significant relationship with return on equity; and debt to equity ratio, short term debt ratio, long term debt ratio and asset tangibility ratio has significant relationship with Tobin's Q. In the four years between 2009-2012, long term debt ratio has significant relationship with return on equity; and debt to equity ratio, short term debt ratio, and long term debt ratio and has significant relationship with Tobin's Q. Researcher suggest that further studies can apply other dependent variables such as gross margin, net profit, and other independent variables such as location, business groups, GDP, unemployment, government policy, economy and political stability, inflation rate, real interest rate, and CPI.
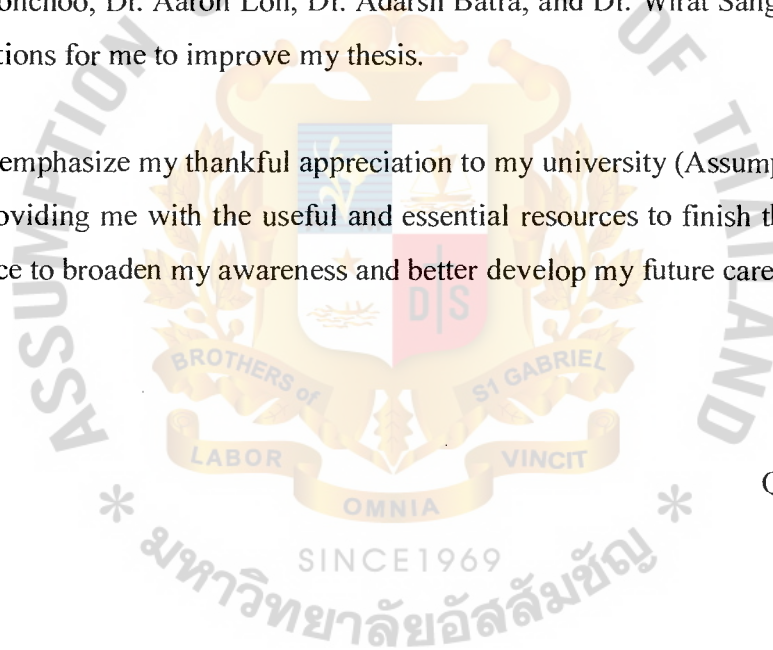
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Table of Contents

List of Tables

List of Figures

CHAPTER 1

GENERALITIES OF THE STUDY

This chapter mainly introduced the firm's internal factors and firm performance. The first part introduces the whole study, and focuses on the stock market of China. Next follows the statement of the problem and the research objectives. The scope and the limitation of this study will them be introduced. Last part is the definition of all the variables used in the study.

1.1 Introduction to the Study

In a company's finance sector, the method to decide a firm's internal factors are becoming a very important problem with huge interest. The reason that capital structure, one of the most important part of firm's internal factors, is the source of investment, cost and usability of capital will be impacted by the leverage ratio. And capital structure is also the majority of standard for operating firms.

It is very significant to investigate the decisions of the capital structure, in order to comprehend the finance operation of one company. Every company can get the key or correct decision form a good capital structure. The correct decision that the business organization can make, can help both profitability and the competitive ability in the market. In one business origination, investment or finance department are becoming the significant decision part. The manager of finance department in one company is the person who should make decision for the correct or proper capital structure. The definition for the decision of capital structure is the percentage of debt and equity in one company that help create good finance situation for the firm (Myers, 1998). The most influence in the income statement can be the diverse capital structure and finance risk. In the capital structure, the managers of company rather prefer to use the stock and common equity. In one company, the most important decision in finance department is the decision on the capital structure. Usually, owner of business organization can make use of the lowest cost of finance and the highest

1

income of company to capitalize the best capital structure. The capital structure can impact on the company's performance; it means that the capital structure also can influence the default and profit of company.

Among several theories (Zeitun and Tian, 2007; Abor, 2007; Ebaid, 2009), researchers significantly focus on the impact between capital structure and the firm performance. Nowadays, many academic literatures pay attention on the influence between capital structure and firm performance. During the period of looking for the factor that impacts on the business performance, researchers have found the answer for the question that capital structure is the key for the firm performance. It is very useful and helpful to find the internal problems in the company in order to understand the relationship between capital structure and firm performance. From the evaluation of firm performance, the investors and lenders can use this standard to find out how the success for the management of the company. Lenders usually can decide how much money should be loaned to the company by measuring the firm's performance. And for investors, the return on equity really helps to evaluate the management level.

The relationship between capital structure and firm performance has been exceedingly studied for so many years in the past. There are two effects in the capital structure: first, in the same risk level of companies, there is a greater cost capital and a greater leverage rate. Second, manger can evaluate a company which will impact the capital structure, whether company which have higher leverage rate, will have higher risk, and as a result, the company will be valued lower compared to other companies with low leverage rate. Capital structure is the critical decision that helps manger in making critical decision to maximize shareholder's profit by maximizing company's market price per share. There are many factors that can decide on capital structure, such as size of the company, bankruptcy costs, return on equity, and return on asset, what kind of type for the sector, policies internal of company, and revenues of the company.

This study aims at examining the effect of firm's internal factors to firm performance: as a case study of Real Estate in Chinese stock exchange during 2009 and 2012. The managers, investors, lenders and researchers can use this information to help better understand the relationship between capital structure and form performance in China, which can evaluate the value of company, and understand the mix of leverage to enhance firm performance.

There are eight independent variables and three dependent variables that will determine the relationship to the performance of firm in this study. The dependent variables in this study are measurements of firm performance that is classified as financial performance (return on asset, return on equity) and market performance (Tobin's Q). Capital structure is the mix of debt and equity in one company that is considered as independent variable that includes debt ratio, debt to equity ratio, short-term debt ratio, and long-term debt ratio, size, and growth of sales. Additionally, study of the GDP, inflation rate and real interest rate are used as the intervening variables.

1.2 Introduction to real estate sector of China

The market of real estate in China is becoming the biggest worldwide since year 2009. In China, the business organizations of state-owned, public and private take control of and develop the real estate. Nowadays, the Chinese government had made decision to restrict the market price for real estate by deducting bank interest rate. According to the report of the National Bureau of Statistics of China, the total investment of real estate sector was 7,180 billion RMB at the end of 2012 which increased 16.2% compared to that at the end of 2011 (source: the National Bureau of Statistics of China 2012).

The two following figures show that real estate sector is the biggest sector that attracts people to invest money compared to other industries, which is sixty percent in the investment market. And for the China household wealth, the biggest percentage is 41% for the house stock compared to others, and the 60% of the high net worth

individuals (HNWIs) in China made the investment in real estate (source: the National Bureau of Statistics of China 2013).

Figure 1.1: GDP and Residential Real Estate Investment Percent Growth, Year over Year (YTD)
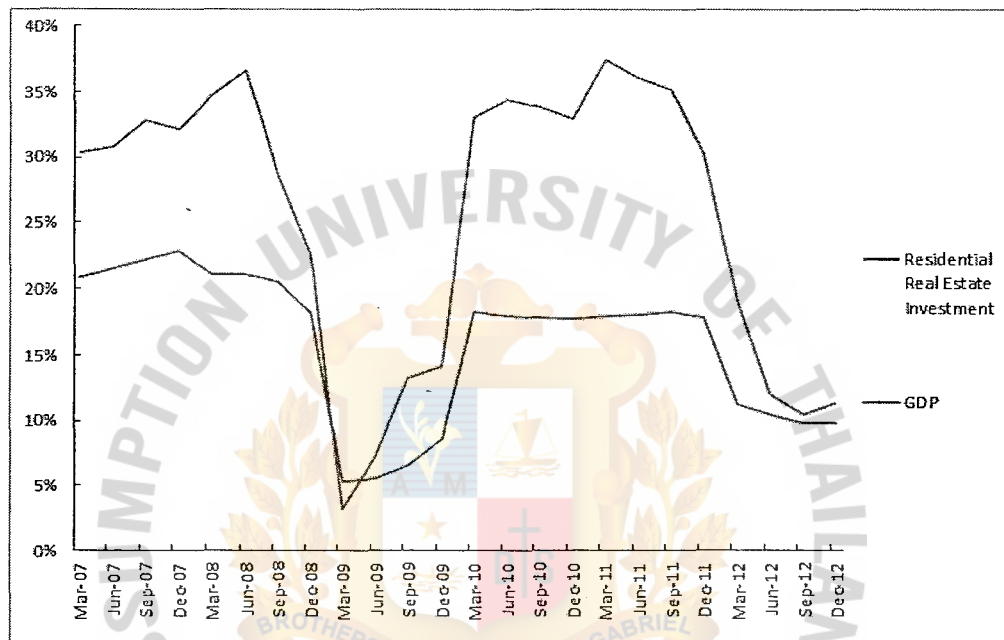
Source: China Economic Watch (http://www.piie.com/blogs/china/?p=2250, 24/01/2013)

Figure 1.2: Real Estate Investment Growth

The engine of China's growth
■ Real estate investment growth ■ Real GDP growth
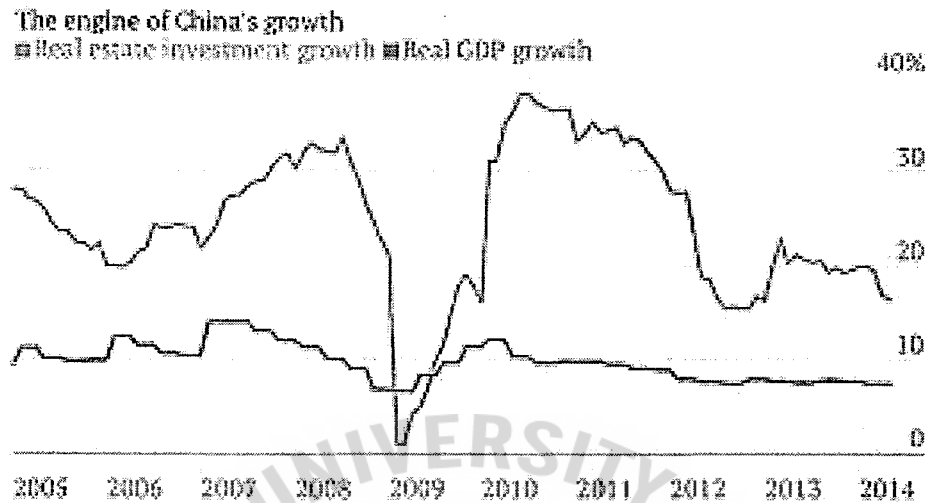
Source: the National Bureau of Statistics of China 2014 (http://qz.com/210436/another-reason-to-fear-a-chinese-housing-crash-14-of-chinas-urban-jobs-are-in-real-estate/, 21/03/2014)

Figure 1.3: China Real Estate Investment Growth

Source: the National Bureau of Statistics of China 2013 (http://finance.yahoo.com/news/real-estate-market-china-picks-193152219.html,
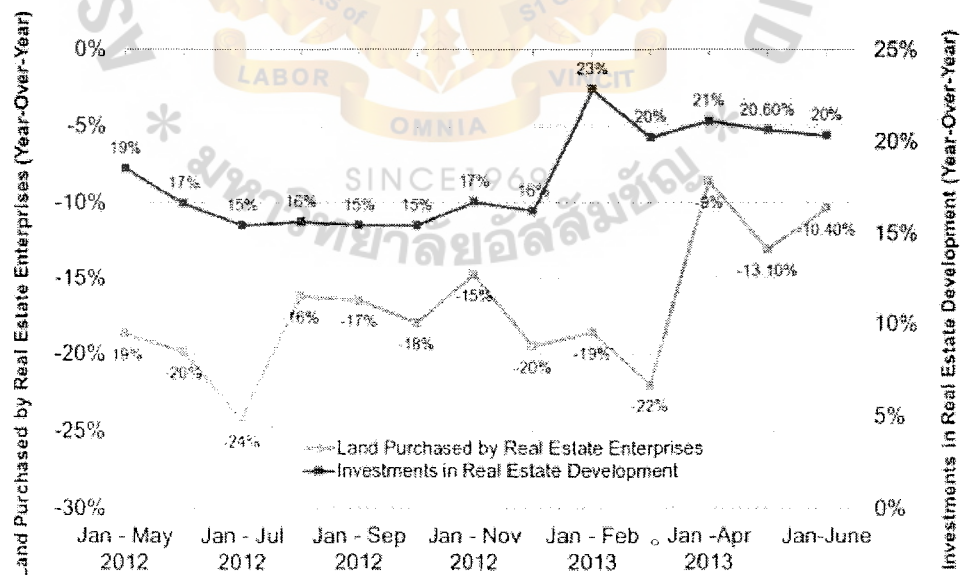
19/07/2013)

There was a real estate bubble in China between years 2005 to 2009 which can be represented as the bubble of Chinese property market (Patrick, 2009). The market price increased three times between years 2005 to 2009. The reasons for this phenomenon possibly were the policies of China, and the traditional attitudes of Chinese culture. The evidence for the bubble was showed by the high quantity of the unoccupied residential and business units, as well as the high market price compared to the income of Chinese people, as well as to the rental rates (Patrick, 2009). The bubble of real estate in China had showed the standards of relatively conservative mortgage lending. At the end of 2011, the growing real estate bubble have ended with the decreasing of the market price of property, from the report of government, not possible for the people in middle class to pay for the property in the big cities in China (Patrick, 2009). So, it is necessary to slow down China's economy in 2012 by blowing down bubble real estate. From the property analysts' state that there were more than 64 million empty houses and apartments in year 2011 and it showed that the market supply of real estate was more than demand, and it would lead to some serious problem after 2011 year (Patrick, 2009). From the report of National Bureau of Statistics, the main cause for the China economic growth and increase of employment is the development of real estate. There was nineteen percent of nominal GDP investment in real estate sector of China in 2012 (source: the National Bureau of Statistics of China 2012).

Investors are very concerned about the China's real estate market; investors know that real estate is the key for Chinese economy, when the real estate bubble decrease, the market price also decrease for the growing of economy, and when the market price of equity will also decrease. At the time of real estate market growth, the market price of new building rises, and the real estate market makes more sales than actual demand, investors had to consider if the real estate bubble stretched and ready to over blow. Banks are the key for the investors in real estate sectors of China. The loan in

6

real estate sector are of two types mortgages and developer loans, and total twenty one percent of total real estate loans come from banks (Patrick, 2009). Bank believed that the percentage of loan from real estate sectors will increase faster than industry sectors in China.

1.3 Introduction to Chinese Stock Market

After 1980s, when China decided to open its economy to public, the Shanghai Stock Exchange and Shenzhen Stock Exchange were launched in China, and they both contribute to the shareholders and business organizations. There are two critical bursts in Chinese Stock Market. The first one takes place during 1999 to 2000, and the second during 2004 to 2005 year. When Shanghai Stock Exchange and Shenzhen Stock Exchange make appearance on the Chinese market, they both open on Monday to Friday every week, between 9:30 to 11:00 and 13:30 to 15:00, except holidays in China.

In these two stock exchange markets, there are two types of companies, one is the 'A' shares which include the medium and large companies in China, and the mainly investors residing mainly from inside China using Chinese currency RMB. The other one is 'B' shares, is for the investors from outside China, and using US dollar. But after 2001, the domestic investors in China also can invest in the 'B' shares. The "A" shares include state owned share and it also consider of negotiable shares that can be used for public trade. "A" legal person can buy sixty percent of "A" shares (http://history.cultural-china. com/en/34History6633.html, accessed on 30 Jun 2014).

1.3.1   Shanghai Stock Exchange

The Shanghai Stock Exchange (SSE) was established at the end of 1990 year, and is in the city of Shanghai, China. The Shanghai Stock Exchange (SSE) is the major stock exchange market in China; the other one is the Shenzhen Stock Exchange. SSE is still controlled by the government of China, which is not opened to foreigner investors. The currency to trade Shanghai Stock Exchange is RMB and the volume is

7

US$0.5 trillion at the end of 2009. At the end of 2008, there were 861 companies that have listed in the Shanghai Stock Exchange with RMB 23,340.9 billion market capitalization (source: www.sse.com.cn, accessed on 30 Jun 2014). In the Shanghai Stock Exchange, the majority industry is concentrated on the high technology sector and infrastructure sector. The Shanghai Stock Exchange Composite Index is the key indicator to impact the market capitalization of Shanghai Stock Exchange that includes both A shares and B shares.

The target population in the study includes 73 listed real estate companies in Shanghai Stock Market. Because data are not complete in some listed real estate companies in Bloomberg database, researcher could obtain complete data from 56 companies in Shanghai Stock markets after rearranging them. In year 2009, there was a hug recession on real estate industry resulting from the stagnation and slowdown in year 2008. All the listed real estate companies in Shanghai Stock market expand their total asset nearly to 1.3 trillion Yuan, and total sales is 2497 a hundred million with 605 a hundred million net income. And in 2009, the total sales area, and price per unit significantly increased. In year 2010, the entire real estate industry increased its investment by 33.2%, compared to year 2009. (source: www.sse.com.cn, accessed on 30 Jun 2014)

Figure1.4: Shanghai Composite Index, 1992-2008
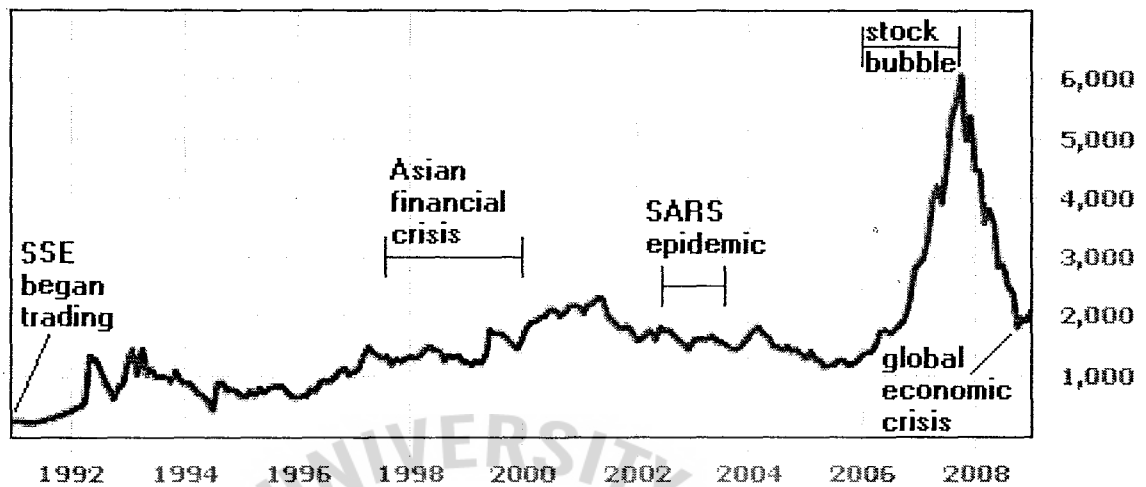
Source: http://en.wikipedia.org/wiki/Shanghai_Stock_Exchange accessed on 11 August 2014.

1.3.2 Shenzhen Stock Exchange

The Shenzhen Stock Exchange (SZSE) is set up in year 1990, and is in the city of Shenzhen, China with currency RMB, until the end of 2011, the market capitalization is US$ 1 trillion with 1420 companies listed in SZSE (source: www.szse.com.cn, accessed on 30 Jun 2014). China Securities Regulatory Commission (CSRC) is the supervisor for the Shenzhen Stock Exchange (SZSE) that is a self-controlled legal organization. Shenzhen Stock Exchange (SZSE) is mainly responsible to provide location and equipment for securities trading, to take control of trading rules, to get listing applications and organize securities listing, arrange and supervise securities trading, supervise members; manage listed companies, govern and distribute market data and other operation as approved by the CSRC (source: www.szse.com.cn, accessed on 30 Jun 2014).

SZSE has developed China's multi-tier capital market system which is very resolute. It oversees development and transformation of economic for China, and supports the national tactics of self-reliant innovation. In May 2004, the SME (Small and Medium Enterprise) Board was launched. In January 2006, OTC (the non-listed

9

shares quotation and transfer system) market is started in Zhongguancun Science Park. The ChiNext market was initiated in October 2009. Thus, the Multi-tier capital market in SZSE comprised of the Main Board, SME Board, ChiNext and the OTC market. Shenzhen Stock Exchange has attracted worldwide market attention. The total market capitalization amounted to RMB 6.6 trillion (USD 1.0 trillion). In addition, Zhongguancun Science Park had 102 companies quoted on the OTC market. SZSE in IPO proceeds was raised by RMB 181.0 billion (USD 28.7 billion) in the year 2011 and recorded a total trading value of RMB 18.4 trillion (USD 2.9 trillion). Equities, mutual funds, and bonds are also included in the SZSE's products. Main products of SZSE are A-shares, B-shares, indices, mutual funds (including ETFs and LOFs), including other products such as diversified derivative financial products there are warrants and repurchases. The last kind is fixed income products (including SME collective bonds and asset-backed securities). SZSE plays an increasingly core role in helping the actual economy and transforming the nation's economic growth model. (http://www.szse.cn/main/en/AboutSZSE /SZSEOverview/, accessed on 30 Jun 2014)

The target population in the study includes 70 listed real estate companies in Shanghai stock market. Because of the incomplete data in some listed real estate companies in Bloomberg database, researcher could obtain complete data only form 61 companies, and reorganized them for investigation. In year 2009, there was a huge recession on real estate industry from the stagnancy and slowdown in year 2008. All the listed real estate companies in Shenzhen Stock market expand their total asset nearly to 1.46 trillion Yuan, and total sales is 2961 a hundred million with 694 a hundred million net income. And in 2009, the total sales area, and price per unit significantly increased. In year 2010, the entire real estate industry increased its investment 33.2% compared to year 2009. (source: www.szse.com.cn, accessed on 30 Jun 2014)

1.4 Statement of the Problems

It is very significant to investigate the decisions of the capital structure, in order to comprehend the finance operation of one company. The most influence in the income statement can be the diverse capital structure and finance risk. In the capital structure, the managers of company prefer to use the stock and common equity.

Many researchers have studied the relationship between capital structure and firm performance (Abor, 2007; Coleman, 2007; Ebaid, 2009; Pratheepkanth, 2011; Muritala, 2012; Ahmad et al., 2012; Sedeghian et al., 2012, Mohamad & Abdullah, 2012; Khanm, 2012). However, the result from those studies varies widely, and the finding is also not clear about the relationship between capital structure and firm performance. Hence, researcher cannot make sure the studies still match with the Chinese stock market.

This study focuses on the eight factors of capital structure affecting the three factors of firm performance with another study case of Real Estate in Chinese stock exchange during 2009 and 2012. The study will be conducted on data divided into 4 year. The research will especially seek answers to the following questions: as follows:

1. Is there a significant relationship between debt ratio (DR) and firm performance measured by return on asset, return on equity, Tobin's Q of real estate companies listed in Chinese stock exchange during year 2009 to 2012?

2. Is there a significant relationship between debt to equity ratio (DE) and firm performance measured by return on asset, return on equity, Tobin's Q of real estate companies listed in Chinese stock exchange during year 2009 to 2012?

3. Is there a significant relationship between short-term debt ratio (STD) and firm performance measured by return on asset, return on equity, Tobin's Q of real estate companies listed in Chinese stock exchange during year 2009 to 2012?

11

4. Is there a significant relationship between long-term debt ratio (LTD) and firm performance measured by return on asset, return on equity, Tobin's Q of real estate companies listed in Chinese stock exchange during year 2009 to 2012?

5. Is there a significant relationship between size and firm performance measured by return on asset, return on equity, Tobin's Q of real estate companies listed in Chinese stock exchange during year 2009 to 2012?

6. Is there a significant relationship between growth of sales and firm performance measured by return on asset, return on equity, Tobin's Q of real estate companies listed in Chinese stock exchange during year 2009 to 2012?

7. Is there a significant relationship between asset tangibility ratio (TANG) and firm performance measured by return on asset, return on equity, Tobin's Q of real estate companies listed in Chinese stock exchange during year 2009 to 2012?

8. Is there a significant relationship between age and firm performance measured by return on asset, return on equity, Tobin's Q of real estate companies listed in Chinese stock exchange during year 2009 to 2012?

1.5 Research Objectives

This study aims to investigate the relationship between firm's internal factors and firm performance of Real Estate sector in Chinese stock exchange during 2009 and 2012. The four-year period will be studied simultaneously as a whole and separately each year. The study will be used to help investors, lenders, and managers to understand the capital structure decision clearly in China. The main concern of this study is to test if those factors of firm's internal factors have a significant relationship with firm performance according to the following objectives.

1. To test whether debt ratio (DR) has significant effect on firm performance measured by return on asset, return on equity, Tobin's of real estate companies listed in Chinese stock exchange during year 2009 to 2012.

2. To test whether debt to equity ratio (DE) has significant effect on firm performance measured by return on asset, return on equity, Tobin's of real estate companies listed in Chinese stock exchange during year 2009 to 2012.

3. To test whether short-term debt ratio (STD) has significant effect on firm performance measured by return on asset, return on equity, Tobin's of real estate companies listed in Chinese stock exchange during year 2009 to 2012.

4. To test whether debt ratio (LTD) has significant effect on firm performance measured by return on asset, return on equity, Tobin's of real estate companies listed in Chinese stock exchange during year 2009 to 2012.

5. To test whether size has significant effect on firm performance measured by return on asset, return on equity, Tobin's of real estate companies listed in Chinese stock exchange during year 2009 to 2012.

6. To test whether growth of sales has significant effect on firm performance measured by return on asset, return on equity, Tobin's of real estate companies listed in Chinese stock exchange during year 2009 to 2012.

7. To test whether tangibility ratio (TANG) has significant effect on firm performance measured by return on asset, return on equity, Tobin's of real estate companies listed in Chinese stock exchange during year 2009 to 2012.

8. To test whether age has significant effect on firm performance measured by return on asset, return on equity, Tobin's of real estate companies listed in Chinese stock exchange during year 2009 to 2012.

1.6 Scope of the Research

The studies obtain data from external sources mainly from websites and Bloomberg database. The total number firms in both Shanghai and Shenzhen stock market are 143. The data include four years database from year 2009 to 2012, a total of 117 firms in both Shanghai stock market and Shenzhen stock market of China. Because researcher was not able to obtain some data directly from data sources, they are organized and calculated by researcher to make them usable for data analysis.

The sector used in this research is the real estate industry in both Shanghai stock market and Shenzhen stock market of China, totaling 117 firms that are all in complete database. The data are taken from Shanghai stock market of China website

(www.sse.com.cn) and Shenzhen stock market of China website (www.szse.cn), as well as from Bloomberg database which is available in Assumption University Huamak library, collected between March 2013 to Jun 2013.

Researcher choose to use yearly data from year 2009 to 2012, and also organized and arranged all the firms of real estate companies, thus obtaining completed data on all the variables which can be used in the research on 117 firms.

1.7 Limitation of the Research

The researcher chose to emphasize on real estate industry in China from 2009 to 2012. There is a 4-year limitation for data collecting 2009 to 2012, so it cannot cover the whole period from the time of inception. Additionally, researcher could only get complete data for 117 firms in real estate sector of China, from a total of 143 firms. Therefore, the research results may be varied when various frequency data (such as monthly or weekly) are used. Thus, the result of this study may not represent every firm and covers all the years of real estate companies in China.

Another limitation for this study is that the researcher was not able to find out other independent variables other than eight factors of capital structure which are debt ratio, debt to equity ratio, short-term debt ratio, long-term debt ratio, size, growth opportunity, asset tangibility ratio, and age that have effect on three factors of firm performance which are return on asset, return on equity, and Tobin's Q. In addition, out of same 200 countries in the world, researcher has selected real estate industry only in China to study. Therefore, the entire global real estate industry may not be represented in this research. Finally, researcher collected only data only for 2009-2012 period, study conduct in the future may not apply to the result nor to any other period of time.

14

1.8 Significance of the Study

This study can help managers, investors, lenders to better understand the relationship between capital structure and firm performance of real estate sector in China. This will also be very useful for owner of company to promote the company values.

Moreover, the study could help the manager of finance department in a company, to make decision for the right or proper capital structure. The definition for the decision of capital structure is the percentage of debt and equity in one company that help to make a good finance situation for the firm (Myers, 1998). The most influence in an income statement is the diverse capital structure and finance risk. In the capital structure, the managers of company usually prefer more to use the stock and common equity. Basically, owner of business organization can use the lowest cost of finance and the highest income of company to recognize the best capital structure. The capital structure can also impact on a company's performance. In other words, the capital structure can also influence the default and profit of company.

From the evaluation of firm performance, investors and lender can use this standard to study how to succeed in managing a company. Lenders usually can decide how much money should be loaned to the company by measuring the firm's performance. As for investors, the return on equity definitely helps to evaluate the management level.

This study aims at examining the effect of capital structure on firm performance with a case study of Real Estate industry in Chinese stock exchange during 2009 and 2012. Managers, investors, lenders and researchers can use this information to help better understand the relationship between capital structure and firm performance in China, which can evaluate the value of company, and understand the mix of leverage to enhance firm performance.

1.9 Definition of Terms

Age

Shumway (2001) defined that age is the number of years since the company listed and age is also the influential and economical measurement. The method for measuring firm age is to use natural log of the numbers of years since company is listed. Firms are becoming better on what they are capable of and also improved on learning new things over the time (Jovanovic, 1982; Ericson and Pakes, 1995).

Assets Tangibility ratio

Gompers (1995) explained that tangible assets such as plants and machines are easier to be sold in the market rather than intangible assets such as copyrights and patents, which will make an expansion of liquidation value of assets in the firms' tangibility.

Akintoye (2008) described that firm will have lower costs of financial distress rather than that the firm only count on intangible asset, when firm preserve huge investments in tangible assets. To demonstrate variations in capital structure, several studies used variations in asset tangibility as a method (Rajan and Zingales, 1995).

Debt ratio

The debt ratio assesses the level of moneys borrowed which is used to finance companies effectiveness on operation (Lawrence, 1997). Lawrence (1997) asserted that a high debt ratio displays that debt is overused and the risk of bankruptcy is sizable, so it is better to have lower debt ratio.

Debt to Equity ratio

James (1995) stated that debt to equity ratio exhibits the relationship between debt to equity provided by owners and capital provided by creditors. The ratio implied the degree that the owners contributed protection for creditors (James, 1995). Debt to equity ratio can be used to measure the total leverage of one company, so the ratio is

16

the common and prime option of measurement for capital adequacy (James, 1995).

Long-term Debt ratio

Lawrence (1997) defined that long-term debt-to-capital ratio is an important measure of creditworthiness and balance sheet strength; it indicates the percentage of capital investment that has been financed by creditors and bondholders. A lower long-term debt ratio generally indicates greater capacity to get additional investments (Lawrence, 1997).

Return on Asset

Lasher (2000) signified that the percentage of return on assets exhibits after creating revenue, how much money that one firm's assets can get as profit. The greater the value of return on assets, the more efficient the company can apply its assets, so return on assets can be used as a significant measurement of operational performance (Lasher, 2000).

Return on Equity

Lasher (2000) defined return on equity measures a firm's profitability from the point of view of common equity investors, by relating net income available to common equity investors, to the book value of the common equity investment. To use return on asset ratio in assessment of one firm's value on return and profitability, there are three ways; first to examine an absolute number by the ratio; second is to see if the ratio can be a greater index competitive to other firms; thirdly, if the ratio has trend which can be studied (Traub, 2001).

Short-term Debt ratio

Lasher (2000) also clarified that short-term assets and liabilities are generally defined to be those items that will be used, liquidated, mature or paid off within one year. Short-term debt ratio is expected to impact on the firm performance as the measurement of capital structure on one company.

17

Size

Banz (1981) stated size as the number of employees or sales, total assets, and market capitalization from numerous empirical studies and theories. In certain groups of studies, assets can be used as size, however, the prime measurement for size is number of employees and value added (Banz, 1981). Banz (1981) determined that organization size is a significant factor in diverse economic phenomena.

Sales Growth Opportunity

Zeitun & Tian (2007) defined growth opportunities as the growth of sales (Growth). And growth opportunities also are measured by increase in size (Rafeld and Shaudys, 1970). When the firm have better performance, finance will be expected with great growth opportunities, and firm with growth can create profit in investment (Zeitun & Tian, 2007).

Tobin's Q

Tobin's Q is a measurement for company's value which includes accounting value and market value (McConnell & Servaes 1990). The Q will be high, when the high evaluation of the firm is covered by stock market; company have ability to launch new shares of stock, then get high (delight) price from stock shares to cover the cost, and can also help company to replace or reinforce equipment and plants (James, 1995). When the price of stock depress, the Q will be low, the spending of investment also will be low by the unwillness of company to attract new funds from issuing new stock shares (James, 1995)

Chapter 2

Review of Related Literature and Studies

The concept and theories related to the study have been defined in three section in this chapter. The first section present definition of firm performance, and three dependent variables return on asset, return on equity and Tobin's Q. In the second section, the definition of independent variables; debt ratio, debt to equity ratio, short-term debt ratio, long-term debt ratio, size, growth, asset tangibility ratio, age, and their relationship with firm performance is described. In the third section, the empirical works related to the topic under study are summarized.

2.1 Definition of Firm's Performance

The performance of a company is defined as the effectiveness of management of one firm and the exploit of finance source as well (Zeitun and Tian, 2007). There are many arguments in the finance about the concept of firm's performance, because of the multidimensional definitions (Zeitun and Tian, 2007). There are several researches on the firm performance that are from origination theory and strategic management (Murphy et al., 1996). For the measurement of firm performance are both financial and organizational (Zeitun and Tian, 2007). In the financial performance, maximizing profit and return on assets and shareholder' benefits are the key for the firm's effectiveness (Chakravarthy, 1986). For the measurement of operational performance, growth in sales and growth in market shares are the main factors that also lead to financial performance finally which can explain the definition of performance (Hoffer and Sandberg, 1987).

Zeitun and Tian (2007) state the measurement of firms performance are usually the return on assets (ROA), return on equity (ROE) and return on investment (ROI). Those measurements of performance are the financial ratios that are used by many researchers from balance sheet and income statements (e.g., Demsetz and Lehn, 1985, Gorton and Rosen, 1995, Mehran, 1995). Nevertheless, Zeitun and Tian (2007)

provided "some measurement for instance, price per share to the earnings per share (P/E), market value of equity to book value of equity (MBVR), and Tobin's Q are namely market performance measurements". Tobin's Q can estimate the value of firm and it mixes both market and accounting value in many researches (e.g., Morck, Shleifer, and Vishny, 1988, Zhou, 2001).

2.1.1 Return on Asset

Keown et al. (2005) defined that return on asset is often used as an indicator of a firm's profitability and is measured as follows: return on assets = net income / total assets; moreover, return on assets determines the amount of net income produced on a firm's assets by relating net income to total assets. Lasher (2000)signified that the percentage of return on assets exhibits after created revenue, how much money that one firm's assets can get as profit. Lawrence (1997)defined that return on total assets is a measure of the return on total investment in the enterprise, interest is added to after-tax profits to form the numerator, since total assets are financed by creditors as well as by stockholders. Furthermore, Kabajeh et al. (2012) established that return on total assets ratio is calculated as net profit after tax divided by the total assets. Lawrence (1997) described that the ratio of return on asset can show the data about the profitability of one company by one unit of asset. Value of return on assets is great, company can be more efficient with applying its assets, so return on assets can be used as the significant measurement of operational performance (Lasher, 2000).

Kabajeh et al. (2012) established that return on asset measure for the operating efficiency for the company based on the firm's generated profits from its total assets. Lawrence (1997)argued that the ratio of return on asset will be better when it is higher, so that will be an upward trend.

2.1.2 Return on Equity

Lasher (2000)defined return on equity measures a firm's profitability from the point of view of common equity investors, by relating net income available to common equity investors, to the book value of the common equity investment. Just as well, Kabajeh et al. (2012) clarified return on equity ratio is calculated as net profit after tax divided by the total shareholders' equity; this ratio measures the shareholders rate of return on their investment in the company.

The ratio of return on assets indicates the grade of the allocation with money from investment in the current trade and indicates efficient usage of the interments in the current business; the percentage of return on assets shows the return form the capital of stockholders which reflects how the company is able to compensate the shareholders (Kabajeh et al., 2012). When return on asset ratio is used in assessment of one firm's value on return and profitability, it can be interpreted; first that an absolute number can be examined by the ratio; second, that the ratio can be a greater index competitive to other firms; and lastly, the ratio has trend which can be studied (Traub, 2001). James (1995) stated, the ROE Ratio is obviously of interest to present or prospective shareholders (and donors), and is also of concern to management, because this measure is viewed as an important indicator of shareholder value creation.

2.1.3 Gross Margin

Lawrence (1997) defined that gross margin is calculated as the selling price of an item, less the cost of goods sold (production or acquisition costs, essentially). It can be expressed as a percentage or in total dollar terms. Lawrence (1997) also explained gross margin as the proportion of revenues that is capable to cover operating expenses and generate profit. A higher gross margin is better for company and high ratio can show an upward trend (Lawrence, 1997).

2.1.4 Net Profit

Lawrence (1997) defined that net profit measures the profitability of ventures after accounting for all costs, it is the revenues of the activity less the costs of the activity. The revenue generated by one firm in a certain time period of its operations minus the cost during the same time to run the business is equal to the net income of the company (Lasher, 2000). Moreover, Houston (2001) stated the classic definition of net income (revenues for a period less the expense that enabled these revenues to be obtained during that period), in spite of its conceptual simplicity, it is based on a series of premises that seek to identify which expenses were necessary to obtain these revenues.

Net income (profit after tax) of one firm is earned by the expenses and revenues supposing particular accounting hypotheses, the net profit is completely and arbitrary illustration (Houston, 2001). A higher net income is better for shareholder of firm in the past year to create better wealth rather than a lower rate of net income of other companies (Houston, 2001).

2.1.5 Tobin's Q

In several researches, Tobin's Q is a measurement for company's value which include accounting value and market value (McConnell & Servaes 1990). Zeitun and Tian (2007) defined that Tobin's Q is equal to Market value of equity plus book value of debt to the book value of assets.

The Tobin's Q theory is an investment theory that is stated by Professor James Tobin (James, 1995). James (1995)developed Tobin's Q theory that monetary policy influences investment spending by altering stock prices and firms' market capitalization relative to replacement cost of capital; and for the formula it is Q= Market value of firms / Replacement cost of capital.

In the above formulation, the replacement cost of capital is the cost needed to buy

22

the machinery and tools, erect the buildings, and so forth to replicate the firm; and a firm's market value is the aggregate value the stock market places on the firm's shares of stock, often referred to as the stock's market capitalization (number of shares outstanding times the market price per share) (James, 1995).

The Q will be high, when the high evaluation of the firm is covered by stock market; it company have ability to launch new shares of stock, then get high (delight) price from stock shares to cover the cost, and also it can help company to replace or refurbish equipment and plants (James, 1995). Firms usually buy new buildings and equipment from the revenues of issuing new stock shares (James, 1995). When the price of stock depress, the Q will be low, the spending of investment also will be low by the unwillingness of company to attract new funds from issuing new stock shares (James, 1995).

In the common sense of one company, it can make a choice to purchase new buildings and equipment or buy an existing company when it needs to expand; in one situation that it will prefer to choose to purchase an existing company when price of stock (and Q) is low (James, 1995). James (1995)also stated that this action does not constitute investment spending because no new buildings or equipment are purchased; if stock prices are high, the firm more likely expands through investment expenditures-that is, the firm builds new facilities and buys new equipment. In the above case, the low cost of investment will be caused by low Q (James, 1995).

2.2 Factor Affect Firm Performance

Two factors can affect firm performance, which are internal factors from the inside of the company, and is external factors from outside of the company including the entire circumstance of the market and the impact from the government situation.

2.2.1 Internal Factors:

The main internal factor to impact on the firm performance is the company's capital structure, under the capital structure, debt ratio, debt to equity ratio, short-term debt ratio, long-term debt ratio, asset tangibility ratio are the key to affect firm performance as used in the study. There are some other internal factors that can influence firm performance as well, which are size of company, location, business groups, and age since the company listed.

2.2.1.1 Capital Structure

The definition of capital structure is the measure by the subsidization as one company, and when studying the capital structure, it is usually regards as the percentage in the origination of short-term and long-term debt (Muritala, 2012). What's more, as stated by the Myers, (1998) that during the decision of one company to finance the business, capital structure combines both debt and equity.

Captial structure is topic much concerned and frequently talked in the organizational finance industry. The reason is that company's investment fund is impacted by the cost and the usability of the capital in the firm, which is also influenced by the leverage ratio- the proportion of the source of investment (Muritala, 2012). As capital market is without taxes, transaction and with similar expectation; the capital structure is not related in the perfect market, and because the imperfection of some market implied that capital structure decisions are related by the impact on the shareholders' profit (Modigliani and Miller, 1958). Modigliani and Miller (1963) argued that originations should exploit great debt capital to increase firms' value by raising the protection of interest tax, since the company first started paying taxes.

Ahmad et al, (2012) stated there are some theories that have determined the capital structure in the organizations such as the pecking order theory, static tradeoff theory, and the agency cost theory. In the Pecking Order Theory, it argued that firms will consider the investment's sources (which is more concentrate on internal finance

rather than equity) in accordance with the law of minimum effort or resistance, then firms will favor to use equity as a the last resort for organization finance (Muritala, 2012). The theory stated that firms remain a hierarchy of investment sources which is use the internal finance sources if it's ready, then will be the debt as the external financing, for the equity will be the last method which issue company's share to the finance market for collecting investment (Muritala, 2012). Myers (1977) determined that companies will choice equity as the last option as the method to increase their investment funds. The reason is that mangers who are be the better person to understand the firms' finance condition issue new equity, resulting trust on managers by new shareholders who are convinced of company success and worth.

The trade-off theory concerned to balance the costs and profits to make firms to make an option about the proportion between debt and equity (Muritala, 2012). The theory reflects that firms can get benefit from the debt that is tax advantage, however, firms also will get loss form debt which is bankruptcy costs and the financial distress costs (Muritala, 2012). Agency theory refers to the relationship between the firm's mangers and shareholders (Muritala, 2012). The theory advises that company acts as a link of agreements between investors (Muritala, 2012).

Capital structure is considered the primary factor that impact on the performance of one company (Zeitun and Tian, 2007). Muritala (2012) stated, "There is a negative hypothesis between capital structure and firm performance in the proving of agency cost hypothesis". Gleason, Mathur and Mathur, (2000) determined that return on assets, growth in sales and pre-tax income all as the measurement of firms performance that has negative and significant influence on capital structure. Gleason et al. (2000) found that the utilization of different levels of debt and equity in the firm's capital structure is one such firm-specific strategy used by managers in the search for improved performance. Heinkel (1982) and Noe (1988) advised that for raising leverage, debt obtained should have positive relations between firm performance and firm value. Noe (1988) assumed that firms expect more return form

25

investment by using the finance of debt (loan). Moreover, Champion (1999) declared that in order to enhance performance of company, greater leverage should be applied. Champion (1999) indicated that firm performances, which is measured by EPS and Tobin's Q, is significantly and positively associated with financial structure, negative relation between capital structure and return on asset, no significant relationship between return on equity and Capital structure.

2.2.1.1.1 Debt Ratio

Keown et al. (2005) demonstrated debt ratio as how much debt is used to finance a firm's assets. The formula for calculation of debt ratio is Total Debt divided by Total asset (Keown et al., 2005). The debt ratio assess as the level that money of borrowed is used to finance companies effectiveness on operation (Lawrence, 1997).

From the agency cost theory, great leverage is supposed to impact little an agency costs, and cut inefficiency for guiding the increase of firm performance (Muritala, 2012). Lasher (2000) persuade that two results from little agency cost in the external equity and the firm performance improvement can be caused by raising the leverage ratio. Lawrence (1997) asserted that a high debt ratio displays that debt is overused and the risk of bankruptcy is sizable, so the conclusion is that lower debt ratio is better.

Krivogorsky et.al (2009) determined a negative relationship between firm performance and debt ratio; therefore, from the results of previous studies, firms will get impact on wealth transfer from debt bearers to stockholders and a high debt ratio is always considered to be high risk investments. Gleason et al (2000) discovered a negative association between total debt and return on assets which is the measurement of firm performance. Furthermore, Cheng (2009) explained anticipated debt ratio is to be negatively related to operation performance. Grossman and Hart (1986) argued that more debt of one company's capital structure will definitely cause high level firm performance.

26

2.2.1.1.2 Debt to Equity Ratio

Peterson (1999) defined debt to equity ratio as a financial ratio indicating the relative proportion of shareholders' equity and debt used to finance a company's assets. James (1995) stated, Debt to equity ratio exhibits the relationship between debt to equity which is provided by owners and capital which is provided by creditors. The ratio implied the degree that the owners contributed the protection for creditors (James, 1995).

Lawrence (1997) described that debt-to-equity ratio should usually be less than 1.0; and a high ratio (especially above 1.0) signals excessive debt, lower creditworthiness, and weaker balance sheet strength. A higher ratio generally reveals that creditors can suspect the greater risk; the lower the ratio, the greater the safety degree in long-term finance (James, 1995). A low debt to equity ratio can generate a greater support of protection, so a low ratio is preferred by creditors (James, 1995). Debt to equity ratio can be used to measure the total leverage of one company, so the ratio is the common and prime option of measurement for capital adequacy (James, 1995). James (1995) stated. The ratio is of particular interest to lenders because it indicates how much of a safety cushion (in the form of equity) there is in the institution to absorb losses.

Nimalathasan and Brabete (2010) analysis of the listed manufacturing companies showed that debt equity ratio is positively and strongly associated to all profitability ratios (Gross Profit, Operating Profit & Net Profit Ratios). In Mohamad and Abdullah, (2012)'s study, "DTER (debt to equity ratio) stipulates a 1% confidence to be negatively related with ROE but negatively insignificant association with RETURN ON ASSET and ROC, and a positive return of the firms can be obtained by reducing the DTER level".

2.2.1.1.3 Short-term Debt Ratio

Abor (2005), Coleman (2007), and Abor (2007) defined that short -term debt ratio is calculated as short-term debt divided by total capital. And Lasher (2000)also clarified that short-term assets and liabilities are generally defined to be those items that will be used, liquidated, mature or paid off within one year.

Zeitun & Tian (2007) analyze that short-term debt ratio is positively and significantly associated to Tobin's Q which is the measurement of market performance of company. Myers (1998) clarified that firms in the great growth rate and better performance showed in high short-term debt ratio. Abor (2007) refined that in the case of South Africa, short-term debt ratio is positively correlated with return on assets. Furthermore, Saeedi and Mahmoodi (2011), Ebaid (2009) determined that short-term debt and total debt have significant relationship with return on assets that represent firm performance.

2.2.1.1.4 Long-term Debt Ratio

Abor (2005), Coleman (2007), and Abor (2007) defined that long-term debt is calculated as long-term debt ratio divided by total capital. Moreover, Lawrence (1997)defined that long-term debt-to-capital ratio is an important measure of creditworthiness and balance sheet strength; it indicates the percentage of capital investment that has been financed by creditors and bondholders.

Lawrence (1997) declared that investors generally prefer the long-term debt ratio which is below 0.25, in respect that not less than 75% money of the firm's total capital is invested by stockholders. Furthermore, a lower long-term debt ratio generally indicates greater capacity to get additional investments (Lawrence, 1997).

Abor (2005) established that long-term debt ratio is negatively and strongly associated to return on equity. Nevertheless, Ebaid (2009) have provided evidence that there is on a significant impact between long-term debt and return on assets.

28

Sadeghian et al (2012) concluded, an increase in debts (short-term, long-term, and total debts) will result in a decrease in corporations' performance.

2.2.1.1.5 Asset Tangibility Ratio

Zeitun & Tian (2007) clarified assets tangibility ratio is fixed assets to total assets. Rajan and Zingales (1995), Titman and Wessels (1998) measured asset tangibility with the ratio of property, plant and equipment over total assets. Gompers (1995) explained that tangible assets such as plants and machines are easier to be sold in the market rather than intangible assets such as copyrights and patents, which will make an expansion of liquidation value of assets in the firms' tangibility.

James (1995) argued, asset tangibility should lend credibility to investors' threat to take the firm to bankruptcy court and/or to dismiss its management team, affecting incentives to perform. Akintoye (2008) described that firm will have lower costs of financial distress rather than that the firm only count on intangible asset, when firm preserve huge investments in tangible assets. Titman and Wessels (1988) expressed that capital structure studies usually control for the effect of an aggregate measure of tangibility (measured as the fraction of property, plant, and equipment to total assets) on leverage. To demonstrate variations in capital structure, several studies used variations in asset tangibility as a method (Rajan and Zingales, 1995).

2.2.1.2 Size

Banz (1981) stated size as the number of employees or sales, total assets, and market capitalization from numerous empirical studies and theories. In certain groups of studies, assets can be used as size, however, the prime measurement for size is number of employees and value added (Banz, 1981).

(Banz, 1981) determined that organization size is a significant factor in diverse economic phenomena. (Banz, 1981) implied that small firms account for disproportionate share of the manufacturing decline that follows the tightening of

monetary policy. Banz (1981) stated that size is also a meaningful factor that impacts on stock returns. What is more, (Banz, 1981) indicated that firm size is positive related to financial development, and firm size is also a factor that improves the development of financial markets.

Dean et al (2000) described that one company's capabilities of marketing, needs, attitudes and practices which play critical roles to affect performance of firms and success, can be effected by the size. Dean et al., (2000) also determined that there is an arguable problem in many previous studies that demonstrated that the relationship between company performance and firm size which is included in firm's characteristics. Dean et al., (2000) clarified that there are three methods that size can impact on firm performance in her effective studies which are economies of scale, economies of scope, varied capabilities. Furthermore, Dean et al., (2000) found that companies with better performance preferred larger size rather than small firms. Firms have large size can get key resources in better ways, can also extract rents, and hire extra employees with better skill; hence we can say that size has intimately impact on firm performance (Hill 1985). Hill (1985) they determined that firm's performance can be improved by reducing the cost of capital from growing of size. Hill (1985) found that size is positively correlated with firm performance; also in order to earn better outcomes in stock market, bigger company can leverage its size. On the contrary, Banz (1981) described that size is negative hypothesis with firm performance, and when one firm is growing, it is hard to sustain its extraordinary performance.

2.2.1.3 Growth Opportunities

Zeitun & Tian (2007) defined growth opportunities as the growth of sales (Growth). And growth opportunities also are measured by increase of size (Rafeld and Shaudys, 1970). Rafeld and Shaudys (1970), "growth was defined in terms of the constant dollar value of all resources controlled; these resources included land, buildings, machinery and equipment, labor, livestock, feed, supplies and other assets (cash or

fairly liquid assets)".

Zeitun and Tian (2007) illustrated that companies can get more profit form investment with growth opportunities. When the firm has better performance in finance it can expect great growth opportunities, and firm with growth can create profit in investment (Zeitun & Tian, 2007). Dean et al (2000) stated, "Growth is essentially an evolutionary process which involves the accumulation of knowledge unique to the firm".

Zeitun and Tian (2007) have provided evidence that growth opportunities have influenced company to get more profit from funding. There is a significant and positive correlation between growth opportunity and return on asset that is the measurement of firm performance; however, for other measurement of performance, there is no any evidence to determine the relationship with growth opportunities (Zeitun & Tian, 2007).

2.2.1.4 Location

Ilian and Yasuo (2005) clarified location is the option for entering business. Also, Kala and Guanghua (2010) defined location as the selection where business is to be located, and locations should be small, medium or large or urban or rural. According to Kala and Guanghua (2010) concerning location to an option for locating the business into the rural or urban place and considering also which type of product and service the firm will provide.

Greening, Barringer, and Macy (1996) referred to location as an important issue that usually impact firm performance, although, it always be ignored. Kala and Guanghua (2010) have noted that strategic location can really help domestic firms to accomplish absolute good performance. Location factors are much articulated in China, the and the most important reasons are broad region in different socioeconomic place and the resource boundaries inside the country as well.

31

Guanghua (2010) declared, location of company has a very important function in the expansion of entrepreneurship. Greening, et al (1996); Guanghua (2010) asserted that there is a significant relationship between performance of small firm and location. To ascertain performance of firm, location is used as a meaningful. Kala and Guanghua (2010) described that to get positive firm performance, location as company strategy help domestic firms. Guanghua (2010) has also showed evidence of effect of location on emergence of entrepreneurs and consequently their performance.

2.2.1.5 Business Groups

Granovetter (1995) described business groups as "collection of firms" bound "formally and/or informally" and characterized by an "intermediate level of binding". Khanna and Rivkin (2001) characterized business group as collect legal independent companies and bound by "formal and informal" relations, and "accustomed to take coordinated actions". Khanna and Rivkin (2001) defined that business groups are constituted by some distinct companies and bound together in the long-term agreements. Granovetter (1995) explained business group is the aggregation between some organizations which have similar interests in various markets, and then, those firms are bound on the common personal, ethnic and commercial background by the general administrative, control on finance, and relationship of interpersonal trust. Khanna and Rivkin (2001) established that business group is the collection of companies that are bound with each other by configuration of formal and informal ties and are used to act coordinately, those set of organizations are legally independent as well.

Mishra and Akbar (2007) stated business groups are usually bound by administrative, financial, family, ethnic, society, religion and regional ties. Firms in the group will trust each other in the financial control, and also will allot one brand, and will improve the brand image and reputation in the market, exploit the same labor resource. Business group is an influential form of business companies in emerging economies and in most Asia countries (Ahlstrom & Bruton, 2004; Guillén, 2000;

32

Khanna and Rivkin, 2001). What's more, business groups is also an important sector which received enormous support from government and facilitated reform, utilized resource in the transition period of China (Gupta and Wang, 2004; Keister, 1998; Yiu et al., 2005).

In China, business groups are differed by the detail inter-firm networks on trade, loan, ownership and relationships with society; business groups also impact for a long time that is alliance with several firms in multiple industries (Keister, 1998). The reputable capital can be distributed by the affiliated firm that is combined with honored business group (Peng et al 2005). The affiliated firms can get maintainable superior performance from Group Company with supportable reputation capital (Barney, 1991). Peng et al. (2005), Keister (1998), and Khanna and Rivkin (2000) studied different emerging markets and they found that business group affiliated firms in these markets perform more superior than unaffiliated firms. In China, state owned firms do not perform as well as group firms (Khanna and Rivkin (2000).

2.2.1.6 Age

Shumway (2001) defined that age is the number of years since the company listed and age is also the influential and economical measurement. Loderer and Waelchli (2010) stated that listing affects ownership and capital structure, multiplies growth opportunities, increases media exposure, and demands different corporate governance structures. Firm age is usually measured with natural log of the amount of years since company is listed.

Loderer and Waelchli (2010) persuaded that older firms can achieve experience-based economies and can avoid the liabilities of newness. Firm age is good way to help firms to be more efficient (Loderer and Waelchli, 2010). Firms are becoming better on what they are capable of and also improved on learning new things over time (Jovanovic, 1982; Ericson and Pakes, 1995). Loderer and Waelchli (2010) argued, firms specialize and find ways to standardize, coordinate, and speed up their

33

production processes, as well as to reduce costs and improve quality. However, Agarwal and Gort (1996) asserted that some old age companies had waning abilities, knowledge and skills that would cause organizational decay. Loderer and Waelchli (2010) declared one possible reason for that success induces firms to codify their approach through organization and processes, a regulation that can become capillary over time.

Loderer and Waelchli (2010) stated that there is a relationship between firm age and firm performance. Majumdar (1997) reached a conclusion from his research that old firms perform more profitably and also Loderer and Waelchli (2010) found that relatively new firms do well. Hopenhayn (1992) shows that under plausible assumptions, older firms enjoy higher profits and value. According to Adams, Almeida and Ferreira (2005), incorporation age is negative affect to the variability of stock profits, and Cheng (2008) also explained that the listing age has similar relationship with variability of stock returns.

2.2.2 External Factors

2.2.2.1 GDP

GDP is the money value of total firms and producers that sell the goods and service in the economy that used to show the situation of one country's economy in a period of time (Keown et al. 2005). GDP is the sum of income in the economy and it includes the profits of total firms (Keown et al. 2005). If the GDP is higher or good in a period of time, the value added of firm is also quite higher. Where profit increases in the firm, it surely will affect firm performance positively.

2.2.2.2 Unemployment

Unemployment rate is also very important ratios that measure the economic situation of one country (Danes 1989). Lower unemployment rate means less people have no job, if people have job, then they have ability to consume in the market, which can be a very big help in the market demand (Danes 1989). Its surely can help

company to increase the profitability and performance. On the other side, if there is higher unemployment rate in one country, more people having no job, or no income, they will lose the power to purchase what they want. The demand of market will be reduced, and firm's revenue face high risk and could ultimately lead to firm collapse (Danes 1989).

2.2.2.3 Government Policy

Government policy has probable the strongest power to impact on firm performance. For example, in China, government control the economy, and any policy issued will cause a huge demand and supply change in the market. The government will send the financial support to any of the business that will be the factor influence the financial performance of the company (Danes 1989).

2.2.2.4 Economy and Political Stable

Under the stable economy and political situation, the investors will be willing to increase investment as the lower risk from the outside company, so that the equity will be increase, it will give the opportunity and money support, as well as the confidence to do business for profitability. Economy and political stability usually impact positively on firm performance (Danes 1989).

2.2.2.5 Inflation Rate

From the view of economics, the definition of inflation is a rising price for the general products and services in one country of a period (Bernholz, 2003). Since the price increased, the one unit of money can buy less product and service compare to the old time (Bernholz, 2003). The inflation usually can impact on the decreasing of power to purchase that will cause the loss between the real values of products, service and the value of account. Inflation rate can help to define the degree of inflation by the change of percentage to the price in the certain time. Inflation can impact the economy in many different ways both positive and negative (Bernholz, 2003). Under the positive inflation effect, the real interest rate can be adjusted by the central bank.

However, under the negative inflation effect, the cost of the cash in hand will be increased, and also will impact to reduce investment and savings. And if the inflation is more serious, products will be hold in the hand and less goods trading, so there will be product shortage (Bernholz, 2003).

Many studies believed that the main reason to cause high inflation rate is the oversupply of money, but is not necessarily the reason to response to the high inflation rate. In the views of some studies, the true reason for high inflation rate is the faster growth rate of money supply by government compared to the growth rate of economy (Bernholz, 2003).

2.2.2.6 Real Interest Rate

The real interest rate is defined as the actual rate of interest after deducting inflation rate that investors want to get. The calculation for real interest rate is nominal interest rate minus inflation rate (Houston, 2001). The nominal interest rate is the interest rate that central banks provide to investor including the inflation rate by one period of time. The real interest rate can help to adjust the buying power that will be impacted (Houston, 2001). The real interest rate can be obtained by the Fisher equation, which is the relation with real interest rate and nominal interest rate that include inflation rate as well, in one certain time. The reason why real interest rate is important is because real interest rate will affect the expectation of investors to make profits. (Houston, 2001). Sometimes, the real interest rate also can be negative when the inflation rate is higher than nominal interest rate.

2.2.2.7 CPI

CPI is the consumer price index that is used to measure the changes in the price of products and services in the market (Lasher, 2000). CPI is the index that collect a certain time period, and which include all the goods and services charge in the market base that customer can purchase. The percentage changed in CPI in one year, is always used to measure the inflation situation for one country, and can also used to

measure the value of salaries, and the real gap between the wages and purchasing power (Lasher, 2000). Many counties use CPI to view the real national economic situation in the whole years. And the CPI can show the real purchasing power of customers, which is concerned by the investors, because it is related with spending of goods and services (Lasher, 2000).

2.3 Previous Studies

Zeitun and Tian (2007) examined the relationship with capital structure and company's performance in Jordan. The survey results used a panel data sample in 167 Jordanian companies between year 1989-2003, and which provided evidence of a negative and significant relationship between capital structure and firm's performance. There are 4 variables used as measurement of capital structure: debt ratio, long-term debt ratio, short-term debt ratio, debt to equity ratio. And growth, size, the standard deviation of cash flow, tax, and tangibility were used as controlled variable. For measures of performance, "Tobin's Q, market value of equity to the book value of equity (MBVR), P/E, market value of equity and book value of liabilities divided by book value of equity (MBVE), Return on Equity, Return on Asset, and earnings before interest and tax plus depreciation to total assets (PROF)" were employed. The findings of this study signified that short-term debt has a significantly positive impact on the Tobin's Q, and tax rate, size of firm also has positive relationship with firm performance.

Abor (2007) investigated the performance for small and medium enterprise with capital structure in Ghana and South African. The main purpose of this is to explain capital structure on financial performance of SMEs in Ghana and South Africa. The researcher collected 160 Ghanaian SMEs and 200 South African SMEs with 68 of the South African sample being listed firms, and used panel data analysis to investigate the survey. The variables used to measure the firm performance (gross margin, Return on Asset, Tobin's Q) are short-term debt ratio, long-term debt ratio, and debt ratio, trade credit to total capital, size, and sales growth. The results from the study

37

indicated a negative relationship between capital structure, especially long-term debt ratio and debt ratio, and performance of SMEs. The researcher suggested that very high debt policy maybe led by agency issues, thus resulting in lower performance.

Ebaid (2009) investigated effect with choice of capital structure and corporation's performance in Egypt. The researcher aimed at determining the impact of capital structure choice on firm performance in Egypt. The study used 3 of accounting-based measures of financial performance (return on equity, return on asset, gross margin), and short-term debt ratio, long-term debt ratio, debt ratio, size measure as capital structure. This research used all publicly traded firms on Egyptian stock exchange between years 1997 to 2005, and employed the final sample of 64 firms. It indicated a weak-to-no relationship between capital structure and financial performance of listed firms in Egypt. However, the study revealed that short-term debt ratio has negative impact on the firm performance measured by return on asset.

Pratheepkanth (2011) analyzed impact from capital structure to firm performance on Colombo stock exchange Sri Lanka, with independent variables of debt to equity ratio and debt ratio, and dependent variables of gross profit, net profit, return on asset and return on investment. The survey was conducted with data of all the business firms that are listed on Colombo Stock Exchange in the period of 2005-2009. The findings indicated a negative relationship between capital structure and financial performance. Also, the research showed a weak positive impact between gross profit and capital structure. At the same time, net profit has negative impact on the capital structure, the high financial cost among the firms as reflect.

Muritala (2012) studied there analysis of capital structure and firm performance in Nigeria. Findings from annual data of ten firms spanning a five-year period between 2006 and 2010 were explored, demonstrating that all the adopted variables, namely debt ratio, asset turnover, size, age, asset tangibility, growth opportunities which are influence the firm performance measure by return on equity and return on asset. The

result derived from Panel Least Square (PLS) which showed there is a positive and significant relationship between asset turnover, age, size and ROE. Additionally, the paper also examined that a negative and significant relationship between asset tangibility and return on asset, which makes asset tangibility as a driven factor to capital structure because firms are less likely to be financially constrained by the more tangible assets.

Ahmad et al, (2012) tested the impact on capital structure to firms in Malaysian firms with equity market and industrials sectors. 58 firms were used as the sample firms and the data were from year 2005 to 2010 as observations. The firm's performance measured by the return on asset, return on equity, with short-term debt ratio and long-term debt ratio and total debt ratio as the independent variables; as well as the four controlled variables: size, asset grow, sales grow and efficiency. The results were obtained from a series of regression analysis that showed a significant relationship between short-term debt ratio, total debt ratio and return on equity and return on asset. Moreover, the study also emphasized that size, growth, and efficiency have less impact on the guiding of choice for firms with good operating performance.

Sadeghian et al (2012) aimed to identify and analyse capital structure and firm performance in Tehran Stock Exchange companies. The regression model is used to investigate relationships between debt ratios and performance indicators which are gross margin, Return on asset, Tobin's Q. Size and growth rate as control variables also conducted in the research. The researchers found that an increase in current debts, non-current debts, and total debts has a negative impact on firm performance, and also, a negative relationship between capital structure and corporate performance.

Mohamad and Abdullah (2012) conducted a research that named effect on capital structure and firm's performance in Malaysia. The researchers collected secondary data from the firms' annual report and Bloomberg software in five selected sectors in Bursa Malaysia Main Board, between year 2001 and 2010. The study used Return on

equity, Return on asset as profitability ratio to measure performance, and used debt to asset ratio, debt to equity ratio and long-term debt ratio as independent variables of financial structure. The results from Multiple Regression analysis showed negative and significant relationship between capital structure and firms performance from the sample of Malaysia firms.

Khan (2012) did a research on the impact of capital structure decisions and firm performance in Pakistan. The major objective of this research is to test relationship of capital structure decision with the firm performance. The researcher provided the Pooled Ordinary Least Square regression in order to test the hypothesis, and 36 engineering sector firms in Pakistani market listed on the Karachi Stock Exchange (KSE) were applied during the period of 2003-2009. In the study financial leverage is measured by short-term debt ratio and long-term debt ratio, debt ratio, and the firm performance is measured by return on asset, gross margin return on equity and Tobin's Q. From the results, it shows that short-term debt ratio, long-term debt ratio, debt ratio has negative and significant influence on firm performance. Moreover, the asset size has weak impact on the return on asset and gross margin.

Table 2.1: Summary of Previous Studies

No.	Title	Author	Year	Major Finds
1	Debt policy and performance of SMEs: Evidence from Ghanaian and South African firms.	Joshua Abor	2007	The results from the study indicated a negative relationship between capital structure, especially long-term debt ratio and debt ratio, and performance of SMEs.
2	The Impact of Capital-Structure Choice on Firm Performance: Empirical Evidence from Egypt.	Ebaid IE	2009	It indicated a weak-to-no relationship between capital structure and financial performance of listed firms in Egypt. However, the study revealed that short-term debt ratio has negative impact on the firm performance measured by return on asset.
3	The capital structure and financial performance: evidence from selected business companies on Colombo stock exchange Sri Lanka.	Puwanenthiren Pratheepkanth	2011	The finding indicated a negative relationship between capital structure and financial performance. Also, the research showed a weak positive impact between gross profit and capital structure.

4	An Empirical Analysis of Capital Structure on Firms' Performance in Nigeria.	Taiwo Adewale Muritala	2012	As the results showed that positive and significant relationship between asset turnover, age, size and short-term debt ratio, a negative and significant relationship between asset tangibility and return on asset.
5	Capital Structure Effect on Firms Performance: Focusing on Consumers and Industrials Sectors on Malaysian Firms.	Zuraidah Ahmad, Norhasniza Mohd Hasan Abdullah and Shashazrina Roslan	2012	The results come from a series of regression analysis showed that a significant relationship between short-term debt ratio, long-term debt ratio, return on asset, return on equity. Moreover, the study also emphasized that size, growth, and efficiency have less impact on the guiding of choice for firms with good operating performance.
6	Debt Policy and Corporate Performance: Empirical Evidence from Tehran Stock Exchange Companies.	Nima Sepehr Sadeghian, Mohammad Mehdi Latifi, Saeed Soroush & Zeinab Talebipour Aghabagher	2012	The researchers found that an increase in current debts, non-current debts, and total debts has a negative impact on firm performance, and also, a negative relationship between capital structure and corporate performance.
7	Reviewing Relationship between Capital Structure and Firm's	Nor Edi Azhar Bte Mohamad, Fatihah Norazami Bt	2012	The results got from Multiple Regression analysis showed that negative and significant relationship between capital structure and firms

	Performance in Malaysia.	Abdullah		performance from the sample of Malaysia firms.
8	The relationship of capital structure decisions with firm performance: A study of the engineering sector of Pakistan.	Abdul Ghafoor Khan	2012	From the results, it shows that short-term debt, debt ratio have negative and significant influence on firm performance. Moreover, the asset size has weak impact on the return on asset and gross margin.

Chapter 3

Research Framework

In this chapter, there are six parts. First part explains the theoretical framework that deserved from researches related to firm performance. Second section is about the conceptual framework of this research adapted from references of literature review. Third part clarifies and conceptualizes the definition of twelve variables. Then, it is followed by the research model, and eighty research hypotheses. Last section shows the operationalization of variables that consist of concept of variables, conceptual definition, and operational measurement.

3.1 Theoretical Framework

From the literature review in chapter 2, many researchers examined the relationship between firm's internal factors (capital structure and other factors) and firm performance with the independent variables of debt ratio, debt to equity ratio, short-term debt, long-term debt asset tangibility ratio, size, age and growth of sales; and with the dependent variables of return on asset, return on equity and Tobin's Q, and also with the intervening variables of GDP, inflation rate and real interest rate.

Zeitun and Tian (2007) examined the relationship with capital structure and company's performance in Jordan. The survey results used a panel data sample in 167 Jordanian companies between year 1989-2003, and which provided evidence of a negative and significant relationship between capital structure and firm's performance. There are 4 variables used as measurement of capital structure: debt ratio, long-term debt ratio, short-term debt ratio, debt to equity ratio. And growth, size, the standard deviation of cash flow, tax, and tangibility were used as controlled variable. For measures of performance, "Tobin's Q, market value of equity to the book value of equity (MBVR), P/E, market value of equity and book value of liabilities divided by book value of equity (MBVE), Return on Equity, Return on Asset, and earnings before interest and tax plus depreciation to total assets (PROF)" were employed. The

findings of this study signified that short-term debt has a significantly positive impact on the Tobin's Q, and tax rate, size of firm also has positive relationship with firm performance.

Abor (2007) investigated the performance for small and medium enterprise with capital structure in Ghana and South African. The main purpose of this is to explain capital structure on financial performance of SMEs in Ghana and South Africa. The researcher collected 160 Ghanaian SMEs and 200 South African SMEs with 68 of the South African sample being listed firms, and used panel data analysis to investigate the survey. The variables used to measure the firm performance (gross margin, Return on Asset, Tobin's Q) are short-term debt ratio, long-term debt ratio, and debt ratio, trade credit to total capital, size, and sales growth. The results from the study indicated a negative relationship between capital structure, especially long-term debt ratio and debt ratio, and performance of SMEs. The researcher suggested that very high debt policy maybe led by agency issues, thus resulting in lower performance.

Ebaid (2009) investigated effect with choice of capital structure and corporation's performance in Egypt. The researcher aimed at determining the impact of capital structure choice on firm performance in Egypt. The study used 3 of accounting-based measures of financial performance (return on equity, return on asset, gross margin), and short-term debt ratio, long-term debt ratio, debt ratio, size measure as capital structure. This research used all publicly traded firms on Egyptian stock exchange between years 1997 to 2005, and employed the final sample of 64 firms. It indicated a weak-to-no relationship between capital structure and financial performance of listed firms in Egypt. However, the study revealed that short-term debt ratio has negative impact on the firm performance measured by return on asset.

Pratheepkanth (2011) analyzed impact from capital structure to firm performance on Colombo stock exchange Sri Lanka, with independent variables of debt to equity ratio and debt ratio, and dependent variables of gross profit, net profit, return on asset

and return on investment. The survey was conducted with data of all the business firms that are listed on Colombo Stock Exchange in the period of 2005-2009. The findings indicated a negative relationship between capital structure and financial performance. Also, the research showed a weak positive impact between gross profit and capital structure. At the same time, net profit has negative impact on the capital structure, the high financial cost among the firms as reflect.

Muritala (2012) studied there analysis of capital structure and firm performance in Nigeria. Findings from annual data of ten firms spanning a five-year period between 2006 and 2010 were explored, demonstrating that all the adopted variables, namely debt ratio, asset turnover, size, age, asset tangibility, growth opportunities which are influence the firm performance measure by return on equity and return on asset. The result derived from Panel Least Square (PLS) which showed there is a positive and significant relationship between asset turnover, age, size and ROE. Additionally, the paper also examined that a negative and significant relationship between asset tangibility and return on asset, which makes asset tangibility as a driven factor to capital structure because firms are less likely to be financially constrained by the more tangible assets.

Ahmad et al, (2012) tested the impact on capital structure to firms in Malaysian firms with equity market and industrials sectors. 58 firms were used as the sample firms and the data were from year 2005 to 2010 as observations. The firm's performance measured by the return on asset, return on equity, with short-term debt ratio and long-term debt ratio and total debt ratio as the independent variables; as well as the four controlled variables: size, asset grow, sales grow and efficiency. The results were obtained from a series of regression analysis that showed a significant relationship between short-term debt ratio, total debt ratio and return on equity and return on asset. Moreover, the study also emphasized that size, growth, and efficiency have less impact on the guiding of choice for firms with good operating performance.

Sadeghian et al (2012) aimed to identify and analyse capital structure and firm performance in Tehran Stock Exchange companies. The regression model is used to investigate relationships between debt ratios and performance indicators which are gross margin, Return on asset, Tobin's Q. Size and growth rate as control variables also conducted in the research. The researchers found that an increase in current debts, non-current debts, and total debts has a negative impact on firm performance, and also, a negative relationship between capital structure and corporate performance.

Mohamad and Abdullah (2012) conducted a research that named effect on capital structure and firm's performance in Malaysia. The researchers collected secondary data from the firms' annual report and Bloomberg software in five selected sectors in Bursa Malaysia Main Board, between year 2001 and 2010. The study used Return on equity, Return on asset as profitability ratio to measure performance, and used debt to asset ratio, debt to equity ratio and long-term debt ratio as independent variables of financial structure. The results from Multiple Regression analysis showed negative and significant relationship between capital structure and firms performance from the sample of Malaysia firms.

Khan (2012) did a research on the impact of capital structure decisions and firm performance in Pakistan. The major objective of this research is to test relationship of capital structure decision with the firm performance. The researcher provided the Pooled Ordinary Least Square regression in order to test the hypothesis, and 36 engineering sector firms in Pakistani market listed on the Karachi Stock Exchange (KSE) were applied during the period of 2003-2009. In the study financial leverage is measured by short-term debt ratio and long-term debt ratio, debt ratio, and the firm performance is measured by return on asset, gross margin return on equity and Tobin's Q. From the results, it shows that short-term debt ratio, long-term debt ratio, debt ratio has negative and significant influence on firm performance. Moreover, the asset size has weak impact on the return on asset and gross margin.

3.2 Conceptual Framework

From the conceptual framework in this study, researcher conducts a study of effect on firm's internal factors and firm performance. After considering the analysis of pervious researches in chapter 2, researcher decides to concentrate on the relationship between the selected influential variables and firm performance, and also to apply three intervening variables in this study.

For the dependent variables in this study, a measurement of firm performance is classified as financial performance (return on asset, return on equity) and market performance (Tobin's Q). Capital structure is the mix of debt and equity in one company that is considered as independent variables that include debt ratio, debt to equity ratio, short-term debt ratio, and long-term debt ratio. In addition to internal factors: size, growth of sales. From some previous researches in chapter 2, asset structure is also illustrated as independent variable that contains assets tangibility ratio. Furthermore, apart from capital and asset structure, there is other factor that may impact on firm performance such as age, which is studied as controlled variable. This factor is specific for the macroeconomic conditions of China and the real estate industry sector of economic activity in China.

The dependent variables used in this research are the return on asset, return on equity and Tobin's Q, which are all used in previous studies as the following:

Zeitun and Tian (2007) examined capital structure and firm performance in Jordan. There are 4 variables are used as measurement of capital structure: debt ratio, long-term debt ratio, short-term debt ratio, debt to equity ratio. And growth of sales, size, the standard deviation of cash flow, tax, and tangibility were used as controlled variable. For measures of performance, "Tobin's Q, market value of equity to the book value of equity (MBVR), P/E, market value of equity and book value of liabilities divided by book value of equity (MBVE), Return on Equity, Return on Asset, and earnings before interest and tax plus depreciation to total assets (PROF)"

48

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Abor (2007) investigated capital structure and firm performance in Ghanaian and South African firm. The variables used to measure the firm performance (gross margin, Return on Asset, Tobin's Q) are short-term debt ratio, long-term debt ratio, and debt ratio, trade credit to total capital, size, and sales growth of sales. The results from the study indicated a negative relationship between capital structure, especially long-term debt ratio and debt ratio, and performance of SMEs. The researcher suggested that very high debt policy maybe led by agency issues, thus resulting in lower performance.

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independent variables; as well as the four controlled variables: size, asset grow, sales grow and efficiency.

Sadeghian et al (2012) aimed to identify capital structure and firm performance in Tehran Stock Exchange Company. The regression model was used to investigate relationships between debt ratios and performance indicators which are gross margin, Return on asset, Tobin's Q. Size and growth of sales rate as control variables also conducted in the research.

Mohamad and Abdullah (2012) conducted a research named capital structure and firm performance in Malaysia. The study used Return on equity, Return on asset as profitability ratio to measure performance, and used debt to asset ratio, debt to equity ratio and long-term debt ratio as independent variables of financial structure.

Khan (2012) did a research on the capital structure and firm performance in Pakistan. In the study financial leverage was measured by short-term debt ratio and long-term debt ratio, debt ratio, and the firm performance was measured by return on asset, gross margin return on equity and Tobin's Q.

Figure 3.2: Conceptual Framework
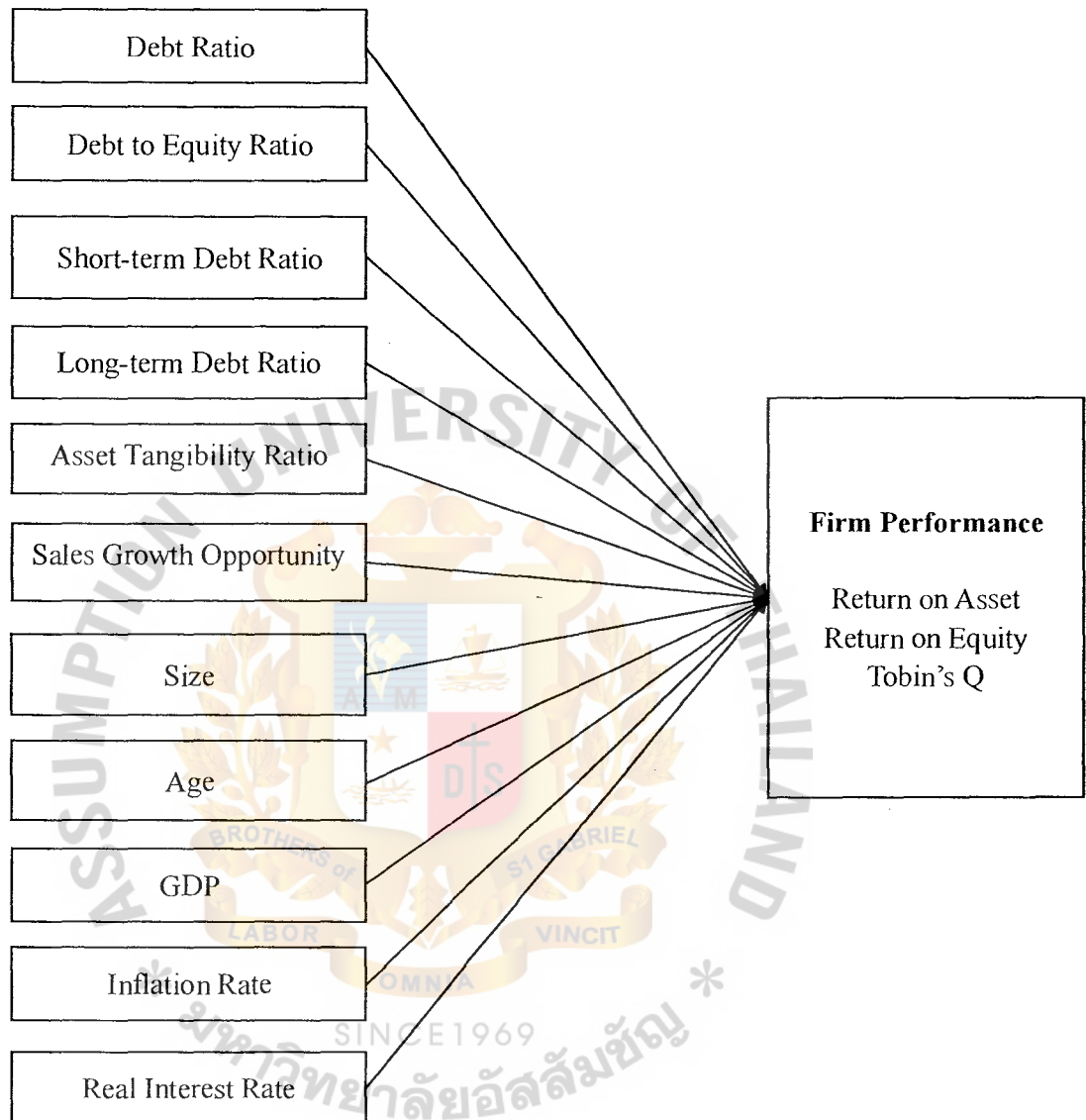
3.3 Explanation of Variables

There are eight independent variables and three dependent variables that will determine the relationship to the performance of firm in this study, as well as three control variables. In this study hence, the following parts will provide more details to help better understand the variables in this study.

3.3.1 Independent Variables

3.3.1.1 Debt Ratio

The debt ratio assesses the level that moneys of borrowed used to finance companies effectiveness on operation (Lawrence, 1997). Lawrence (1997)asserted that a high debt ratio displays that debt is overused and the risk of bankruptcy is sizable, so the conclusion is that lower debt ratio is better.

$$\text{Debt ratio} = \frac{\text{Total Debt}}{\text{Total Asset}}$$

3.3.1.2 Debt to Equity Ratio

James (1995) stated that debt to equity ratio exhibits the relationship between debt to equity that provide by owners and capital which provide by creditors. The ratio implied the degree that the owners contributed the protection for creditors (James, 1995). Debt to equity ratio can be used to measure the total leverage of one company, so the ratio is the common and prime option of measurement for capital adequacy (James, 1995).

$$\text{Debt to Equity ratio} = \frac{\text{Total Debt}}{\text{Total Equity}}$$

3.3.1.3 Short-term Debt Ratio

Lasher (2000)also clarified that short-term assets and liabilities are generally defined to be those items that will be used, liquidated, mature or paid off within one year. Short-term debt ratio is expected to be impact on the firm performance as the measurement of capital structure on one company.

$$\text{Short-term Debt ratio} = \frac{\text{Short-term Debt}}{\text{Total Capital}}$$

3.3.1.4 Long-term Debt Ratio

Lawrence (1997)defined that long-term debt-to-capital ratio is an important

52

measure of creditworthiness and balance sheet strength, it indicates the percentage of capital investment that has been financed by creditors and bondholders. A lower long-term debt ratio generally indicates greater capacity to get additional investments (Lawrence, 1997).

$$\text{Long-term Debt ratio} = \frac{\text{Long-term Debt}}{\text{Total Capital}}$$

3.3.1.5 Size

Banz (1981) stated size as the number of employees or sales, total assets, and market capitalization form numerous empirical studies and theories. In some certain groups of studies, assets can be used as size, however, the prime measurement for size is number of employees and valued added (Banz, 1981). (Banz, 1981) determined that organization size is a significant factor in diverse economic phenomena.

In this study, researcher selects one factor to determine the size of firm, which is total sales in year 2009 to 2012.

Size = Sales in current year

3.3.1.6 Sales Growth Opportunity

Zeitun & Tian (2007) defined growth opportunities as the growth of sales (Growth). And growth opportunities also are measured by increase of size (Rafeld and Shaudys, 1970). When the firm has better performance in finance will be expected with great growth opportunities, and firm with growth can create profit in investment (Zeitun & Tian, 2007).

$$\text{Growth of Sales} = \frac{\text{Sales in current year - Sales in previous year}}{\text{Sales in previous year}} * 100\%$$

3.3.1.7 Assets Tangibility Ratio

Gompers (1995) explained that tangible assets such as plants and machines are easier to be sold in the market rather than intangible assets such as copyrights and patents, which will make an expansion of liquidation value of assets in the firms' tangibility.

Akintoye (2008) described that firm will have lower costs of financial distress rather than that the firm only count on intangible asset, when firm preserve huge investments in tangible assets. To demonstrate variations in capital structure, several studies used variations in asset tangibility as a method (Rajan and Zingales, 1995).

$$Assets\ Tangibility\ Ratio = \frac{Fix\ Assets}{Total\ Assets}$$

3.3.1.8 Age

Shumway (2001) defined that age is the number of years since the company listed and age is also the influential and economical measurement. The method for measuring firm age is to use natural log of the amount of years since company is listed. Firms are becoming better on what they are capable of and also improved on learning new things over time (Jovanovic, 1982; Ericson and Pakes, 1995).

Firm age = Number of years since the company listed

3.3.2 Dependent Variables

3.3.2.1 Return on Asset

Lasher (2000) signified that the percentage of return on assets exhibits after created revenue, how much money that one firm's assets can get as profit. With a greater value of return on assets, company can be more efficient with applying its assets, so return on assets can be used as significant measurement of operational performance (da Silva Neto & Berrie, 2008).

54

$$\text{Return on Asset} = \frac{\text{Net Income}}{\text{Total Assets}}$$

3.3.2.2 Return on Equity

Lasher (2000) defined return on equity measures a firm's profitability from the point of view of common equity investors, by relating net income available to common equity investors, to the book value of the common equity investment. When return on asset ratio is used in assessment of one firm's value on return and profitability, there are three ways to do; first way is that an absolute number can be examined by the ratio; second is that the ratio can be a greater index competitive to other firms; lastly, the ratio has trend which can be studied (Traub, 2001).

$$\text{Return on Equity} = \frac{\text{Net Income}}{\text{Total Equity}}$$

3.3.2.3 Tobin's Q

Tobin's Q is a measurement for company's value which include accounting value and market value (McConnell & Servaes 1990). The Q will be high, when the high evaluation of the firm is covered by stock market; company have ability to launch new shares of stock, then get high (delight) price from stock shares to cover the cost, and also can help company to replace or reinforce equipment and plants(James, 1995). When the price of stock depress, the Q will be low, the spending of investment also will be low by the unwilling of company to attract new funds from issuing new stock shares (James, 1995).

$$\text{Tobin's Q} = \frac{\text{Market value of Equity} + \text{Book value of Debt}}{\text{Book value of Assets}}$$

$$\text{Tobin's Q} = \frac{\text{Market value of firm}}{\text{Replacement Cost of Capital}}$$

55

Market value of firm refer to the stock value of firm that is put on the stock market, and the replacement cost of capital is the cost that need to replicate firm's buildings, machines etc. (James, 1995).

3.3.3 Control Variables

3.3.3.1 GDP

GDP is the money value of total firms and producers sell the goods and service in the economy that used to show the situation of one country's economy in a period time (Keown et al. 2005). GDP as the sum of income in the economy, it includes the profits of total firms (Keown et al. 2005). If the GDP is higher or good in a period of time, the value added of firm is also quite higher. Where profit increases in the firm, it surely will affect firm performance positively.

3.3.3.2 Inflation Rate

From the view of economics, the definition of inflation is a rising price for the general products and services in one country of a period (Bernholz, 2003). Since the price increased, the one unit of money can buy less product and service compare to the old time (Bernholz, 2003). The inflation usually can impact on the decreasing of power to purchase that will cause the loss between the real values of products, service and the value of account. Inflation rate can help to define the degree of inflation by the change of percentage to the price in a certain time. Inflation can impact the economy in many different ways, positively and negatively (Bernholz, 2003). Under the positive inflation effect, the real interest rate can be adjusted by the central bank. However, under the negative inflation effect, the cost of the cash in hand will be increased, and also will impact to reduce investment and savings. And if the inflation is more serious, products are hold in hand and there is less goods trading making product shortage (Bernholz, 2003).

There are many studies that believed that the main reason to cause high inflation rate is the oversupply of money, but it is not the necessarily the reason to respond to

the high inflation rate. In the views of some studies, the true reason for high inflation rate is the fast speed of growth rate of money supplied by government compared to the growth rate of economy (Bernholz, 2003).

3.3.3.3 Real Interest Rate

The real interest rate is defined as the actual rate of interest after deducting inflation rate that investors want to get. The calculation for real interest rate is nominal interest rate minus inflation rate (Houston, 2001). The nominal interest rate is the interest rate that central banks provide to investor including the inflation rate by one period of time. The real interest rate can help adjust the buying power that will be impacted (Houston, 2001). The real interest rate can derive by the Fisher equation, which is the relation with real interest rate and nominal interest rate including inflation rate as well, in one certain time. The reason why real interest rate is important is because real interest rate will affect the expectation of investors to make profits. (Houston, 2001). Sometimes, the real interest rate can also be negative by the inflation rate that is higher than nominal interest rate.

3.4 Research Model

To investigate the relationship between firm's internal factors and firm performance of real estate sector in China, the most common method to conduct research is Ordinary Least Square (OLS) what is also used in this study. Mohamad and Abdullah, (2012) studied relationship between capital structure and firm performance in Malaysia with the analysis method of Ordinary Least Square (OLS), moreover, Coleman (2007) applied Ordinary Least Square (OLS) to analyze the impact of capital structure on performance of microfinance institutions'. In order to test the relationship between firm's internal factors and firm performance of real estate sector in China, the researcher explores and chooses the variables for the measurement model.

The multiple regression model is adopted in this research to test hypotheses that

firm's internal factors impact on firm performance as showed in Equation (1) to (6).

Model applied for every year from 2009 to 2012

$$ROA_{i,t} = \alpha + \beta_{1,t}DR_{i,t} + \beta_{2,t}DE_{i,t} + \beta_{3,t}STD_{i,t} + \beta_{4,t}LTD_{i,t} + \beta_{5,t}Size_{i,t} + \beta_{6,t}Growth\ of\ sales_{i,t} + \beta_{7,t}TANG_{i,t} + \beta_{8,t}Age_{i,t} + \theta_1 GDP_t + \theta_2 IR_t + \theta_3 RIR_t + \varepsilon_{i,t} \qquad (1)$$

$$ROE_{i,t} = \alpha + \beta_{1,t}DR_{i,t} + \beta_{2,t}DE_{i,t} + \beta_{3,t}STD_{i,t} + \beta_{4,t}LTD_{i,t} + \beta_{5,t}Size_{i,t} + \beta_{6,t}Growth\ of\ sales_{i,t} + \beta_{7,t}TANG_{i,t} + \beta_{8,t}Age_{i,t} + \theta_1 GDP_t + \theta_2 IR_t + \theta_3 RIR_t + \varepsilon_{i,t} \qquad (2)$$

$$Tobin's\ Q_{i,t} = \alpha + \beta_{1,t}DR_{i,t} + \beta_{2,t}DE_{i,t} + \beta_{3,t}STD_{i,t} + \beta_{4,t}LTD_{i,t} + \beta_{5,t}Size_{i,t} + \beta_{6,t}Growth\ of\ sales_{i,t} + \beta_{7,t}TANG_{i,t} + \beta_{8,t}Age_{i,t} + \theta_1 GDP_t + \theta_2 IR_t + \theta_3 RIR_t + \varepsilon_{i,t} \qquad (3)$$

Model applied for total four years between 2009 to 2012

$$ROA_{i,t} = \alpha + \beta_{1,t}DR_{i,t} + \beta_{2,t}DE_{i,t} + \beta_{3,t}STD_{i,t} + \beta_{4,t}LTD_{i,t} + \beta_{5,t}Size_{i,t} + \beta_{6,t}Growth\ of\ sales_{i,t} + \beta_{7,t}TANG_{i,t} + \beta_{8,t}Age_{i,t} + \sum_{j=1}^{n-1} Dummy\ j + \theta_1 GDP_t + \theta_2 IR_t + \theta_3 RIR_t + \varepsilon_{i,t} \qquad (4)$$

$$ROE_{i,t\ t} = \alpha + \beta_{1,t}DR_{i,t} + \beta_{2,t}DE_{i,t} + \beta_{3,t}STD_{i,t} + \beta_{4,t}LTD_{i,t} + \beta_{5,t}Size_{i,t} + \beta_{6,t}Growth\ of\ sales_{i,t} + \beta_{7,t}TANG_{i,t} + \beta_{8,t}Age_{i,t} + \sum_{j=1}^{n-1} Dummy\ j + \theta_1 GDP_t + \theta_2 IR_t + \theta_3 RIR_t + \varepsilon_{i,t} \qquad (5)$$

$$Tobin's\ Q_{i,t\ t} = \alpha + \beta_{1,t}DR_{i,t} + \beta_{2,t}DE_{i,t} + \beta_{3,t}STD_{i,t} + \beta_{4,t}LTD_{i,t} + \beta_{5,t}Size_{i,t} + \beta_{6,t}Growth\ of\ sales_{i,t} + \beta_{7,t}TANG_{i,t} + \beta_{8,t}Age_{i,t} + \sum_{j=1}^{n-1} Dummy\ j + \theta_1 GDP_t + \theta_2 IR_t + \theta_3 RIR_t + \varepsilon_{i,t} \qquad (6)$$

where:

i = Firm i

t = Year t

$ROE_{i,t}$ = Return on equity of firm i for time period t

$Tobin's\ Q_{i,t}$ = Tobin's Q of firm i for time period t

$DR_{i,t}$ = Debt ratio of firm i for time period t

$DE_{i,t}$ = Debt to equity ratio of firm i for time period t

$STD_{i,t}$ = Short-term debt ratio of firm i for time period t

$LTD_{i,t}$ = Long-term debt ratio of firm i for time period t

$Size_{i,t}$ = Total assets of firm i for time period t

Growth of $sales_{i,t}$ = Sales growth rate firm i for time period t

$TANG_{i,t}$ = Asset tangibility ratio of firm i for time period t

$Age_{i,t}$ = Number for years since the firm i listed for time period t

GDP_t = Gross domestic product for time period t

IR_t = Inflation rate for time period t

RIR_t = Real Interest rate for time period t

Dummy = Dummy variables used in fixed effect panel date regression model

N= Number of firm

α = Constant term or an intercept

β_1...... B_8 = regression coefficients

θ = Regression coefficients for control variables

ε = Error term of the model

The measurements of firm performance as dependent variable include financial performance and market performance. For the financial performance, return on asset (ROA) and return on equity (ROE) are considered as profitability of firm. Besides that, Tobin's Q is used as market performance in this study and to analyze the effect of capital structure on it. Capital structure (financial leverage) was measured in the research as independent variable by debt ratio (DR), debt to equity ratio (DE), short-term debt ratio (STD), and long-term debt ratio (LTD). Together with other internal factors: Size, Growth of sales and Age. Asset structure is also considered as dependent variable in this study that is asset tangibility ratio (TANG). There are three control variables (GDP, Inflation rate, Real Interest rate) are also covered to determine firm performance.

3.5 Research Hypotheses

There are one hundred twenty null hypotheses (H_{1o} to H_{120o}) and one hundred twenty alternative hypotheses (H_{1a} to H_{120a}) in this study to determine the relationship between firm's internal factors and firm performance of real estate sector in China in 4 year period from 2009-2012.

The following are the hypotheses of this research:

$H1_o$: Debt ratio (DR) has no significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2009

$H1_a$: Debt ratio (DR) has a significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2009

$H2_o$: Debt to equity ratio (DE) has no significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2009

$H2_a$: Debt to equity ratio (DE) has a significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2009

$H3_o$: Short-term debt ratio (STD) has no significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2009

$H3_a$: Short-term debt ratio (STD) has a significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2009

$H4_o$: Long-term debt ratio (LTD) has no significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2009

$H4_a$: Long-term debt ratio (LTD) has a significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2009

$H5_o$: Size has no significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2009

$H5_a$: Size has a significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2009

$H6_o$: Growth of sales has no significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2009

$H6_a$: Growth of sales has a significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2009

$H7_o$: Asset tangibility ratio (TANG) has no significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2009

$H7_a$: Asset tangibility ratio (TANG) has a significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2009

$H8_o$: Age has no significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2009

$H8_a$: Age has a significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2009

$H9_o$: Debt ratio (DR) has no significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2009

$H9_a$: Debt ratio (DR) has a significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2009

$H10_o$: Debt to equity ratio (DE) has no significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2009

$H10_a$: Debt to equity ratio (DE) has a significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2009

$H11_o$: Short-term debt ratio (STD) has no significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2009

$H11_a$: Short-term debt ratio (STD) has a significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2009

$H12_o$: Long-term debt ratio (LTD) has no significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2009

$H12_a$: Long-term debt ratio (LTD) has a significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2009

$H13_o$: Size has no significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2009

$H13_a$: Size has a significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2009

$H14_o$: Growth of sales has no significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2009

$H14_a$: Growth of sales has a significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2009

$H15_o$: Asset tangibility ratio (TANG) has no significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2009

$H15_a$: Asset tangibility ratio (TANG) has a significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2009

$H16_o$: Age has no significant effect on return on asset (ROE) in listed real estate companies of Chinese stock exchange during year 2009

$H16_a$: Age has a significant effect on return on asset (ROE) in listed real estate companies of Chinese stock exchange during year 2009

$H17_o$: Debt ratio (DR) has no significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2009

$H17_a$: Debt ratio (DR) has a significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2009

$H18_o$: Debt to equity ratio (DE) has no significant Tobin's Q in listed real estate companies of Chinese stock exchange during year 2009

$H18_a$: Debt to equity ratio (DE) has a significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2009

$H19_o$: Short-term debt ratio (STD) has no significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2009

$H19_a$: Short-term debt ratio (STD) has a significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2009

$H20_o$: Long-term debt ratio (LTD) has no significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2009

$H20_a$: Long-term debt ratio (LTD) has a significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2009

$H21_o$: Size has no significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2009

$H21_a$: Size has a significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2009

$H22_o$: Growth of sales has no significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2009

$H22_a$: Growth of sales has a significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2009

$H23_o$: Asset tangibility ratio (TANG) has no significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2009

H23$_a$: Asset tangibility ratio (TANG) has a significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2009

H24$_o$: Age has no significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2009

H24$_a$: Age has a significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2009

H25$_o$: Debt ratio (DR) has no significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2010

H25$_a$: Debt ratio (DR) has a significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2010

H26$_o$: Debt to equity ratio (DE) has no significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2010

H26$_a$: Debt to equity ratio (DE) has a significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2010

H27$_o$: Short-term debt ratio (STD) has no significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2010

H27$_a$: Short-term debt ratio (STD) has a significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2010

H28$_o$: Long-term debt ratio (LTD) has no significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2010

H28$_a$: Long-term debt ratio (LTD) has a significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2010

H29$_o$: Size has no significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2010

$H29_a$: Size has a significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2010

$H30_o$: Growth of sales has no significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2010

$H30_a$: Growth of sales has a significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2010

$H31_o$: Asset tangibility ratio (TANG) has no significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2010

$H31_a$: Asset tangibility ratio (TANG) has a significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2010

$H32_o$: Age has no significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2010

$H32_a$: Age has a significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2010

$H33_o$: Debt ratio (DR) has no significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2010

$H33_a$: Debt ratio (DR) has a significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2010

$H34_o$: Debt to equity ratio (DE) has no significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2010

$H34_a$: Debt to equity ratio (DE) has a significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2010

$H35_o$: Short-term debt ratio (STD) has no significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2010

$H35_a$: Short-term debt ratio (STD) has a significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2010

$H36_o$: Long-term debt ratio (LTD) has no significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2010

$H36_a$: Long-term debt ratio (LTD) has a significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2010

$H37_o$: Size has no significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2010

$H37_a$: Size has a significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2010

$H38_o$: Growth of sales has no significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2010

$H38_a$: Growth of sales has a significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2010

$H39_o$: Asset tangibility ratio (TANG) has no significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2010

$H39_a$: Asset tangibility ratio (TANG) has a significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2010

$H40_o$: Age has no significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2010

$H40_a$: Age has a significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2010

$H41_o$: Debt ratio (DR) has no significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2010

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$H41_a$: Debt ratio (DR) has a significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2010

$H42_o$: Debt to equity ratio (DE) has no significant Tobin's Q in listed real estate companies of Chinese stock exchange during year 2010

$H42_a$: Debt to equity ratio (DE) has a significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2010

$H43_o$: Short-term debt ratio (STD) has no significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2010

$H43_a$: Short-term debt ratio (STD) has a significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2010

$H44_o$: Long-term debt ratio (LTD) has no significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2010

$H44_a$: Long-term debt ratio (LTD) has a significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2010

$H45_o$: Size has no significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2010

$H45_a$: Size has a significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2010

$H46_o$: Growth of sales has no significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2010

$H46_a$: Growth of sales has a significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2010

$H47_o$: Asset tangibility ratio (TANG) has no significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2010

H47$_a$: Asset tangibility ratio (TANG) has a significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2010

H48$_o$: Age has no significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2010

H48$_a$: Age has a significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2010

H49$_o$: Debt ratio (DR) has no significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2011

H49$_a$: Debt ratio (DR) has a significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2011

H50$_o$: Debt to equity ratio (DE) has no significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2011

H50$_a$: Debt to equity ratio (DE) has a significant effect on return on sset (ROA) in listed real estate companies of Chinese stock exchange during year 2011

H51$_o$: Short-term debt ratio (STD) has no significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2011

H51$_a$: Short-term debt ratio (STD) has a significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2011

H52$_o$: Long-term debt ratio (LTD) has no significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2011

H52$_a$: Long-term debt ratio (LTD) has a significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2011

H53$_o$: Size has no significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2011

$H53_a$: Size has a significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2011

$H54_o$: Growth of sales has no significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2011

$H54_a$: Growth of sales has a significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2011

$H55_o$: Asset tangibility ratio (TANG) has no significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2011

$H55a$: Asset tangibility ratio (TANG) has a significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2011

$H56_o$: Age has no significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2011

$H56_a$: Age has a significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2011

$H57_o$: Debt ratio (DR) has no significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2011

$H57_a$: Debt ratio (DR) has a significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2011

$H58_o$: Debt to equity ratio (DE) has no significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2011

$H58_a$: Debt to equity ratio (DE) has a significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2011

$H59_o$: Short-term debt ratio (STD) has no significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2011

H59$_a$: Short-term debt ratio (STD) has a significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2011

H60$_o$: Long-term debt ratio (LTD) has no significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2011

H60$_a$: Long-term debt ratio (LTD) has a significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2011

H61$_o$: Size has no significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2011

H61$_a$: Size has a significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2011

H62$_o$: Growth of sales has no significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2011

H62$_a$: Growth of sales has a significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2011

H63$_o$: Asset tangibility ratio (TANG) has no significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2011

H63$_a$: Asset tangibility ratio (TANG) has a significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2011

H64$_o$: Age has no significant effect on return on asset (ROE) in listed real estate companies of Chinese stock exchange during year 2011

H64$_a$: Age has a significant effect on return on asset (ROE) in listed real estate companies of Chinese stock exchange during year 2011

H65$_o$: Debt ratio (DR) has no significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2011

H65$_a$: Debt ratio (DR) has a significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2011

H66$_o$: Debt to equity ratio (DE) has no significant Tobin's Q in listed real estate companies of Chinese stock exchange during year 2011

H66$_a$: Debt to equity ratio (DE) has a significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2011

H67$_o$: Short-term debt ratio (STD) has no significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2011

H67$_a$: Short-term debt ratio (STD) has a significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2011

H68$_o$: Long-term debt ratio (LTD) has no significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2011

H68$_a$: Long-term debt ratio (LTD) has a significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2011

H69$_o$: Size has no significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2011

H69$_a$: Size has a significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2011

H70$_o$: Growth of sales has no significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2011

H70$_a$: Growth of sales has a significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2011

H71$_o$: Asset tangibility ratio (TANG) has no significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2011

H71$_a$: Asset tangibility ratio (TANG) has a significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2011

H72$_o$: Age has no significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2011

H72$_a$: Age has a significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2011

H73$_o$: Debt ratio (DR) has no significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2012

H73$_a$: Debt ratio (DR) has a significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2012

H74$_o$: Debt to equity ratio (DE) has no significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2012

H74$_a$: Debt to equity ratio (DE) has a significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2012

H75$_o$: Short-term debt ratio (STD) has no significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2012

H75$_a$: Short-term debt ratio (STD) has a significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2012

H76$_o$: Long-term debt ratio (LTD) has no significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2012

H76$_a$: Long-term debt ratio (LTD) has a significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2012

H77$_o$: Size has no significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2012

$H77_a$: Size has a significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2012

$H78_o$: Growth of sales has no significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2012

$H78_a$: Growth of sales has a significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2012

$H79_o$: Asset tangibility ratio (TANG) has no significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2012

$H79_a$: Asset tangibility ratio (TANG) has a significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2012

$H80_o$: Age has no significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2012

$H80_a$: Age has a significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2012

$H81_o$: Debt ratio (DR) has no significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2012

$H81_a$: Debt ratio (DR) has a significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2012

$H82_o$: Debt to equity ratio (DE) has no significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2012

$H82_a$: Debt to equity ratio (DE) has a significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2012

$H83_o$: Short-term debt ratio (STD) has no significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2012

$H83_a$: Short-term debt ratio (STD) has a significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2012

$H84_o$: Long-term debt ratio (LTD) has no significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2012

$H84_a$: Long-term debt ratio (LTD) has a significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2012

$H85_o$: Size has no significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2012

$H85_a$: Size has a significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2012

$H86_o$: Growth of sales has no significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2012

$H86_a$: Growth of sales has a significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2012

$H87_o$: Asset tangibility ratio (TANG) has no significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2012

$H87_a$: Asset tangibility ratio (TANG) has a significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2012

$H88_o$: Age has no significant effect on return on asset (ROE) in listed real estate companies of Chinese stock exchange during year 2012

$H88_a$: Age has a significant effect on return on asset (ROE) in listed real estate companies of Chinese stock exchange during year 2012

$H89_o$: Debt ratio (DR) has no significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2012

74

H89$_a$: Debt ratio (DR) has a significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2012

H90$_o$: Debt to equity ratio (DE) has no significant Tobin's Q in listed real estate companies of Chinese stock exchange during year 2012

H90$_a$: Debt to equity ratio (DE) has a significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2012

H91$_o$: Short-term debt ratio (STD) has no significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2012

H91$_a$: Short-term debt ratio (STD) has a significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2012

H92$_o$: Long-term debt ratio (LTD) has no significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2012

H92$_a$: Long-term debt ratio (LTD) has a significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2012

H93$_o$: Size has no significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2012

H93$_a$: Size has a significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2012

H94$_o$: Growth of sales has no significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2012

H94$_a$: Growth of sales has a significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2012

H95$_o$: Asset tangibility ratio (TANG) has no significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2012

H95$_a$: Asset tangibility ratio (TANG) has a significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2012

H96$_o$: Age has no significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2012

H96$_a$: Age has a significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2012

H97$_o$: Debt ratio (DR) has no significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2009 — 2012

H97$_a$: Debt ratio (DR) has a significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2009 — 2012

H98$_o$: Debt to equity ratio (DE) has no significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2009 — 2012

H98$_a$: Debt to equity ratio (DE) has a significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2009 — 2012

H99$_o$: Short-term debt ratio (STD) has no significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2009 — 2012

H99$_a$: Short-term debt ratio (STD) has a significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2009 — 2012

H100$_o$: Long-term debt ratio (LTD) has no significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2009 — 2012

H100$_a$: Long-term debt ratio (LTD) has a significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2009 — 2012

H101$_o$: Size has no significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2009 — 2012

$H101_a$: Size has a significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2009 — 2012

$H102_o$: Growth of sales has no significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2009 — 2012

$H102_a$: Growth of sales has a significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2009 — 2012

$H103_o$: Asset tangibility ratio (TANG) has no significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2009 — 2012

$H103_a$: Asset tangibility ratio (TANG) has a significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2009 — 2012

$H104_o$: Age has no significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2009 — 2012

$H104_a$: Age has a significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2009 — 2012

$H105_o$: Debt ratio (DR) has no significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2009 — 2012

$H105_a$: Debt ratio (DR) has a significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2009 — 2012

$H106_o$: Debt to equity ratio (DE) has no significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2009 — 2012

$H106_a$: Debt to equity ratio (DE) has a significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2009 — 2012

$H107_o$: Short-term debt ratio (STD) has no significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2009 — 2012

$H107_a$: Short-term debt ratio (STD) has a significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2009 — 2012

$H108_o$: Long-term debt ratio (LTD) has no significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2009 — 2012

$H108_a$: Long-term debt ratio (LTD) has a significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2009 — 2012

$H109_o$: Size has no significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2009 — 2012

$H109_a$: Size has a significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2009 — 2012

$H110_o$: Growth of sales has no significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2009 — 2012

$H110_a$: Growth of sales has a significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2009 — 2012

$H111_o$: Asset tangibility ratio (TANG) has no significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2009 — 2012

$H111_a$: Asset tangibility ratio (TANG) has a significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2009 — 2012

$H112_o$: Age has no significant effect on return on asset (ROE) in listed real estate companies of Chinese stock exchange during year 2009 — 2012

$H112_a$: Age has a significant effect on return on asset (ROE) in listed real estate

companies of Chinese stock exchange during year 2009 — 2012

$H113_o$: Debt ratio (DR) has no significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2009 — 2012

$H113_a$: Debt ratio (DR) has a significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2009 — 2012

$H114_o$: Debt to equity ratio (DE) has no significant Tobin's Q in listed real estate companies of Chinese stock exchange during year 2009 — 2012

$H114_a$: Debt to equity ratio (DE) has a significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2009 — 2012

$H115_o$: Short-term debt ratio (STD) has no significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2009 — 2012

$H115_a$: Short-term debt ratio (STD) has a significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2009 — 2012

$H116_o$: Long-term debt ratio (LTD) has no significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2009 — 2012

$H116_a$: Long-term debt ratio (LTD) has a significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2009 — 2012

$H117_o$: Size has no significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2009 — 2012

$H117_a$: Size has a significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2009 — 2012

$H118_o$: Growth of sales has no significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2009 — 2012

$H118_a$: Growth of sales has a significant effect on Tobin's Q in listed real estate

companies of Chinese stock exchange during year 2009 — 2012

H119$_o$: Asset tangibility ratio (TANG) has no significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2009 — 2012

H119$_a$: Asset tangibility ratio (TANG) has a significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2009 — 2012

H120$_o$: Age has no significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2009 — 2012

H120$_a$: Age has a significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2009 — 2012

Chapter 4

Research Methodology

This chapter provides a summary of research methodology, adapted for use in the study. This chapter is divided into present six parts data collection and data source, statistical treatment of data, research methods used, target population and sampling produce, data analysis, and summary of statistical data treatment process.

4.1 Data Collection and Data Source

There are several sources to help collect secondary data that are mainly used in this study. Secondary data are data gathered before the current research that is less expensive, and less time consuming. It also helps to collect information that may not be obtained by primary data. The data in this research come from external sources which include mainly websites and Bloomberg database. The total firms in both Shanghai and Shenzhen stock market are 143. The data conclude four years database from year 2009 to 2012, on a total of 117 firms in both Shanghai stock market and Shenzhen stock market of China. Because researcher was not able to find some data directly from data sources, some data are calculated and organized by researcher to make them usable for data analysis.

The sector that used in this research is the real estate industry in both Shanghai stock market and Shenzhen stock market of China with a total number of 117 firms that are all in complete database. The data are taken from Shanghai stock market of China website (www.sse.com.cn), Shenzhen stock market of China website (www.szse.cn), and Bloomberg database.

Bloomberg is the online center of data which covered all sectors of business in the world including historical, financial and economic data, news in business and data analysis which was founded in 1981. Most of the data got in this research are from Bloomberg database. Researcher choose to use yearly data from year 2009 to 2012,

and also organized and arranged all the firms of real estate companies, in order to get the complete data of all the variables which can be used in the research on 117 firms.

Table 4.1: Summary of Data Used in Research

Data	Time Period	Data Source
● Debt ratio ● Debt to equity ratio ● Short-term debt ratio ● Long-term debt ratio ● Size ● Growth Opportunity ● Asset tangibility ratio ● Return on asset ● Return on equity ● Tobin's Q	31 / 12 / 2008 to 31 / 12 / 2012	Bloomberg Database
● Age	31 / 12 / 2008 to 31 / 12 / 2012	Shanghai and Shenzhen stock market of China website

4.2 Target Population and Sampling Procedure

The target population in the study include 73 listed real estate companies on Shanghai stock market and 70 listed real estate firms on Shenzhen stock market, totaling 143 listed real estate companies on both stock markets in China from year 2009 to 2012. There are several reasons why researcher chooses those four years as the sample years. In year 2009, there was a huge recession on real estate industry from the stagnancy and slowdown in year 2008. All the listed real estate companies expand their total asset to nearly to 2.5 trillion Yuan, and total sales is 5363 a hundred million with 1067 a hundred million net income. And in 2009, the total sales area, and price per unit are significantly increased. In year 2010, the entire real estate industry

increased its investment by 33.2% compared to year 2009. However, the new and heavy macro-control from government to the real estate market, make influence on the industry. Then, by the continuous government control and the huge investment in 2010 year for developing the real estate industry, it caused more supply than the buying demand. The growth rate of real estate industry decreases in year 2011, until the end of the year, the demand increased again to meet the supply. Up until the year 2012, it was the most stable situation in real estate industry of China; the price per unit had slightly bit increased that still under control, and the pressure on industry diminished gradually.

Because of the incomplete data in some listed real estate companies in Bloomberg database, researcher conducted and arranged data, and got the complete data from 117 companies in both Shanghai stock market and Shenzhen stock market in year 2009 to 2012. All the data available are ready to be analyzed. Applying judgment sampling. Judgment sampling is a non-random sampling or non-probability sampling where researcher uses her own opinion and judgment to select sample members from the population.

4.3 Research Methods Used

Causal research is applied in this research, causal research helps to examine the cause and effect on one variable to another variable, and it enables to predict hypothetical business strategy. It is used to investigate the effect of factors on the firm performance of listed real estate companies in China.

The data used in the research all come from financial statement reports of Bloomberg with each listed real estate firms in both Shanghai stock market and Shenzhen stock market. Some data and ratios are calculated and arranged by researcher, the final analysis result will be obtained after research calculation. All the ratios used in the research are secondary data which are gathered from Bloomberg including debt ratio, debt to equity ratio, short-term debt ratio, long-term debt ratio,

total sales, growth of sales, assets tangibility ratio, age, return on asset, return on equity, Tobin's Q, and complete data collected for 4 years from 2009 to 2012.

4.4 Statistical Treatment of Data

In this study, researcher applied T-test on the entire eight independent variables with the level of 95% confidence. T-statistic can be used in the hypothesis test; it is a percentage for comparing the difference between the sample mean and hypothesized population mean. If there is significant difference, it should reject null hypothesis. The single multivariate regression model will be applied to test the relationship between dependent variables and independent variables. There is significance of correlation between dependent variables and independent variables, if it shows that p value is lower than 0.05 and 0.1. On the contrary, dependent variables and independent variables will be no significant relationship when p value is higher than 0.05 and 0.1.

In this research, multiple linear regressions model is applied to assay the effect on capital structure which is independent variables (include debt ratio, debt to equity ratio, short-term debt ratio, and long-term debt ratio, size, growth of sales) and firm performance which is dependent variables (include return on asset, return on equity and Tobin's Q). The reason for conducting multiple linear regression model in this study is because there are four years data which are irrelevant to each other. Detailed multiple linear regression model is explained below.

4.4.1 Collection of Data

Researcher found the ticker symbols of all the listed real estate firms on both Shanghai stock market and Shenzhen stock market. The ticker symbols were used, when researcher search the relevant data of independent and dependent variables in the Bloomberg database. The data that collected are from year 2009 to 2012. Descriptions and details of data are showed as follows:

- Debt ratio $= \dfrac{\text{Total Debt}}{\text{Total Asset}}$

- Debt to Equity ratio $= \dfrac{\text{Total Debt}}{\text{Total Equity}}$

- Short-term Debt ratio $= \dfrac{\text{Short-term Debt}}{\text{Total Capital}}$

- Long-term Debt ratio $= \dfrac{\text{Long-term Debt}}{\text{Total Capital}}$

- Size = Sales in current year

- Growth of Sales $= \dfrac{\text{Sales in current year - Sales in previous year}}{\text{Sales in previous year}} * 100\%$

- Assets Tangibility Ratio $= \dfrac{\text{Fix Assets}}{\text{Total Assets}}$

- Firm Age = Number of years since the company listed

- Return on Asset $= \dfrac{\text{Net Income}}{\text{Total Asset}}$

- Return on Equity $= \dfrac{\text{Net Income}}{\text{Total Equity}}$

- Tobin's Q $= \dfrac{\text{Market value of Equity + Book value of Debt}}{\text{Book value of Assets}}$

- Or Tobin's Q $= \dfrac{\text{Market value of firm}}{\text{Replacement Cost of Capital}}$

4.4.2 Multiple Linear Regressions Model

According to Houston (2001), to test the value of on variable by influence of other variables, regression analysis is applied which is a statistical method with two kinds (simple linear regression and multiple regressions). In this research, multiple linear regressions will be applied to test multiple independent variables with more than one dependent variable.

According to Houston (2001) in the case that where are k independent variables, we need to estimate $\beta_0, \beta_1 ..., \beta_k$ from the following equation;

$$y_i = \beta_0 + \beta_1 x_{1i} + \beta_2 x_{2i} + ... + \beta_k x_{ki} + u_i$$

where i represents the number of entities (from 1 to n). This equation can be written in a matrix form as;

$$\begin{bmatrix} y_1 \\ y_2 \\ \vdots \\ y_n \end{bmatrix} = \begin{bmatrix} \beta_0 + \beta_1 x_{11} + \beta_2 x_{21} + \ldots + \beta_k x_{k1} \\ \beta_0 + \beta_1 x_{12} + \beta_2 x_{22} + \ldots + \beta_k x_{k2} \\ \vdots \\ \beta_0 + \beta_1 x_{1n} + \beta_2 x_{2n} + \ldots + \beta_k x_{kn} \end{bmatrix} + \begin{bmatrix} u_1 \\ u_2 \\ \vdots \\ u_n \end{bmatrix}$$

and

$$\begin{bmatrix} y_1 \\ y_2 \\ \vdots \\ y_n \end{bmatrix} = \begin{bmatrix} 1 & x_{11} & x_{21} & \ldots & x_{k1} \\ 1 & x_{12} & x_{22} & \ldots & x_{k2} \\ & & \vdots & & \\ 1 & x_{1n} & x_{2n} & \ldots & x_{kn} \end{bmatrix} \begin{bmatrix} \beta_0 \\ \beta_1 \\ \vdots \\ \beta_k \end{bmatrix} + \begin{bmatrix} u_1 \\ u_2 \\ \vdots \\ u_n \end{bmatrix}$$

The above matrix form can be written in a short form as

$$Y = X\beta + u$$

where **Y, X,** and **u** are the matrix with n rows; and β is a matrix with k+1 rows (including the constant term).

The Ordinary Least Squares method is the method used to calculate the value of β (referring to the estimated value of the real β) that minimizes the sum of squared residuals (SSR) from the above multiple linear regression, where

$$SSR = \sum_{i=1}^{n} u_i^2 = \sum_{i=1}^{n} (y_i - \widehat{\beta}_0 - \widehat{\beta}_1 x_{1i} - \ldots - \widehat{\beta}_k x_{ki})^2.$$

and the set of β_s, derived from the OLS method, that could minimized SSR can be calculated by using matrix algebra, as follow;

$$\widehat{\beta} = \left[X'X\right]^{-1} X'Y$$

Where β in the equation is a matrix with k+1 rows, which contains the value of all β_s (from β_0 to β_k).

4.4.3 Fix Effect Panel Data Regressions Model

The fixed effects model is used as statistical model which demonstrates the observed volumes for the research variables in the condition of that the volumes are organized (Houston, 2001). The fixed effects is part of panel data analysis that has the fixed affects estimator, the estimator is useful for the coefficients (Houston, 2001).

86

Fixed effects is used to find the relationship between independent variables and dependent variables with any of entity such as firm, and each firm may have its own feature can affect the result of the test (Houston, 2001). There is an assumption that some bias will influence the result of the test when applying the fixed effect (Houston, 2001).

The Unobserved Effects Model (UEM) or Fixed Effects Model has the formula for the observation i, as following (Houston, 2001):

$$Y_{it} = \beta_0 + \beta_1 X_{it} + \beta_2 Z_i + \varepsilon_{it}$$

where Z_{it} is an unobserved variable that varies from one state to the nest but does not change over time (for example, Z_i represents cultural attitudes towards drinking and driving). It estimates β_i, the effect on Y of X holding constant the unobserved state characteristics Z.

Because the Z_i change from one state to next in constant over time, the population regression model can be interpreted as having n intercepts, one for each state. Specifically, let $\alpha_i - \beta_0 + \beta_2 Z_i$. Then the fixed effects regression model can be wrote more compactly as:

$$Y_{it} = \beta_1 X_{it} + \alpha_i + \varepsilon_{it}$$

In which α_i , ..., α_n are treated as unknow intercepts to be estimated, one for each state. The interpretation of α_i as a state-specific intercept comes from considering the population regression line for the ith state; this population regression line is let $\alpha_i - \beta_1 X_{it}$.

To develop the fixed effects regression model using binary variables, and the fixed effects regression model can be written equivalently as:

$$Y_{it} = \beta_0 + \beta_1 X_{it} + \gamma_2 D2_i + \gamma_3 D3_i + \cdots + \gamma_n Dn_i + \varepsilon_{it}$$

where β_0, β_1, γ_2,..., γ_n are unknow coefficients to be estimated. To drive the relationship between the coefficient and the intercepts in this equation, compare the population regression equation for the first state is $\beta_0 + \beta_1 X_{it}$, so $\alpha_1 = \beta_0$. For the second and remaining states, it is $\beta_0 + \beta_1 X_{it} + \gamma_i$, so $\alpha_i = \beta_0 + \gamma_i$ for $i \geq 2$. Thus, β_1 is the only hypothesis testing to make the significant test for the relationship between dependent variable and independent variable.

4.5 Data Analysis

This study conducts research on the listed real estate companies both on Shanghai stock market and Shenzhen stock market is a 4 year period from year 2009 to 2012. Researcher collected and arranged data that are available to use in the analysis. In order to run the program, the independent and dependent variables are handled as input.

The multiple regressions model is used as main method to explore the relationship between some kinds of variables with firm performance in many previous studies. So researcher decides to apply multiple regressions model to test the relationship of 120 hypotheses in this research.

Also in this research, a statistical technique called Ordinal Least Square Regression (OLS) is used. It can investigate the correct population relationship in hypothesis by using sample data. Researcher conducted pooled data in the OLS, in order to run all the statistical test.

4.6 Statistical Significance of Result

This study will test the significance of the firm performance of listed real estate companies in China, which are return on asset, return on equity and Tobin's Q. For test significance of firm performance, a two-tailed t-test can be used, which is the

statistical method used for testing hypothesis. The purpose for testing the significance of firm performance is to draw conclusion the hypothesis is rejected or not.

For a multiple linear regression model:

$$y = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + u$$

If we want to test a significant linear relationship between y and x_1, then we have to test a hypothesis which checks whether β_1 is equal to zero or not. Under a null hypothesis when β_1 is equal to zero (or no significant relationship between y and x_1), the calculation of t-statistics for the two-tailed t-test is shown as follows:

$$\text{t-statistic} = \frac{\hat{\beta}_1 - 0}{SE(\hat{\beta}_1)}$$

Where $\hat{\beta}_1$ refers to the estimated regression coefficient of the real β_1; and $SE\hat{\beta}_1$ refers to the estimated standard error of $\hat{\beta}_1$ (or the square root of the estimated variance of the distribution of the $\hat{\beta}_1$).

The null hypothesis can be rejected, if an absolute value of t-statistics is greater than the critical value from the t-table at a level of required significance. Another easier and more popular way to approach the t-test is based on a measurement called the p-value (of the t-statistic). A p-value for a t-statistics represents the smallest level of significance at which we can reject the null hypothesis. (Houston, 2001)

In this case, we can reject the null hypothesis if the p-value is less than the level of significance (5% or 0.05 general). If p-value is equal to or greater than the level of significance, the null hypothesis cannot be rejected. Table below shows the

89

summarized data treatment process.

4.7 Summary of Statistical Data Treatment Process

1. Collect ticker symbols of all the listed real estate companies in both Shanghai stock market and Shenzhen stock market from year 2009 to 2012.

↓

2. Get data for independent variables and dependent variables from 2009 to 2012.

↓

3. Arrange all the data, and get the completed data with 117 listed real estate companies.

↓

4. Using multiple linear regressions model to test hypotheses in each year and using fixed effect panel data regression model to test hypothesis for the whole period

↓

5. For each hypothesis testing, if the p value is lower than 0.05, null hypothesis can be rejected, and if the p value is equal to or higher than 0.05, the null hypothesis cannot be rejected.

↓

6. Analyze the outcomes

CHAPTER 5

DATA ANALYSIS

In this chapter, the researcher analyzed the secondary data using a program and will present the empirical results of the research: data analysis and model analysis. This chapter focuses on the analysis of the secondary data on companies listed on the Shanghai Stock Market and Shenzhen Stock Market for the years 2009 to 2012.

5.1 Descriptive Statistics

Data were obtained from 117 firms on both Shanghai and Shenzhen Stock Market. During 2009-2012, and the same 117 firms were observed. The mean is an average of a set of data; different sets of data have their own values depending on the observations included in the category being assessed.

Table 5.1 Statistics calculated for Debt ratio (DR), Debt to equity ratio (DE), Short term debt ratio (STD), and Long term debt ratio (LTD). In the real estate companies listed on both Shanghai and Shenzhen stock market 2009.

	DR	DE	STD	LTD
Mean	24.36542	75.52817	14.87342	22.58597
Median	24.57720	71.92380	12.42000	21.21030
Maximum	55.00530	303.5844	62.17000	61.01770
Minimum	0.000000	0.000000	0.000000	0.000000
Std. Dev.	14.30375	58.12107	13.59299	17.47240
Skewness	-0.123470	1.051726	0.992489	0.186632
Kurtosis	2.125392	4.996069	3.566211	1.857500
Jarque-Bera	4.026353	40.99291	20.77108	7.042589
Probability	0.133564	0.000000	0.000031	0.029561
Sum	2850.755	8836.795	1740.190	2642.559
Sum Sq. Dev.	23733.30	391854.8	21433.26	35413.04
Observations	117	117	117	117

The statistics of the list of real estate companies both listed in on Shanghai and Shenzhen stock market 2009 have showed that the mean value for debt ratio is 24.36542, and mean of debt to equity ratio is 75.52817, mean of short term debt ratio is 14.87342, mean of long term debt ratio is 22.58597. The maximum value for debt ratio is 55.00530, and for debt to equity ratio is 303.5844, for short term debt ratio is 62.17000, for long term debt ratio is 61.01770. The minimum value for all the debt ratio, debt to equity ratio, short term debt ratio, long term debt ratio is zero.

Table 5.2 Statistics calculated for Asset tangibility ratio (TANGAS), Sales Growth Opportunity (GR_SALE), Size (SALE), and AGE. In the real estate companies listed in both Shanghai and Shenzhen stock market 2009.

	TANGAS	GR_SALE	SALE	AGE
Mean	4.337949	90.24012	1730.974	11.83761
Median	1.540000	21.95640	953.1120	13.00000
Maximum	39.93000	2514.639	20450.18	17.00000
Minimum	0.100000	-97.80930	0.553000	0.000000
Std. Dev.	7.217238	289.7988	2492.959	4.168762
Skewness	2.762080	6.037320	4.432171	-1.020616
Kurtosis	10.89117	46.09656	30.14270	3.613500
Jarque-Bera	452.3360	9765.163	3974.602	22.14717
Probability	0.000000	0.000000	0.000000	0.000016
Sum	507.5400	10558.09	202523.9	1385.000
Sum Sq. Dev.	6042.269	9742070.	7.21E+08	2015.915
Observations	117	117	117	117

The statistics of the list of real estate companies listed on both Shanghai and Shenzhen stock market 2009 have showed that the mean value for asset tangibility ratio, sales growth opportunity, size, and age are 4.337949, 90.24012, 1730.974, and 11.83761 respectively. And the maximum and minimum values for asset tangibility ratio are 39.93000 and 0.100000, for sales growth opportunity are 2514.639 and -97.80930, for size are 20450.18 and 0.553000, for age are 17.00000 and zero.

Table 5.3 Statistics calculated for Return on asset (ROA), Return on equity (ROE), Tobin's Q (TOBIN). In the real estate companies listed in both Shanghai and Shenzhen stock market 2009.

	ROA	ROE	TOBIN
Mean	4.434941	14.78991	2.549914
Median	4.031800	10.73000	2.072900
Maximum	20.92610	153.0679	11.26400
Minimum	-5.202600	-29.44740	1.156900
Std. Dev.	3.741637	19.89319	1.600994
Skewness	1.190570	3.686690	3.171623
Kurtosis	6.989729	23.48384	14.83339
Jarque-Bera	105.2404	2310.528	878.7967
Probability	0.000000	0.000000	0.000000
Sum	518.8881	1730.420	298.3399
Sum Sq. Dev.	1623.982	45905.73	297.3289
Observations	117	117	117

The statistics of the list of real estate companies listed on both Shanghai and Shenzhen stock market 2009 have showed that the mean value for return on asset is 4.434941, and for return on equity is 14.78991, for Tobin's Q is 2.549914. And the maximum and minimum values for return on asset are 20.92610 and -5.202600, for return on equity are 153.0679 and -29.44740, and for Tobin's Q are 11.26400 and 1.156900.

Table 5.4 Statistics calculated for Debt ratio (DR), Debt to equity ratio (DE), Short term debt ratio (STD), and Long term debt ratio (LTD). In the real estate companies listed in both Shanghai and Shenzhen stock market 2010.

	DR	DE	STD	LTD
Mean	26.05142	90.35195	14.25872	25.77241
Median	27.19490	83.95950	10.71000	25.67010
Maximum	57.60240	408.4497	60.26000	80.33240
Minimum	0.000000	0.000000	0.000000	0.000000
Std. Dev.	15.07534	70.29136	13.42082	18.48638
Skewness	-0.243374	1.089605	1.013393	0.230698
Kurtosis	2.082305	5.540794	3.630766	2.292226
Jarque-Bera	5.260552	54.62240	21.96543	3.479923
Probability	0.072059	0.000000	0.000017	0.175527
Sum	3048.016	10571.18	1668.270	3015.372
Sum Sq. Dev.	26362.85	573141.5	20893.74	39642.56
Observations	117	117	117	117

The statistics of the list of real estate companies listed on both Shanghai and Shenzhen stock market 2010 have showed that the mean value for debt ratio is 26.05142, and mean of debt to equity ratio is 90.35195, mean of short term debt ratio is 14.25872, mean of long term debt ratio is 25.77241. The maximum value for debt ratio is 57.60240, and for debt to equity ratio is 408.4497, for short term debt ratio is 60.26000, for long term debt ratio is 80.33240. The minimum value for all the debt ratio, debt to equity ratio, short term debt ratio, long term debt ratio is zero.

Table 5.5 Statistics calculated for Asset tangibility ratio (TANGAS), Sales Growth Opportunity (GR_SALE), Size (SALE), and AGE. In the real estate companies listed in both Shanghai and Shenzhen stock market 2010.

	TANGAS	GR_SALE	SALE	AGE
Mean	3.573162	8225.312	2363.898	12.83761
Median	1.340000	27.38710	1213.137	14.00000
Maximum	42.48000	955481.3	32309.91	18.00000
Minimum	0.060000	-90.81430	9.284900	1.000000
Std. Dev.	5.810859	88328.91	3790.758	4.168762
Skewness	3.524605	10.67744	5.078448	-1.020616
Kurtosis	19.88718	115.0081	36.74819	3.613500
Jarque-Bera	1632.483	63383.95	6055.251	22.14717
Probability	0.000000	0.000000	0.000000	0.000016
Sum	418.0600	962361.4	276576.1	1502.000
Sum Sq. Dev.	3916.866	9.05E+11	1.67E+09	2015.915
Observations	117	117	117	117

The statistics of the list of real estate companies in both listed on both Shanghai and Shenzhen stock market 2010 have showed that the mean value for asset tangibility ratio, sales growth opportunity, size, and age are 3.573162, 8225.312, 2363.898, and 12.83761 respectively. And the maximum and minimum values for asset tangibility ratio are 42.48000 and 0.060000, for sales growth opportunity are 955481.3 and -90.81430, for size are 32309.91 and 9.284900, for age are 18.00000 and 1.00000.

Table 5.6 Statistics calculated for Return on asset (ROA), Return on equity (ROE), Tobin's Q (TOBIN). In the real estate companies listed in both Shanghai and Shenzhen stock market 2010.

	ROA	ROE	TOBIN
Mean	4.176935	13.60579	1.860065
Median	3.905000	12.02090	1.604800
Maximum	26.85340	62.57480	6.982000
Minimum	-7.484000	-22.85590	0.927200
Std. Dev.	4.027500	12.02910	0.973450
Skewness	1.593769	0.757538	2.838434
Kurtosis	12.26812	6.037412	12.77376
Jarque-Bera	468.2852	56.16647	622.7972
Probability	0.000000	0.000000	0.000000
Sum	488.7014	1591.877	217.6276
Sum Sq. Dev.	1881.608	16785.10	109.9221
Observations	117	117	117

The statistics of the list of real estate companies in both listed on both Shanghai and Shenzhen stock market 2010 have showed that the mean value for return on asset is 4.176935, and for return on equity is 13.60579, for Tobin's Q is 1.860065. And the maximum and minimum values for return on asset are 26.85340 and -7.484000, for return on equity are 62.57480 and -22.85590, and for Tobin's Q are 6.982000 and 0.927200.

Table 5.7 Statistics calculated for Debt ratio (DR), Debt to equity ratio (DE), Short term debt ratio (STD), and Long term debt ratio (LTD). In the real estate companies listed in both Shanghai and Shenzhen stock market 2011.

	DR	DE	STD	LTD
Mean	27.11570	93.64560	19.57556	21.88470
Median	27.75120	85.95630	19.25000	23.23880
Maximum	59.79310	357.9238	71.45000	62.06330
Minimum	0.000000	0.000000	0.000000	0.000000
Std. Dev.	15.05524	71.86162	13.92640	14.52825
Skewness	-0.161623	1.001399	0.504447	0.165793
Kurtosis	2.255713	4.331075	3.233692	2.294621
Jarque-Bera	3.209952	28.19192	5.228345	2.961605
Probability	0.200894	0.000001	0.073228	0.227455
Sum	3172.537	10956.54	2290.340	2560.510
Sum Sq. Dev.	26292.57	599034.7	22497.56	24484.11
Observations	117	117	117	117

The statistics of the list of real estate companies listed on both Shanghai and Shenzhen stock market 2011 have showed that the mean value for debt ratio is 27.11570, and mean of debt to equity ratio is 93.64560, mean of short term debt ratio is 19.57556, mean of long term debt ratio is 21.88470. The maximum value for debt ratio is 59.79310, and for debt to equity ratio is 357.9238, for short term debt ratio is 71.45000, for long term debt ratio is 62.06330. The minimum value for all the debt ratio, debt to equity ratio, short term debt ratio, long term debt ratio is zero.

Table 5.8 Statistics calculated for Asset tangibility ratio (TANGAS), Sales Growth Opportunity (GR_SALE), Size (SALE), and AGE. In the real estate companies listed in both Shanghai and Shenzhen stock market 2011.

	TANGAS	GR_SALE	SALE	AGE
Mean	3.159231	19.30677	2609.734	13.83761
Median	1.510000	3.082200	1402.571	15.00000
Maximum	20.82000	787.5000	41962.84	19.00000
Minimum	0.080000	-100.0000	0.000000	2.000000
Std. Dev.	4.231734	102.9731	4690.372	4.168762
Skewness	2.184277	4.676519	5.830661	-1.020616
Kurtosis	7.554732	31.42227	45.69589	3.613500
Jarque-Bera	194.1706	4364.610	9549.762	22.14717
Probability	0.000000	0.000000	0.000000	0.000016
Sum	369.6300	2258.893	305338.9	1619.000
Sum Sq. Dev.	2077.278	1230002.	2.55E+09	2015.915
Observations	117	117	117	117

The statistics of the list of real estate companies listed on both Shanghai and Shenzhen stock market 2011 have showed that the mean value for asset tangibility ratio, sales growth opportunity, size, and age are 3.159231 , 19.30677, 2609.734, and 13.83761 respectively. And the maximum and minimum values for asset tangibility ratio are 20.82000and 0.080000, for sales growth opportunity are 787.5000 and -100.0000, for size are 41962.84 and zero, for age are 19.00000 and 2.00000.

Table 5.9 Statistics calculated for Return on asset (ROA), Return on equity (ROE), Tobin's Q (TOBIN). In the real estate companies listed in both Shanghai and Shenzhen stock market 2011.

	ROA	ROE	TOBIN
Mean	3.533864	12.54886	1.433638
Median	3.381800	10.43480	1.226900
Maximum	18.06900	69.37560	4.720600
Minimum	-13.08760	-15.12850	0.824500
Std. Dev.	3.418944	11.95231	0.617490
Skewness	0.084761	1.627399	2.552380
Kurtosis	9.825491	9.438200	10.80593
Jarque-Bera	227.2533	253.7151	424.0818
Probability	0.000000	0.000000	0.000000
Sum	413.4621	1468.216	167.7356
Sum Sq. Dev.	1355.945	16571.49	44.23015
Observations	117	117	117

The statistics of the list of real estate companies listed on both Shanghai and Shenzhen stock market 2011 have showed that the mean value for return on asset is 3.533864, and for return on equity is 12.54886, for Tobin's Q is 1.433638. And the maximum and minimum values for return on asset are 18.06900 and -13.08760, for return on equity are 69.37560 and -15.12850, and for Tobin's Q are 4.720600 and 0.824500.

Table 5.10 Statistics calculated for Debt ratio (DR), Debt to equity ratio (DE), Short term debt ratio (STD), and Long term debt ratio (LTD). In the real estate companies listed in both Shanghai and Shenzhen stock market 2012.

	DR	DE	STD	LTD
Mean	27.17674	99.01454	18.86547	23.27150
Median	29.17310	84.41270	18.83000	24.59240
Maximum	60.57820	372.8566	73.20000	58.35330
Minimum	0.000000	0.000000	0.000000	0.000000
Std. Dev.	15.18685	80.09589	13.88362	15.09574
Skewness	-0.109087	1.229130	0.626449	0.080897
Kurtosis	2.483078	4.696047	3.664755	2.197450
Jarque-Bera	1.534693	43.48313	9.806809	3.267537
Probability	0.464243	0.000000	0.007421	0.195193
Sum	3179.679	11584.70	2207.260	2722.765
Sum Sq. Dev.	26754.29	744180.7	22359.56	26434.25
Observations	117	117	117	117

The statistics of the list of real estate companies listed on both Shanghai and Shenzhen stock market 2012 have showed that the mean value for debt ratio is 27.17674, and mean of debt to equity ratio is 99.01454, mean of short term debt ratio is 18.86547, mean of long term debt ratio is 23.27150. The maximum value for debt ratio is 60.57820, and for debt to equity ratio is 372.8566, for short term debt ratio is 73.20000, for long term debt ratio is 58.35330. The minimum value for all the debt ratio, debt to equity ratio, short term debt ratio, long term debt ratio is zero.

Table 5.11 Statistics calculated for Asset tangibility ratio (TANGAS), Sales Growth Opportunity (GR_SALE), Size (SALE), and AGE. In the real estate companies listed in both Shanghai and Shenzhen stock market 2012.

	TANGAS	GR_SALE	SALE	AGE
Mean	3.081709	28.24893	3305.915	14.83761
Median	1.340000	13.38100	1462.439	16.00000
Maximum	18.95000	941.8814	60785.49	20.00000
Minimum	0.060000	-94.89690	10.21000	3.000000
Std. Dev.	4.201984	111.8514	6825.105	4.168762
Skewness	2.184925	6.116061	5.936219	-1.020616
Kurtosis	7.482906	46.59364	46.33994	3.613500
Jarque-Bera	191.0611	9993.899	9844.114	22.14717
Probability	0.000000	0.000000	0.000000	0.000016
Sum	360.5600	3305.125	386792.0	1736.000
Sum Sq. Dev.	2048.173	1451244.	5.40E+09	2015.915
Observations	117	117	117	117

The statistics of the list of real estate companies listed on both Shanghai and Shenzhen stock market 2012 have showed that the mean value for asset tangibility ratio, sales growth opportunity, size, and age are 3.081709 , 28.24893, 3305.915 and 14.83761 respectively. And the maximum and minimum values for asset tangibility ratio are 18.95000 and 0.060000, for sales growth opportunity are 941.8814 and -94.89690, for size are 60785.49 and 10.21000, for age are 20.00000 and 3.00000.

Table 5.12 Statistics calculated for Return on asset (ROA), Return on equity (ROE), Tobin's Q (TOBIN). In the real estate companies listed in both Shanghai and Shenzhen stock market 2012.

	ROA	ROE	TOBIN
Mean	3.002286	10.17068	1.682516
Median	2.655700	8.587300	1.296700
Maximum	16.02780	50.22290	7.985800
Minimum	-6.748900	-21.48980	0.850000
Std. Dev.	3.297637	9.704859	1.146986
Skewness	0.664804	0.458271	3.671419
Kurtosis	5.913096	5.360270	18.12138
Jarque-Bera	49.98818	31.25326	1377.546
Probability	0.000000	0.000000	0.000000
Sum	351.2675	1189.970	196.8544
Sum Sq. Dev.	1261.431	10925.38	152.6068
Observations	117	117	117

The statistics of the list of real estate companies listed on both Shanghai and Shenzhen stock market 2012 have showed that the mean value for return on asset is 3.002286, and for return on equity is 10.17068, for Tobin's Q is 1.682516. And the maximum and minimum values for return on asset are 16.02780 and -6.748900, for return on equity are 50.22290 and -21.48980, and for Tobin's Q are 7.985800 and 0.850000.

5.2 Correlation Matrix

From the three years correlation matrix in Table 5.13, 5.14, 5.15, 5.16, it is clear there is no multicollinearity problem, because all correlation coefficients between independent variables are between -0.8 and 0.8. Therefore, removal of any independent variable from the regression equations is unnecessary.

Table 5.13 Correlation Matrix in 2009

	DR	DE	STD	LTD	TANGAS	GR_SALE	SALE	AGE	ROA	ROE	TOBIN
DR	1.000000	0.776786	0.372656	0.704754	-0.091845	-0.009628	0.235307	-0.044576	-0.133592	0.008617	-0.382543
DE	0.776786	1.000000	0.447979	0.711480	-0.196515	0.187128	0.257205	-0.087477	-0.066261	0.261966	-0.373838
STD	0.372656	0.447979	1.000000	-0.120818	0.065567	0.084457	0.061539	0.032965	-0.198227	0.038374	-0.151243
LTD	0.704754	0.711480	-0.120818	1.000000	-0.318977	0.011582	0.320478	-0.091458	0.041999	0.206592	-0.445743
TANGAS	-0.091845	-0.196515	0.065567	-0.318977	1.000000	-0.104612	-0.124114	-0.033291	-0.177550	-0.145679	0.340906
GR_SALE	-0.009628	0.187128	0.084457	0.011582	-0.104612	1.000000	-0.009724	0.020351	0.176759	0.101571	0.048242
SALE	0.235307	0.257205	0.061539	0.320478	-0.124114	-0.009724	1.000000	-0.226516	0.097278	0.124556	-0.281365
AGE	-0.044576	-0.087477	0.032965	-0.091458	-0.033291	0.020351	-0.226516	1.000000	-0.010091	0.041606	0.011105
ROA	-0.133592	-0.066261	-0.198227	0.041999	-0.177550	0.176759	0.097278	-0.010091	1.000000	0.610841	0.087485
ROE	0.008617	0.261966	0.038374	0.206592	-0.145679	0.101571	0.124556	0.041606	0.610841	1.000000	-0.058375
TOBIN	-0.382543	-0.373838	-0.151243	-0.445743	0.340906	0.048242	-0.281365	0.011105	0.087485	-0.058375	1.000000

Table 5.14 Correlation Matrix in 2010

	DR	DE	STD	LTD	TANGAS	GR_SALE	SALE	AGE	ROA	ROE	TOBIN
DR	1.000000	0.758094	0.510881	0.661951	-0.045782	0.006501	0.234602	-0.041635	-0.119797	0.064382	-0.465445
DE	0.758094	1.000000	0.414753	0.758109	-0.143855	0.130540	0.267828	-0.079542	-0.113174	0.282932	-0.385920
STD	0.510881	0.414753	1.000000	-0.117019	0.099740	-0.099146	0.117020	-0.005574	-0.174037	-0.022613	-0.288630
LTD	0.661951	0.758109	-0.117019	1.000000	-0.260107	0.148941	0.279920	-0.091772	-0.012965	0.330189	-0.409060
TANGAS	-0.045782	-0.143855	0.099740	-0.260107	1.000000	-0.049174	-0.116946	-0.117598	-0.020776	-0.187744	0.325557
GR_SALE	0.006501	0.130540	-0.099146	0.148941	-0.049174	1.000000	0.071831	0.025961	0.050729	0.209739	-0.088445
SALE	0.234602	0.267828	0.117020	0.279920	-0.116946	0.071831	1.000000	-0.268194	0.046574	0.196613	-0.296325
AGE	-0.041635	-0.079542	-0.005574	-0.091772	-0.117598	0.025961	-0.268194	1.000000	-0.096552	-0.108384	0.044333
ROA	-0.119797	-0.113174	-0.174037	-0.012965	-0.020776	0.050729	0.046574	-0.096552	1.000000	0.778710	-0.004667
ROE	0.064382	0.282932	-0.022613	0.330189	-0.187744	0.209739	0.196613	-0.108384	0.778710	1.000000	-0.206934
TOBIN	-0.465445	-0.385920	-0.288630	-0.409060	0.325557	-0.088445	-0.296325	0.044333	-0.004667	-0.206934	1.000000

Table 5.15 Correlation Matrix in 2011

	DR	DE	STD	LTD	TANGAS	GR_SALE	SALE	AGE	ROA	ROE	TOBIN
DR	1.000000	0.787414	0.618745	0.673756	0.059423	-0.065805	0.182955	-0.084920	-0.107702	0.068605	-0.366878
DE	0.787414	1.000000	0.678032	0.655957	-0.002530	-0.011051	0.255397	-0.131447	-0.116619	0.248642	-0.325889
STD	0.618745	0.678032	1.000000	0.067626	0.072601	-0.092950	0.098586	-0.092793	-0.009998	0.197574	-0.320336
LTD	0.673756	0.655957	0.067626	1.000000	-0.119700	0.001042	0.328995	-0.109900	-0.130225	0.204094	-0.337646
TANGAS	0.059423	-0.002530	0.072601	-0.119700	1.000000	0.043681	-0.114177	-0.038500	0.024973	-0.080123	0.257486
GR_SALE	-0.065805	-0.011051	-0.092950	0.001042	0.043681	1.000000	0.017267	0.099232	0.112257	0.150421	0.189115
SALE	0.182955	0.255397	0.098586	0.328995	-0.114177	0.017267	1.000000	-0.261918	0.064996	0.232559	-0.239665
AGE	-0.084920	-0.131447	-0.092793	-0.109900	-0.038500	0.099232	-0.261918	1.000000	-0.023787	-0.101279	0.095718
ROA	-0.107702	-0.116619	-0.009998	-0.130225	0.024973	0.112257	0.064996	-0.023787	1.000000	0.673369	0.000515
ROE	0.068605	0.248642	0.197574	0.204094	-0.080123	0.150421	0.232559	-0.101279	0.673369	1.000000	-0.113643
TOBIN	-0.366878	-0.325889	-0.320336	-0.337646	0.257486	0.189115	-0.239665	0.095718	0.000515	-0.113643	1.000000

Table 5.16 Correlation Matrix in 2012

	DR	DE	STD	LTD	TANGAS	GR_SALE	SALE	AGE	ROA	ROE	TOBIN
DR	1.000000	0.789241	0.653944	0.652077	0.010591	-0.166414	0.126868	-0.127628	-0.114113	0.000945	-0.461510
DE	0.789241	1.000000	0.650165	0.666363	-0.021822	-0.092621	0.175535	-0.138660	-0.184294	0.096163	-0.374037
STD	0.653944	0.650165	1.000000	0.080352	0.077371	-0.144020	0.110196	-0.113126	-0.141314	0.031404	-0.350294
LTD	0.652077	0.666363	0.080352	1.000000	-0.179553	-0.090009	0.251824	-0.130864	-0.039705	0.222282	-0.439435
TANGAS	0.010591	-0.021822	0.077371	-0.179553	1.000000	-0.131922	-0.139906	-0.048690	0.003221	-0.129111	0.299470
GR_SALE	-0.166414	-0.092621	-0.144020	-0.090009	-0.131922	1.000000	0.035767	0.022377	0.140940	0.094238	0.054976
SALE	0.126868	0.175535	0.110196	0.251824	-0.139906	0.035767	1.000000	-0.257121	0.099519	0.333191	-0.188356
AGE	-0.127628	-0.138660	-0.113126	-0.130864	-0.048690	0.022377	-0.257121	1.000000	-0.097347	-0.191521	0.095449
ROA	-0.114113	-0.184294	-0.141314	-0.039705	0.003221	0.140940	0.099519	-0.097347	1.000000	0.774654	-0.218917
ROE	0.000945	0.096163	0.031404	0.222282	-0.129111	0.094238	0.333191	-0.191521	0.774654	1.000000	-0.263845
TOBIN	-0.461510	-0.374037	-0.350294	-0.439435	0.299470	0.054976	-0.188356	0.095449	-0.218917	-0.263845	1.000000

107

5.3 Results of Hypothesis Testing

In this section, regression analysis is used as a tool to identify the relationship between firm internal factors towards firm performance of real estate companies in Chinese stock market. The regression models from Chapter 3 are used again in this chapter.

Model applied for every year from 2009 to 2012

$$ROA_{i,t} = \alpha + \beta_{1,t}DR_{i,t} + \beta_{2,t}DE_{i,t} + \beta_{3,t}STD_{i,t} + \beta_{4,t}LTD_{i,t} + \beta_{5,t}Size_{i,t} + \beta_{6,t}Growth\ of\ sales_{i,t} +$$
$$\beta_{7,t}TANG_{i,t} + \beta_{8,t}Age_{i,t} + \theta_1 GDP_t + \theta_2 IR_t + \theta_3 RIR_t + \varepsilon_{i,t} \quad (1)$$

$$ROE_{i,t} = \alpha + \beta_{1,t}DR_{i,t} + \beta_{2,t}DE_{i,t} + \beta_{3,t}STD_{i,t} + \beta_{4,t}LTD_{i,t} + \beta_{5,t}Size_{i,t} + \beta_{6,t}Growth\ of\ sales_{i,t} +$$
$$\beta_{7,t}TANG_{i,t} + \beta_{8,t}Age_{i,t} + \theta_1 GDP_t + \theta_2 IR_t + \theta_3 RIR_t + \varepsilon_{i,t} \quad (2)$$

$$Tobin's\ Q_{i,t} = \alpha + \beta_{1,t}DR_{i,t} + \beta_{2,t}DE_{i,t} + \beta_{3,t}STD_{i,t} + \beta_{4,t}LTD_{i,t} + \beta_{5,t}Size_{i,t} + \beta_{6,t}Growth\ of\ sales_{i,t} +$$
$$\beta_{7,t}TANG_{i,t} + \beta_{8,t}Age_{i,t} + \theta_1 GDP_t + \theta_2 IR_t + \theta_3 RIR_t + \varepsilon_{i,t} \quad (3)$$

Model applied for total four years between 2009 to 2012

$$ROA_{i,t} = \alpha + \beta_{1,t}DR_{i,t} + \beta_{2,t}DE_{i,t} + \beta_{3,t}STD_{i,t} + \beta_{4,t}LTD_{i,t} + \beta_{5,t}Size_{i,t} + \beta_{6,t}Growth\ of\ sales_{i,t} +$$
$$\beta_{7,t}TANG_{i,t} + \beta_{8,t}Age_{i,t} + \sum_{j=1}^{n-1} Dummy\ j + \theta_1 GDP_t + \theta_2 IR_t + \theta_3 RIR_t + \varepsilon_{i,t}$$
$$(4)$$

$$ROE_{i,t} = \alpha + \beta_{1,t}DR_{i,t} + \beta_{2,t}DE_{i,t} + \beta_{3,t}STD_{i,t} + \beta_{4,t}LTD_{i,t} + \beta_{5,t}Size_{i,t} + \beta_{6,t}Growth\ of\ sales_{i,t} +$$
$$\beta_{7,t}TANG_{i,t} + \beta_{8,t}Age_{i,t} + \sum_{j=1}^{n-1} Dummy\ j + \theta_1 GDP_t + \theta_2 IR_t + \theta_3 RIR_t + \varepsilon_{i,t}$$
$$(5)$$

$$Tobin's\ Q_{i,t} = \alpha + \beta_{1,t}DR_{i,t} + \beta_{2,t}DE_{i,t} + \beta_{3,t}STD_{i,t} + \beta_{4,t}LTD_{i,t} + \beta_{5,t}Size_{i,t} + \beta_{6,t}Growth\ of\ sales_{i,t} +$$
$$\beta_{7,t}TANG_{i,t} + \beta_{8,t}Age_{i,t} + \sum_{j=1}^{n-1} Dummy\ j + \theta_1 GDP_t + \theta_2 IR_t + \theta_3 RIR_t + \varepsilon_{i,t}$$
$$(6)$$

Hypothesis 1:

H1o: Debt ratio (DR) has no significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2009

H1a: Debt ratio (DR) has a significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2009

Table 5.17 The analysis of relationship between debt ratio and return on asset in the year 2009

Variable	Coefficient	Std. Error	t-Statistic	Prob.
DR	-0.0381	0.0459	-0.8302	0.4083

The result of the hypothesis is shown in Table 5.17. The result from the p-value of the debt ratio equals 0.4083, which is more than 0.05, the null hypothesis H_{o1} cannot be rejected at a 5% level of significance. It means there is no relationship between debt ratio and return on asset in the year 2009.

Hypothesis 2:

H2o: Debt to equity ratio (DE) has no significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2009

H2a: Debt to equity ratio (DE) has a significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2009

Table 5.18 The analysis of relationship between debt to equity ratio and return on asset in the year 2009

Variable	Coefficient	Std. Error	t-Statistic	Prob.
DE	-0.0019	0.0137	-0.1354	0.8925

The result of the hypothesis is shown in Table 5.18. The result from the p-value of the debt to equity equals 0.8925, which is more than 0.05, the null hypothesis H_{o2} cannot be rejected at a 5%

level of significance. It means there is no relationship between debt to equity ratio and return on asset in the year 2009.

Hypothesis 3:

$H3_o$: Short-term debt ratio (STD) has no significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2009

$H3_a$: Short-term debt ratio (STD) has a significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2009

Table 5.19 The analysis of relationship between short term debt ratio and return on asset in the year 2009

Variable	Coefficient	Std. Error	t-Statistic	Prob.
STD	-0.0375	0.0440	-0.8525	0.3958

The result of the hypothesis is shown in Table 5.19. The result from the p-value of the short term debt ratio equals 0.3958, which is more than 0.05, the null hypothesis H_{o3} cannot be rejected at a 5% level of significance. It means there is no relationship between short term debt ratio and return on asset in the year 2009.

Hypothesis 4:

$H4_o$: Long-term debt ratio (LTD) has no significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2009

$H4_a$: Long-term debt ratio (LTD) has a significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2009

Table 5.20 The analysis of relationship between long term debt ratio and return on asset in the year 2009

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LTD	0.0148	0.0490	0.3016	0.7635

The result of the hypothesis is shown in Table 5.20. The result from the p-value of the long term debt ratio equals 0.7635, which is more than 0.05, the null hypothesis H_{o4} cannot be rejected at a 5% level of significance. It means there is no relationship between long term debt ratio and return on asset in the year 2009.

Hypothesis 5:

$H5_o$: Size has no significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2009

$H5_a$: Size has a significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2009

Table 5.21 The analysis of relationship between size and return on asset in the year 2009

Variable	Coefficient	Std. Error	t-Statistic	Prob.
SALE	0.0002	0.0001	1.1397	0.2569

The result of the hypothesis is shown in Table 5.21. The result from the p-value of the size equals 0.2569, which is more than 0.05, the null hypothesis H_{o5} cannot be rejected at a 5% level of significance. It means there is no relationship between size and return on asset in the year 2009.

Hypothesis 6:

$H6_o$: Growth of sales has no significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2009

$H6_a$: Growth of sales has a significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2009

Table 5.22 The analysis of relationship between growth of sales and return on asset in the year 2009

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GR_SALE	0.0023	0.0012	1.8492	0.0672

The result of the hypothesis is shown in Table 5.22. The result from the p-value of the growth of sales equals 0.0672, which is more than 0.05, the null hypothesis H_{06} cannot be rejected at a 5% level of significance. It means there is no relationship between growth of sales and return on asset in the year 2009.

Hypothesis 7:

$H7_0$: Asset tangibility ratio (TANG) has no significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2009

$H7_a$: Asset tangibility ratio (TANG) has a significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2009

Table 5.23 The analysis of relationship between asset tangibility ratio and return on asset in the year 2009

Variable	Coefficient	Std. Error	t-Statistic	Prob.
TANGAS	-0.0688	0.0513	-1.3414	0.1826

The result of the hypothesis is shown in Table 5.23. The result from the p-value of the asset tangibility ratio equals 0.1826, which is more than 0.05, the null hypothesis H_{07} cannot be rejected at a 5% level of significance. It means there is no relationship between asset tangibility ratio and return on asset in the year 2009.

Hypothesis 8:

$H8_0$: Age has no significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2009

H8$_a$: Age has a significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2009

Table 5.24 The analysis of relationship between age and return on asset in the year 2009

Variable	Coefficient	Std. Error	t-Statistic	Prob.
AGE	0.0082	0.0841	0.0977	0.9224

The result of the hypothesis is shown in Table 5.24. The result from the p-value of the age equals 0.9224, which is more than 0.05, the null hypothesis H$_{o8}$ cannot be rejected at a 5% level of significance. It means there is no relationship between age and return on asset in the year 2009.

Hypothesis 9:

H9$_o$: Debt ratio (DR) has no significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2009

H9$_a$: Debt ratio (DR) has a significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2009

Table 5.25 The analysis of relationship between debt ratio and return on equity in the year 2009

Variable	Coefficient	Std. Error	t-Statistic	Prob.
DR	-0.8521	0.2323	-3.6678	0.0004

The result of the hypothesis is shown in Table 5.25. The result from the p-value of the debt ratio equals 0.0004, which is less than 0.05, the null hypothesis H$_{o9}$ can be rejected at a 5% level of significance. The coefficient value equals -0.8521. This means that the debt ratio has a negative significant relationship with return on equity in year 2009.

Hypothesis 10:

H10$_o$: Debt to equity ratio (DE) has no significant effect on return on equity (ROE) in listed

113

real estate companies of Chinese stock exchange during year 2009

H10ₐ: Debt to equity ratio (DE) has a significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2009

Table 5.26 The analysis of relationship between debt to equity ratio and return on equity in the year 2009

Variable	Coefficient	Std. Error	t-Statistic	Prob.
DE	0.1740	0.0695	2.5057	0.0137

The result of the hypothesis is shown in Table 5.26. The result from the p-value of the debt to equity ratio equals 0.0137, which is less than 0.05, the null hypothesis H_{o10} can be rejected at a 5% level of significance. The coefficient value equals 0.1740. This means that the debt to equity ratio has a positive significant relationship with return on equity in year 2009.

Hypothesis 11:

H11ₒ: Short-term debt ratio (STD) has no significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2009

H11ₐ: Short-term debt ratio (STD) has a significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2009

Table 5.27 The analysis of relationship between short term debt ratio and return on equity in the year 2009

Variable	Coefficient	Std. Error	t-Statistic	Prob.
STD	0.0959	0.2230	0.4299	0.6681

The result of the hypothesis is shown in Table 5.27. The result from the p-value of the short term debt ratio equals 0.6681, which is more than 0.05, the null hypothesis H_{o11} cannot be rejected at a 5% level of significance. It means there is no relationship between short term debt

114

ratio and return on equity in the year 2009.

Hypothesis 12:

$H12_o$: Long-term debt ratio (LTD) has no significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2009

$H12_a$: Long-term debt ratio (LTD) has a significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2009

Table 5.28 The analysis of relationship between long term debt ratio and return on equity in the year 2009

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LTD	0.3055	0.2482	1.2310	0.2210

The result of the hypothesis is shown in Table 5.28. The result from the p-value of the long term debt ratio equals 0.2210, which is more than 0.05, the null hypothesis H_{o12} cannot be rejected at a 5% level of significance. It means there is no relationship between long term debt ratio and return on equity in the year 2009.

Hypothesis 13:

$H13_o$: Size has no significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2009

$H13_a$: Size has a significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2009

Table 5.29 The analysis of relationship between size and return on equity in the year 2009

Variable	Coefficient	Std. Error	t-Statistic	Prob.
SALE	0.0005	0.0008	0.7273	0.4686

The result of the hypothesis is shown in Table 5.29. The result from the p-value of the size equals 0.4686, which is more than 0.05, the null hypothesis H_{o13} cannot be rejected at a 5% level of significance. It means there is no relationship between size and return on equity in the year 2009.

Hypothesis 14:

$H14_o$: Growth of sales has no significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2009

$H14_a$: Growth of sales has a significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2009

Table 5.30 The analysis of relationship between growth of sales and return on equity in the year 2009

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GR_SALE	-0.0007	0.0063	-0.1139	0.9096

The result of the hypothesis is shown in Table 5.30. The result from the p-value of the growth of sales equals 0.9096, which is more than 0.05, the null hypothesis H_{o14} cannot be rejected at a 5% level of significance. It means there is no relationship between growth of sales and return on equity in the year 2009.

Hypothesis 15:

$H15_o$: Asset tangibility ratio (TANG) has no significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2009

$H15_a$: Asset tangibility ratio (TANG) has a significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2009

116

Table 5.30 The analysis of relationship between asset tangibility ratio and return on equity in the year 2009

Variable	Coefficient	Std. Error	t-Statistic	Prob.
TANGAS	-0.0279	0.2598	-0.1074	0.9147

The result of the hypothesis is shown in Table 5.30. The result from the p-value of the asset tangibility ratio equals 0.9147, which is more than 0.05, the null hypothesis H_{o15} cannot be rejected at a 5% level of significance. It means there is no relationship between asset tangibility ratio and return on equity in the year 2009.

Hypothesis 16:

$H16_0$: Age has no significant effect on return on asset (ROE) in listed real estate companies of Chinese stock exchange during year 2009

$H16_a$: Age has a significant effect on return on asset (ROE) in listed real estate companies of Chinese stock exchange during year 2009

Table 5.31 The analysis of relationship between age and return on equity in the year 2009

Variable	Coefficient	Std. Error	t-Statistic	Prob.
AGE	0.4606	0.4259	1.0816	0.2818

The result of the hypothesis is shown in Table 5.31. The result from the p-value of the age equals 0.2818, which is more than 0.05, the null hypothesis H_{o16} cannot be rejected at a 5% level of significance. It means there is no relationship between age and return on equity in the year 2009.

Hypothesis 17:

$H17_0$: Debt ratio (DR) has no significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2009

H17$_a$: Debt ratio (DR) has a significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2009

Table 5.32 The analysis of relationship between debt ratio and Tobin's Q in the year 2009

Variable	Coefficient	Std. Error	t-Statistic	Prob.
DR	-0.0025	0.0172	-0.1428	0.8868

The result of the hypothesis is shown in Table 5.32. The result from the p-value of the debt ratio equals 0.8868, which is more than 0.05, the null hypothesis H$_{o17}$ cannot be rejected at a 5% level of significance. It means there is no relationship between debt ratio and Tobin's Q in the year 2009.

Hypothesis 18:

H18$_o$: Debt to equity ratio (DE) has no significant Tobin's Q in listed real estate companies of Chinese stock exchange during year 2009

H18$_a$: Debt to equity ratio (DE) has a significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2009

Table 5.33 The analysis of relationship between debt to equity and Tobin's Q in the year 2009

Variable	Coefficient	Std. Error	t-Statistic	Prob.
DE	0.0052	0.0052	0.9995	0.3198

The result of the hypothesis is shown in Table 5.33. The result from the p-value of the debt ratio equals 0.3198, which is more than 0.05, the null hypothesis H$_{o18}$ cannot be rejected at a 5% level of significance. It means there is no relationship between debt to equity ratio and Tobin's Q in the year 2009.

Hypothesis 19:

H19$_o$: Short-term debt ratio (STD) has no significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2009

H19$_a$: Short-term debt ratio (STD) has a significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2009

Table 5.34 The analysis of relationship between short term debt ratio and Tobin's Q in the year 2009

Variable	Coefficient	Std. Error	t-Statistic	Prob.
STD	-0.0351	0.0166	-2.1192	0.0364

The result of the hypothesis is shown in Table 5.34. The result from the p-value of the short term debt ratio equals 0.0364, which is less than 0.05, the null hypothesis H$_{o19}$ can be rejected at a 5% level of significance. The coefficient value equals -0.0351. This means that the short term debt ratio has a negative significant relationship with Tobin's Q in year 2009.

Hypothesis 20:

H20$_o$: Long-term debt ratio (LTD) has no significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2009

H20$_a$: Long-term debt ratio (LTD) has a significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2009

Table 5.35 The analysis of relationship between long term debt ratio and Tobin's Q in the year 2009

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LTD	-0.0448	0.0184	-2.4321	0.0167

The result of the hypothesis is shown in Table 5.35. The result from the p-value of the long term debt ratio equals 0.0167, which is less than 0.05, the null hypothesis H$_{o20}$ can be rejected at

a 5% level of significance. The coefficient value equals -0.0448. This means that the long term debt ratio has a negative significant relationship with Tobin's Q in year 2009.

Hypothesis 21:

$H21_o$: Size has no significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2009

$H21_a$: Size has a significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2009

Table 5.36 The analysis of relationship between size and Tobin's Q in the year 2009

Variable	Coefficient	Std. Error	t-Statistic	Prob.
SALE	-0.0001	0.0001	-1.4651	0.1458

The result of the hypothesis is shown in Table 5.36. The result from the p-value of the size equals 0.1458, which is more than 0.05, the null hypothesis H_{o21} cannot be rejected at a 5% level of significance. It means there is no relationship between size and Tobin's Q in the year 2009.

Hypothesis 22:

$H22_o$: Growth of sales has no significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2009

$H22_a$: Growth of sales has a significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2009

Table 5.37 The analysis of relationship between growth of sales and Tobin's Q in the year 2009

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GR_SALE	0.0004	0.0005	0.7926	0.4297

The result of the hypothesis is shown in Table 5.37. The result from the p-value of the growth

of sales equals 0.4297, which is more than 0.05, the null hypothesis H_{o22} cannot be rejected at a 5% level of significance. It means there is no relationship between growth of sales and Tobin's Q in the year 2009.

Hypothesis 23:

$H23_o$: Asset tangibility ratio (TANG) has no significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2009

$H23_a$: Asset tangibility ratio (TANG) has a significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2009

Table 5.38 The analysis of relationship between asset tangibility ratio and Tobin's Q in the year 2009

Variable	Coefficient	Std. Error	t-Statistic	Prob.
TANGAS	0.0509	0.0193	2.6393	0.0095

The result of the hypothesis is shown in Table 5.38. The result from the p-value of the asset tangibility ratio equals 0.0095, which is less than 0.05, the null hypothesis H_{o23} can be rejected at a 5% level of significance. The coefficient value equals 0.0509. This means that the asset tangibility ratio has a positive significant relationship with Tobin's Q in year 2009.

Hypothesis 24:

$H24_o$: Age has no significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2009

$H24_a$: Age has a significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2009

Table 5.39 The analysis of relationship between age and Tobin's Q in the year 2009

Variable	Coefficient	Std. Error	t-Statistic	Prob.
AGE	-0.0119	0.0316	-0.3760	0.7077

The result of the hypothesis is shown in Table 5.39. The result from the p-value of the age equals 0.7077, which is more than 0.05, the null hypothesis H_{o24} cannot be rejected at a 5% level of significance. It means there is no relationship between age and Tobin's Q in the year 2009.

Hypothesis 25:

$H25_o$: Debt ratio (DR) has no significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2010

$H25_a$: Debt ratio (DR) has a significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2010

Table 5.40 The analysis of relationship between debt ratio and return on asset in the year 2010

Variable	Coefficient	Std. Error	t-Statistic	Prob.
DR	-0.0025	0.0580	-0.0424	0.9662

The result of the hypothesis is shown in Table 5.40. The result from the p-value of the debt ratio equals 0.9662, which is more than 0.05, the null hypothesis H_{o25} cannot be rejected at a 5% level of significance. It means there is no relationship between debt ratio and return on asset in the year 2010.

Hypothesis 26:

$H26_o$: Debt to equity ratio (DE) has no significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2010

$H26_a$: Debt to equity ratio (DE) has a significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2010

122

Table 5.41 The analysis of relationship between debt to equity ratio and return on asset in the year 2010

Variable	Coefficient	Std. Error	t-Statistic	Prob.
DE	-0.0053	0.0137	-0.3848	0.7011

The result of the hypothesis is shown in Table 5.41. The result from the p-value of the debt to equity ratio equals 0.7011, which is more than 0.05, the null hypothesis H_{o26} cannot be rejected at a 5% level of significance. It means there is no relationship between debt to equity ratio and return on asset in the year 2010.

Hypothesis 27:

$H27_o$: Short-term debt ratio (STD) has no significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2010

$H27_a$: Short-term debt ratio (STD) has a significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2010

Table 5.42 The analysis of relationship between short term debt ratio and return on asset in the year 2010

Variable	Coefficient	Std. Error	t-Statistic	Prob.
STD	-0.0391	0.0663	-0.5890	0.5571

The result of the hypothesis is shown in Table 5.42. The result from the p-value of the short term debt ratio equals 0.5571, which is more than 0.05, the null hypothesis H_{o27} cannot be rejected at a 5% level of significance. It means there is no relationship between short term debt ratio and return on asset in the year 2010.

Hypothesis 28:

$H28_o$: Long-term debt ratio (LTD) has no significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2010

$H28_a$: Long-term debt ratio (LTD) has a significant effect on return on asset (ROA) in listed

123

real estate companies of Chinese stock exchange during year 2010

Table 5.43 The analysis of relationship between long term debt ratio and return on asset in the year 2010

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LTD	0.0025	0.0665	0.0381	0.9696

The result of the hypothesis is shown in Table 5.43. The result from the p-value of the long term debt ratio equals 0.9696, which is more than 0.05, the null hypothesis H_{o28} cannot be rejected at a 5% level of significance. It means there is no relationship between long term debt ratio and return on asset in the year 2010.

Hypothesis 29:

$H29_o$: Size has no significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2010

$H29_a$: Size has a significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2010

Table 5.44 The analysis of relationship between size and return on asset in the year 2010

Variable	Coefficient	Std. Error	t-Statistic	Prob.
SALE	0.0001	0.0001	0.5288	0.5980

The result of the hypothesis is shown in Table 5.44. The result from the p-value of the size equals 0.5980, which is more than 0.05, the null hypothesis H_{o29} cannot be rejected at a 5% level of significance. It means there is no relationship between size and return on asset in the year 2010.

Hypothesis 30:

H30$_o$: Growth of sales has no significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2010

H30$_a$: Growth of sales has a significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2010

Table 5.45 The analysis of relationship between growth of sales and return on asset in the year 2010

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GR_SALE	0.0000	0.0000	0.4714	0.6383

The result of the hypothesis is shown in Table 5.45. The result from the p-value of the growth of sales equals 0.6383, which is more than 0.05, the null hypothesis H$_{o30}$ cannot be rejected at a 5% level of significance. It means there is no relationship between growth of sales and return on asset in the year 2010.

Hypothesis 31:

H31$_o$: Asset tangibility ratio (TANG) has no significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2010

H31$_a$: Asset tangibility ratio (TANG) has a significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2010

Table 5.46 The analysis of relationship between asset tangibility ratio and return on asset in the year 2010

Variable	Coefficient	Std. Error	t-Statistic	Prob.
TANGAS	-0.0143	0.0703	-0.2040	0.8388

The result of the hypothesis is shown in Table 5.46. The result from the p-value of the asset tangibility ratio equals 0.8388, which is more than 0.05, the null hypothesis H$_{o31}$ cannot be

125

rejected at a 5% level of significance. It means there is no relationship between asset tangibility ratio and return on asset in the year 2010.

Hypothesis 32:

$H32_o$: Age has no significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2010

$H32_a$: Age has a significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2010

Table 5.47 The analysis of relationship between age and return on asset in the year 2010

Variable	Coefficient	Std. Error	t-Statistic	Prob.
AGE	-0.0897	0.0960	-0.9346	0.3521

The result of the hypothesis is shown in Table 5.47. The result from the p-value of the age equals 0.3521, which is more than 0.05, the null hypothesis H_{o32} cannot be rejected at a 5% level of significance. It means there is no relationship between age and return on asset in the year 2010.

Hypothesis 33:

$H33_o$: Debt ratio (DR) has no significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2010

$H33_a$: Debt ratio (DR) has a significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2010

Table 5.48 The analysis of relationship between debt ratio and return on equity in the year 2010

Variable	Coefficient	Std. Error	t-Statistic	Prob.
DR	-0.5811	0.1523	-3.8146	0.0002

The result of the hypothesis is shown in Table 5.48. The result from the p-value of the debt

ratio equals 0.0002, which is less than 0.05, the null hypothesis H_{o33} can be rejected at a 5% level of significance. The coefficient value equals -0.5811. This means that the debt ratio has a negative significant relationship with return on equity in year 2010.

Hypothesis 34:

$H34_o$: Debt to equity ratio (DE) has no significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2010

$H34_a$: Debt to equity ratio (DE) has a significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2010

Table 5.49 The analysis of relationship between debt to equity ratio and return on equity in the year 2010

Variable	Coefficient	Std. Error	t-Statistic	Prob.
DE	-0.0142	0.0360	-0.3958	0.6930

The result of the hypothesis is shown in Table 5.49. The result from the p-value of the debt to equity ratio equals 0.6930, which is more than 0.05, the null hypothesis H_{o34} cannot be rejected at a 5% level of significance. It means there is no relationship between debt to equity ratio and return on equity in the year 2010.

Hypothesis 35:

$H35_o$: Short-term debt ratio (STD) has no significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2010

$H35_a$: Short-term debt ratio (STD) has a significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2010

Table 5.50 The analysis of relationship between short term debt ratio and return on equity in the year 2010

Variable	Coefficient	Std. Error	t-Statistic	Prob.
STD	0.4471	0.1742	2.5667	0.0116

The result of the hypothesis is shown in Table 5.50. The result from the p-value of the short term debt ratio equals 0.0116, which is less than 0.05, the null hypothesis H_{o35} can be rejected at a 5% level of significance. The coefficient value equals 0.4471. This means that the short term debt ratio has a positive significant relationship with return on equity in year 2010.

Hypothesis 36:

$H36_o$: Long-term debt ratio (LTD) has no significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2010

$H36_a$: Long-term debt ratio (LTD) has a significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2010

Table 5.51 The analysis of relationship between long term debt ratio and return on equity in the year 2010

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LTD	0.5729	0.1747	3.2796	0.0014

The result of the hypothesis is shown in Table 5.51. The result from the p-value of the long term debt ratio equals 0.0014, which is less than 0.05, the null hypothesis H_{o36} can be rejected at a 5% level of significance. The coefficient value equals 0.5729. This means that the long term debt ratio has a positive significant relationship with return on equity in year 2010.

Hypothesis 37:

$H37_o$: Size has no significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2010

128

H37$_a$: Size has a significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2010

Table 5.52 The analysis of relationship between size and return on equity in the year 2010

Variable	Coefficient	Std. Error	t-Statistic	Prob.
SALE	0.0002	0.0003	0.5967	0.5519

The result of the hypothesis is shown in Table 5.52. The result from the p-value of the size equals 0.5519, which is more than 0.05, the null hypothesis H$_{o37}$ cannot be rejected at a 5% level of significance. It means there is no relationship between size and return on equity in the year 2010.

Hypothesis 38:

H38$_o$: Growth of sales has no significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2010

H38$_a$: Growth of sales has a significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2010

Table 5.53 The analysis of relationship between growth of sales and return on equity in the year 2010

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GR_SALE	0.0000	0.0000	1.6318	0.1056

The result of the hypothesis is shown in Table 5.53. The result from the p-value of the growth of sales equals 0.1056, which is more than 0.05, the null hypothesis H$_{o38}$ cannot be rejected at a 5% level of significance. It means there is no relationship between growth of sales and return on equity in the year 2010.

Hypothesis 39:

H39$_o$: Asset tangibility ratio (TANG) has no significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2010

H39$_a$: Asset tangibility ratio (TANG) has a significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2010

Table 5.54 The analysis of relationship between asset tangibility ratio and return on equity in the year 2010

Variable	Coefficient	Std. Error	t-Statistic	Prob.
TANGAS	-0.0978	0.1848	-0.5295	0.5976

The result of the hypothesis is shown in Table 5.54. The result from the p-value of the asset tangibility ratio equals 0.5976, which is more than 0.05, the null hypothesis H$_{o39}$ cannot be rejected at a 5% level of significance. It means there is no relationship between asset tangibility ratio and return on equity in the year 2010.

Hypothesis 40:

H40$_o$: Age has no significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2010

H40$_a$: Age has a significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2010

Table 5.55 The analysis of relationship between age and return on equity in the year 2010

Variable	Coefficient	Std. Error	t-Statistic	Prob.
AGE	-0.1626	0.2521	-0.6448	0.5204

The result of the hypothesis is shown in Table 5.55. The result from the p-value of the age equals 0.5204, which is more than 0.05, the null hypothesis H$_{o40}$ cannot be rejected at a 5% level

of significance. It means there is no relationship between age and return on equity in the year 2010.

Hypothesis 41:

$H41_o$: Debt ratio (DR) has no significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2010

$H41_a$: Debt ratio (DR) has a significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2010

Table 5.56 The analysis of relationship between debt ratio and Tobin's Q in the year 2010

Variable	Coefficient	Std. Error	t-Statistic	Prob.
DR	0.0005	0.0110	0.0415	0.9670

The result of the hypothesis is shown in Table 5.56. The result from the p-value of the debt ratio equals 0.9670, which is more than 0.05, the null hypothesis H_{o41} cannot be rejected at a 5% level of significance. It means there is no relationship between debt ratio and Tobin's Q in the year 2010.

Hypothesis 42:

$H42_o$: Debt to equity ratio (DE) has no significant Tobin's Q in listed real estate companies of Chinese stock exchange during year 2010

$H42_a$: Debt to equity ratio (DE) has a significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2010

Table 5.57 The analysis of relationship between debt to equity ratio and Tobin's Q in the year 2010

Variable	Coefficient	Std. Error	t-Statistic	Prob.
DE	0.0078	0.0026	3.0008	0.0033

131

The result of the hypothesis is shown in Table 5.57. The result from the p-value of the debt to equity ratio equals 0.0033, which is less than 0.05, the null hypothesis H_{o42} can be rejected at a 5% level of significance. The coefficient value equals 0.0078. This means that the long term debt to equity ratio has a positive significant relationship with Tobin's Q in year 2010.

Hypothesis 43:

$H43_o$: Short-term debt ratio (STD) has no significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2010

$H43_a$: Short-term debt ratio (STD) has a significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2010

Table 5.58 The analysis of relationship between short term debt ratio and Tobin's Q in the year 2010

Variable	Coefficient	Std. Error	t-Statistic	Prob.
STD	-0.0464	0.0126	-3.6945	0.0003

The result of the hypothesis is shown in Table 5.58. The result from the p-value of the short term debt ratio equals 0.0003, which is less than 0.05, the null hypothesis H_{o43} can be rejected at a 5% level of significance. The coefficient value equals -0.0464. This means that the short term debt ratio has a negative significant relationship with Tobin's Q in year 2010.

Hypothesis 44:

$H44_o$: Long-term debt ratio (LTD) has no significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2010

$H44_a$: Long-term debt ratio (LTD) has a significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2010

Table 5.59 The analysis of relationship between long term debt ratio and Tobin's Q in the year 2010

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LTD	-0.0425	0.0126	-3.3709	0.0010

The result of the hypothesis is shown in Table 5.59. The result from the p-value of the long term debt ratio equals 0.0010, which is less than 0.05, the null hypothesis H_{o44} can be rejected at a 5% level of significance. The coefficient value equals -0.0425. This means that the long term debt ratio has a negative significant relationship with Tobin's Q in year 2010.

Hypothesis 45:

$H45_o$: Size has no significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2010

$H45_a$: Size has a significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2010

Table 5.60 The analysis of relationship between size and Tobin's Q in the year 2010

Variable	Coefficient	Std. Error	t-Statistic	Prob.
SALE	0.0000	0.0000	-1.3486	0.1803

The result of the hypothesis is shown in Table 5.60. The result from the p-value of the size equals 0.1803, which is more than 0.05, the null hypothesis H_{o45} cannot be rejected at a 5% level of significance. It means there is no relationship between size and Tobin's Q in the year 2010.

Hypothesis 46:

$H46_o$: Growth of sales has no significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2010

$H46_a$: Growth of sales has a significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2010

Table 5.61 The analysis of relationship between growth of sales and Tobin's Q in the year 2010

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GR_SALE	0.0000	0.0000	-1.1288	0.2615

The result of the hypothesis is shown in Table 5.61. The result from the p-value of the growth of sales equals 0.2615, which is more than 0.05, the null hypothesis H_{o46} cannot be rejected at a 5% level of significance. It means there is no relationship between growth of sales and Tobin's Q in the year 2010.

Hypothesis 47:

$H47_o$: Asset tangibility ratio (TANG) has no significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2010

$H47_a$: Asset tangibility ratio (TANG) has a significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2010

Table 5.62 The analysis of relationship between asset tangibility ratio and Tobin's Q in the year 2010

Variable	Coefficient	Std. Error	t-Statistic	Prob.
TANGAS	0.0411	0.0133	3.0839	0.0026

The result of the hypothesis is shown in Table 5.62. The result from the p-value of the asset tangibility ratio equals 0.0026, which is less than 0.05, the null hypothesis H_{o47} can be rejected at a 5% level of significance. The coefficient value equals 0.0411. This means that the asset tangibility ratio has a positive significant relationship with Tobin's Q in year 2010.

Hypothesis 48:

$H48_o$: Age has no significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2010

H48ₐ: Age has a significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2010

Table 5.63 The analysis of relationship between age and Tobin's Q in the year 2010

Variable	Coefficient	Std. Error	t-Statistic	Prob.
AGE	0.0032	0.0182	0.1733	0.8627

The result of the hypothesis is shown in Table 5.63. The result from the p-value of the age equals 0.8627, which is more than 0.05, the null hypothesis H_{o48} cannot be rejected at a 5% level of significance. It means there is no relationship between age and Tobin's Q in the year 2010.

Hypothesis 49:

$H49_o$: Debt ratio (DR) has no significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2011

$H49_a$: Debt ratio (DR) has a significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2011

Table 5.64 The analysis of relationship between debt ratio and return on asset in the year 2011

Variable	Coefficient	Std. Error	t-Statistic	Prob.
DR	-0.0153	0.0480	-0.3182	0.7510

The result of the hypothesis is shown in Table 5.64. The result from the p-value of the debt ratio equals 0.7510, which is more than 0.05, the null hypothesis H_{o49} cannot be rejected at a 5% level of significance. It means there is no relationship between debt ratio and return on asset in the year 2011.

Hypothesis 50:

$H50_o$: Debt to equity ratio (DE) has no significant effect on return on asset (ROA) in listed

real estate companies of Chinese stock exchange during year 2011

H50$_a$: Debt to equity ratio (DE) has a significant effect on return on sset (ROA) in listed real estate companies of Chinese stock exchange during year 2011

Table 5.65 The analysis of relationship between debt to equity ratio and return on asset in the year 2011

Variable	Coefficient	Std. Error	t-Statistic	Prob.
DE	-0.0107	0.0111	-0.9589	0.3397

The result of the hypothesis is shown in Table 5.65. The result from the p-value of the debt to equity ratio equals 0.3397, which is more than 0.05, the null hypothesis H$_{o50}$ cannot be rejected at a 5% level of significance. It means there is no relationship between debt to equity ratio and return on asset in the year 2011.

Hypothesis 51:

H51$_o$: Short-term debt ratio (STD) has no significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2011

H51$_a$: Short-term debt ratio (STD) has a significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2011

Table 5.66 The analysis of relationship between short term debt ratio and return on asset in the year 2011

Variable	Coefficient	Std. Error	t-Statistic	Prob.
STD	0.0440	0.0551	0.7989	0.4261

The result of the hypothesis is shown in Table 5.66. The result from the p-value of the short term debt ratio equals 0.4261, which is more than 0.05, the null hypothesis H$_{o51}$ cannot be rejected at a 5% level of significance. It means there is no relationship between short term debt ratio and return on asset in the year 2011.

Hypothesis 52:

H52$_0$: Long-term debt ratio (LTD) has no significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2011

H52$_a$: Long-term debt ratio (LTD) has a significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2011

Table 5.67 The analysis of relationship between long term debt ratio and return on asset in the year 2011

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LTD	0.0035	0.0557	0.0629	0.9499

The result of the hypothesis is shown in Table 5.67. The result from the p-value of the long term debt ratio equals 0.9499, which is more than 0.05, the null hypothesis H$_{o52}$ cannot be rejected at a 5% level of significance. It means there is no relationship between long term debt ratio and return on asset in the year 2011.

Hypothesis 53:

H53$_0$: Size has no significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2011

H53$_a$: Size has a significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2011

Table 5.68 The analysis of relationship between size and return on asset in the year 2011

Variable	Coefficient	Std. Error	t-Statistic	Prob.
SALE	0.0001	0.0001	1.0156	0.3121

The result of the hypothesis is shown in Table 5.68. The result from the p-value of the size equals 0.3121, which is more than 0.05, the null hypothesis H$_{o53}$ cannot be rejected at a 5% level of significance. It means there is no relationship between size and return on asset in the year

2011.

Hypothesis 54:

$H54_o$: Growth of sales has no significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2011

$H54_a$: Growth of sales has a significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2011

Table 5.69 The analysis of relationship between growth of sales and return on asset in the year 2011

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GR_SALE	0.0040	0.0032	1.2725	0.2059

The result of the hypothesis is shown in Table 5.69. The result from the p-value of the growth of sales equals 0.2059, which is more than 0.05, the null hypothesis H_{o54} cannot be rejected at a 5% level of significance. It means there is no relationship between growth of sales and return on asset in the year 2011.

Hypothesis 55:

$H55_o$: Asset tangibility ratio (TANG) has no significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2011

H55a: Asset tangibility ratio (TANG) has a significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2011

Table 5.70 The analysis of relationship between asset tangibility ratio and return on asset in the year 2011

Variable	Coefficient	Std. Error	t-Statistic	Prob.
TANGAS	0.0186	0.0789	0.2360	0.8139

The result of the hypothesis is shown in Table 5.70. The result from the p-value of the asset tangibility ratio equals 0.8139, which is more than 0.05, the null hypothesis H_{o55} cannot be rejected at a 5% level of significance. It means there is no relationship between asset tangibility ratio and return on asset in the year 2011.

Hypothesis 56:

$H56_o$: Age has no significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2011

$H56_a$: Age has a significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2011

Table 5.71 The analysis of relationship between age and return on asset in the year 2011

Variable	Coefficient	Std. Error	t-Statistic	Prob.
AGE	-0.0197	0.0807	-0.2443	0.8075

The result of the hypothesis is shown in Table 5.71. The result from the p-value of the age equals 0.8075, which is more than 0.05, the null hypothesis H_{o56} cannot be rejected at a 5% level of significance. It means there is no relationship between age and return on asset in the year 2011.

Hypothesis 57:

$H57_o$: Debt ratio (DR) has no significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2011

$H57_a$: Debt ratio (DR) has a significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2011

Table 5.72 The analysis of relationship between debt ratio and return on equity in the year 2011

Variable	Coefficient	Std. Error	t-Statistic	Prob.
DR	-0.6155	0.1487	-4.1396	0.0001

The result of the hypothesis is shown in Table 5.72. The result from the p-value of the debt ratio equals 0.0001, which is less than 0.05, the null hypothesis H_{o57} can be rejected at a 5% level of significance. The coefficient value equals -0.6155. This means that the debt ratio has a negative significant relationship with return on equity in year 2011.

Hypothesis 58:

$H58_o$: Debt to equity ratio (DE) has no significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2011

$H58_a$: Debt to equity ratio (DE) has a significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2011

Table 5.73 The analysis of relationship between debt to equity ratio and return on equity in the year 2011

Variable	Coefficient	Std. Error	t-Statistic	Prob.
DE	-0.0246	0.0344	-0.7153	0.4760

The result of the hypothesis is shown in Table 5.73. The result from the p-value of the debt to equity ratio equals 0.4760, which is more than 0.05, the null hypothesis H_{o58} cannot be rejected at a 5% level of significance. It means there is no relationship between debt to equity ratio and return on equity in the year 2011.

Hypothesis 59:

$H59_o$: Short-term debt ratio (STD) has no significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2011

$H59_a$: Short-term debt ratio (STD) has a significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2011

Table 5.74 The analysis of relationship between short term debt ratio and return on equity in the year 2011

140

Variable	Coefficient	Std. Error	t-Statistic	Prob.
STD	0.6278	0.1709	3.6745	0.0004

The result of the hypothesis is shown in Table 5.74. The result from the p-value of the short term debt ratio equals 0.0004, which is less than 0.05, the null hypothesis H_{o59} can be rejected at a 5% level of significance. The coefficient value equals 0.6278. This means that the short term debt ratio has a positive significant relationship with return on equity in year 2011.

Hypothesis 60:

$H60_o$: Long-term debt ratio (LTD) has no significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2011

$H60_a$: Long-term debt ratio (LTD) has a significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2011

Table 5.75 The analysis of relationship between long term debt ratio and return on equity in the year 2011

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LTD	0.6112	0.1725	3.5423	0.0006

The result of the hypothesis is shown in Table 5.75. The result from the p-value of the long term debt ratio equals 0.0006, which is less than 0.05, the null hypothesis H_{o60} can be rejected at a 5% level of significance. The coefficient value equals 0.6112. This means that the long term debt ratio has a positive significant relationship with return on equity in year 2011.

Hypothesis 61:

$H61_o$: Size has no significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2011

$H61_a$: Size has a significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2011

141

Table 5.76 The analysis of relationship between size and return on equity in the year 2011

Variable	Coefficient	Std. Error	t-Statistic	Prob.
SALE	0.0002	0.0002	0.9164	0.3615

The result of the hypothesis is shown in Table 5.76. The result from the p-value of the size equals 0.3615, which is more than 0.05, the null hypothesis H_{o61} cannot be rejected at a 5% level of significance. It means there is no relationship between size and return on equity in the year 2011.

Hypothesis 62:

$H62_o$: Growth of sales has no significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2011

$H62_a$: Growth of sales has a significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2011

Table 5.77 The analysis of relationship between growth of sales and return on equity in the year 2011

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GR_SALE	0.0193	0.0098	1.9654	0.0519

The result of the hypothesis is shown in Table 5.77. The result from the p-value of the growth of sales equals 0.0519, which is more than 0.05, the null hypothesis H_{o62} cannot be rejected at a 5% level of significance. It means there is no relationship between growth of sales and return on equity in the year 2011.

Hypothesis 63:

$H63_o$: Asset tangibility ratio (TANG) has no significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2011

H63$_a$: Asset tangibility ratio (TANG) has a significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2011

Table 5.78 The analysis of relationship between asset tangibility ratio and return on equity in the year 2011

Variable	Coefficient	Std. Error	t-Statistic	Prob.
TANGAS	0.0074	0.2446	0.0302	0.9759

The result of the hypothesis is shown in Table 5.78. The result from the p-value of the asset tangibility ratio equals 0.9759, which is more than 0.05, the null hypothesis H$_{o63}$ cannot be rejected at a 5% level of significance. It means there is no relationship between asset tangibility ratio and return on equity in the year 2011.

Hypothesis 64:

H64$_o$: Age has no significant effect on return on asset (ROE) in listed real estate companies of Chinese stock exchange during year 2011

H64$_a$: Age has a significant effect on return on asset (ROE) in listed real estate companies of Chinese stock exchange during year 2011

Table 5.79 The analysis of relationship between age and return on equity in the year 2011

Variable	Coefficient	Std. Error	t-Statistic	Prob.
AGE	-0.0896	0.2501	-0.3582	0.7209

The result of the hypothesis is shown in Table 5.79. The result from the p-value of the age equals 0.7209, which is more than 0.05, the null hypothesis H$_{o64}$ cannot be rejected at a 5% level of significance. It means there is no relationship between age and return on equity in the year 2011.

143

Hypothesis 65:

H65$_0$: Debt ratio (DR) has no significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2011

H65$_a$: Debt ratio (DR) has a significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2011

Table 5.80 The analysis of relationship between debt ratio and Tobin's Q in the year 2011

Variable	Coefficient	Std. Error	t-Statistic	Prob.
DR	0.0027	0.0073	0.3719	0.7107

The result of the hypothesis is shown in Table 5.80. The result from the p-value of the age equals 0.7107, which is more than 0.05, the null hypothesis H$_{o65}$ cannot be rejected at a 5% level of significance. It means there is no relationship between debt ratio and Tobin's Q in the year 2011.

Hypothesis 66:

H66$_0$: Debt to equity ratio (DE) has no significant Tobin's Q in listed real estate companies of Chinese stock exchange during year 2011

H66$_a$: Debt to equity ratio (DE) has a significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2011

Table 5.81 The analysis of relationship between debt to equity ratio and Tobin's Q in the year 2011

Variable	Coefficient	Std. Error	t-Statistic	Prob.
DE	0.0038	0.0017	2.2575	0.0260

The result of the hypothesis is shown in Table 5.81. The result from the p-value of the debt to equity ratio equals 0.0260, which is less than 0.05, the null hypothesis H$_{o66}$ can be rejected at a 5% level of significance. The coefficient value equals 0.0038. This means that the debt to equity ratio

144

has a positive significant relationship with Tobin's Q in year 2011.

Hypothesis 67:

$H67_o$: Short-term debt ratio (STD) has no significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2011

$H67_a$: Short-term debt ratio (STD) has a significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2011

Table 5.82 The analysis of relationship between short term debt ratio and Tobin's Q in the year 2011

Variable	Coefficient	Std. Error	t-Statistic	Prob.
STD	-0.0274	0.0084	-3.2611	0.0015

The result of the hypothesis is shown in Table 5.82. The result from the p-value of the short term debt ratio equals 0.0015, which is less than 0.05, the null hypothesis H_{o67} can be rejected at a 5% level of significance. The coefficient value equals -0.0274. This means that the short term debt ratio has a negative significant relationship with Tobin's Q in year 2011.

Hypothesis 68:

$H68_o$: Long-term debt ratio (LTD) has no significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2011

$H68_a$: Long-term debt ratio (LTD) has a significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2011

Table 5.83 The analysis of relationship between long term debt ratio and Tobin's Q in the year 2011

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LTD	-0.0245	0.0085	-2.8876	0.0047

The result of the hypothesis is shown in Table 5.83. The result from the p-value of the long term debt ratio equals 0.0047, which is less than 0.05, the null hypothesis H_{o68} can be rejected at a 5% level of significance. The coefficient value equals -0.0245. This means that the long term debt ratio has a negative significant relationship with Tobin's Q in year 2011.

Hypothesis 69:

$H69_o$: Size has no significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2011

$H69_a$: Size has a significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2011

Table 5.84 The analysis of relationship between size and Tobin's Q in the year 2011

Variable	Coefficient	Std. Error	t-Statistic	Prob.
SALE	0.0000	0.0000	-1.0214	0.3093

The result of the hypothesis is shown in Table 5.84. The result from the p-value of the size equals 0.3093, which is more than 0.05, the null hypothesis H_{o69} cannot be rejected at a 5% level of significance. It means there is no relationship between size and Tobin's Q in the year 2011.

Hypothesis 70:

$H70_o$: Growth of sales has no significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2011

$H70_a$: Growth of sales has a significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2011

Table 5.85 The analysis of relationship between growth of sales and Tobin's Q in the year 2011

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GR_SALE	0.0008	0.0005	1.6483	0.1022

146

The result of the hypothesis is shown in Table 5.85. The result from the p-value of the growth of sales equals 0.1022, which is more than 0.05, the null hypothesis H_{o70} cannot be rejected at a 5% level of significance. It means there is no relationship between growth of sales and Tobin's Q in the year 2011.

Hypothesis 71:

$H71_0$: Asset tangibility ratio (TANG) has no significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2011

$H71_a$: Asset tangibility ratio (TANG) has a significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2011

Table 5.86 The analysis of relationship between asset tangibility ratio and Tobin's Q in the year 2011

Variable	Coefficient	Std. Error	t-Statistic	Prob.
TANGAS	0.0314	0.0120	2.6109	0.0103

The result of the hypothesis is shown in Table 5.86. The result from the p-value of the asset tangibility ratio equals 0.0103, which is less than 0.05, the null hypothesis H_{o71} can be rejected at a 5% level of significance. The coefficient value equals 0.0314. This means that the asset tangibility ratio has a positive significant relationship with Tobin's Q in year 2011.

Hypothesis 72:

$H72_0$: Age has no significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2011

$H72_a$: Age has a significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2011

Table 5.87 The analysis of relationship between age and Tobin's Q in the year 2011

Variable	Coefficient	Std. Error	t-Statistic	Prob.
AGE	0.0016	0.0123	0.1299	0.8969

The result of the hypothesis is shown in Table 5.87. The result from the p-value of the growth of sales equals 0.8969, which is more than 0.05, the null hypothesis H_{o72} cannot be rejected at a 5% level of significance. It means there is no relationship between age and Tobin's Q in the year 2011.

Hypothesis 73:

$H73_o$: Debt ratio (DR) has no significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2012

$H73_a$: Debt ratio (DR) has a significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2012

Table 5.88 The analysis of relationship between debt ratio and return on asset in the year 2012

Variable	Coefficient	Std. Error	t-Statistic	Prob.
DR	0.0026	0.0450	0.0576	0.9542

The result of the hypothesis is shown in Table 5.88. The result from the p-value of the debt ratio equals 0.9542, which is more than 0.05, the null hypothesis H_{o73} cannot be rejected at a 5% level of significance. It means there is no relationship between debt ratio and return on asset in the year 2012.

Hypothesis 74:

$H74_o$: Debt to equity ratio (DE) has no significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2012

$H74_a$: Debt to equity ratio (DE) has a significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2012

Table 5.89 The analysis of relationship between debt to equity ratio and return on asset in the year 2012

Variable	Coefficient	Std. Error	t-Statistic	Prob.
DE	-0.0165	0.0087	-1.8960	0.0606

The result of the hypothesis is shown in Table 5.89. The result from the p-value of the debt to equity ratio equals 0.0606, which is more than 0.05, the null hypothesis H_{o74} cannot be rejected at a 5% level of significance. It means there is no relationship between debt to equity ratio and return on asset in the year 2012.

Hypothesis 75:

$H75_o$: Short-term debt ratio (STD) has no significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2012

$H75_a$: Short-term debt ratio (STD) has a significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2012

Table 5.90 The analysis of relationship between short term debt ratio and return on asset in the year 2012

Variable	Coefficient	Std. Error	t-Statistic	Prob.
STD	0.0218	0.0494	0.4400	0.6608

The result of the hypothesis is shown in Table 5.90. The result from the p-value of the short term debt ratio equals 0.6608, which is more than 0.05, the null hypothesis H_{o75} cannot be rejected at a 5% level of significance. It means there is no relationship between short term debt ratio and return on asset in the year 2012.

Hypothesis 76:

$H76_o$: Long-term debt ratio (LTD) has no significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2012

$H76_a$: Long-term debt ratio (LTD) has a significant effect on return on asset (ROA) in listed

149

real estate companies of Chinese stock exchange during year 2012

Table 5.91 The analysis of relationship between long term debt ratio and return on asset in the year 2012

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LTD	0.0436	0.0477	0.9134	0.3631

The result of the hypothesis is shown in Table 5.91. The result from the p-value of the long term debt ratio equals 0.3631, which is more than 0.05, the null hypothesis H_{o76} cannot be rejected at a 5% level of significance. It means there is no relationship between long term debt ratio and return on asset in the year 2012.

Hypothesis 77:

$H77_o$: Size has no significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2012

$H77_a$: Size has a significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2012

Table 5.92 The analysis of relationship between size and return on asset in the year 2012

Variable	Coefficient	Std. Error	t-Statistic	Prob.
SALE	0.0000	0.0000	0.8460	0.3994

The result of the hypothesis is shown in Table 5.92. The result from the p-value of the size equals 0.3994, which is more than 0.05, the null hypothesis H_{o77} cannot be rejected at a 5% level of significance. It means there is no relationship between size and return on asset in the year 2012.

Hypothesis 78:

$H78_o$: Growth of sales has no significant effect on return on asset (ROA) in listed real estate

companies of Chinese stock exchange during year 2012

H78$_a$: Growth of sales has a significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2012

Table 5.93 The analysis of relationship between growth of sales and return on asset in the year 2012

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GR_SALE	0.0042	0.0028	1.4997	0.1366

The result of the hypothesis is shown in Table 5.93. The result from the p-value of the growth of sales equals 0.1366, which is more than 0.05, the null hypothesis H$_{o78}$ cannot be rejected at a 5% level of significance. It means there is no relationship between growth of sales and return on asset in the year 2012.

Hypothesis 79:

H79$_o$: Asset tangibility ratio (TANG) has no significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2012

H79$_a$: Asset tangibility ratio (TANG) has a significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2012

Table 5.94 The analysis of relationship between asset tangibility ratio and return on asset in the year 2012

Variable	Coefficient	Std. Error	t-Statistic	Prob.
TANGAS	0.0387	0.0762	0.5081	0.6125

The result of the hypothesis is shown in Table 5.94. The result from the p-value of the asset tangibility ratio equals 0.6125, which is more than 0.05, the null hypothesis H$_{o79}$ cannot be rejected at a 5% level of significance. It means there is no relationship between asset tangibility ratio and return on asset in the year 2012.

151

Hypothesis 80:

H80$_0$: Age has no significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2012

H80$_a$: Age has a significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2012

Table 5.95 The analysis of relationship between age and return on asset in the year 2012

Variable	Coefficient	Std. Error	t-Statistic	Prob.
AGE	-0.0740	0.0760	-0.9746	0.3319

The result of the hypothesis is shown in Table 5.95. The result from the p-value of the age equals 0.3319, which is more than 0.05, the null hypothesis H$_{o80}$ cannot be rejected at a 5% level of significance. It means there is no relationship between age and return on asset in the year 2012.

Hypothesis 81:

H81$_0$: Debt ratio (DR) has no significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2012

H81$_a$: Debt ratio (DR) has a significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2012

Table 5.96 The analysis of relationship between debt ratio and return on equity in the year 2012

Variable	Coefficient	Std. Error	t-Statistic	Prob.
DR	-0.4000	0.1206	-3.3174	0.0012

The result of the hypothesis is shown in Table 5.96. The result from the p-value of the debt ratio equals 0.0012, which is less than 0.05, the null hypothesis H$_{o81}$ can be rejected at a 5% level of significance. The coefficient value equals -0.4000. This means that the debt ratio has a negative significant relationship with return on equity in year 2012.

Hypothesis 82:

H82$_0$: Debt to equity ratio (DE) has no significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2012

H82$_a$: Debt to equity ratio (DE) has a significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2012

Table 5.97 The analysis of relationship between debt to equity ratio and return on equity in the year 2012

Variable	Coefficient	Std. Error	t-Statistic	Prob.
DE	-0.0363	0.0233	-1.5607	0.1215

The result of the hypothesis is shown in Table 5.97. The result from the p-value of the debt to equity ratio equals 0.1215, which is more than 0.05, the null hypothesis H$_{o82}$ cannot be rejected at a 5% level of significance. It means there is no relationship between debt to equity ratio and return on equity in the year 2012.

Hypothesis 83:

H83$_0$: Short-term debt ratio (STD) has no significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2012

H83$_a$: Short-term debt ratio (STD) has a significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2012

Table 5.98 The analysis of relationship between short term debt ratio and return on equity in the year 2012

Variable	Coefficient	Std. Error	t-Statistic	Prob.
STD	0.3911	0.1325	2.9508	0.0039

The result of the hypothesis is shown in Table 5.98. The result from the p-value of the short term debt ratio equals 0.0039, which is less than 0.05, the null hypothesis H$_{o83}$ can be rejected at

153

a 5% level of significance. The coefficient value equals 0.3911. This means that the short term debt ratio has a positive significant relationship with return on equity in year 2012.

Hypothesis 84:

$H84_0$: Long-term debt ratio (LTD) has no significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2012

$H84_a$: Long-term debt ratio (LTD) has a significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2012

Table 5.99 The analysis of relationship between long term debt ratio and return on equity in the year 2012

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LTD	0.4708	0.1279	3.6800	0.0004

The result of the hypothesis is shown in Table 5.99. The result from the p-value of the long term debt ratio equals 0.0004, which is less than 0.05, the null hypothesis H_{o84} can be rejected at a 5% level of significance. The coefficient value equals 0.4708. This means that the long term debt ratio has a positive significant relationship with return on equity in year 2012.

Hypothesis 85:

$H85_0$: Size has no significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2012

$H85_a$: Size has a significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2012

Table 5.100 The analysis of relationship between size and return on equity in the year 2012

Variable	Coefficient	Std. Error	t-Statistic	Prob.
SALE	0.0003	0.0001	2.0255	0.0453

The result of the hypothesis is shown in Table 5.100. The result from the p-value of the size equals 0.0453, which is less than 0.05, the null hypothesis H_{o85} can be rejected at a 5% level of significance. The coefficient value equals 0.0003. This means that the size has a positive significant relationship with return on equity in year 2012.

Hypothesis 86:

$H86_o$: Growth of sales has no significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2012

$H86_a$: Growth of sales has a significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2012

Table 5.101 The analysis of relationship between growth of sales and return on equity in the year 2012

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GR_SALE	0.0090	0.0075	1.1976	0.2337

The result of the hypothesis is shown in Table 5.101. The result from the p-value of the growth of sales equals 0.2337, which is more than 0.05, the null hypothesis H_{o86} cannot be rejected at a 5% level of significance. It means there is no relationship between growth of sales and return on equity in the year 2012.

Hypothesis 87:

$H87_o$: Asset tangibility ratio (TANG) has no significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2012

$H87_a$: Asset tangibility ratio (TANG) has a significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2012

Table 5.102 The analysis of relationship between asset tangibility ratio and return on equity in the year 2012

155

Variable	Coefficient	Std. Error	t-Statistic	Prob.
TANGAS	-0.0146	0.2043	-0.0712	0.9434

The result of the hypothesis is shown in Table 5.102. The result from the p-value of the asset tangibility ratio equals 0.9434, which is more than 0.05, the null hypothesis H_{o87} cannot be rejected at a 5% level of significance. It means there is no relationship between asset tangibility ratio and return on equity in the year 2012.

Hypothesis 88:

$H88_o$: Age has no significant effect on return on asset (ROE) in listed real estate companies of Chinese stock exchange during year 2012

$H88_a$: Age has a significant effect on return on asset (ROE) in listed real estate companies of Chinese stock exchange during year 2012

Table 5.103 The analysis of relationship between age and return on equity in the year 2012

Variable	Coefficient	Std. Error	t-Statistic	Prob.
AGE	-0.2526	0.2036	-1.2405	0.2175

The result of the hypothesis is shown in Table 5.103. The result from the p-value of the age equals 0.2175, which is more than 0.05, the null hypothesis H_{o88} cannot be rejected at a 5% level of significance. It means there is no relationship between age and return on equity in the year 2012.

Hypothesis 89:

$H89_o$: Debt ratio (DR) has no significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2012

$H89_a$: Debt ratio (DR) has a significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2012

Table 5.104 The analysis of relationship between debt ratio and Tobin's Q in the year 2012

Variable	Coefficient	Std. Error	t-Statistic	Prob.
DR	0.0006	0.0126	0.0436	0.9653

The result of the hypothesis is shown in Table 5.104. The result from the p-value of the age equals 0.9653, which is more than 0.05, the null hypothesis H_{o89} cannot be rejected at a 5% level of significance. It means there is no relationship between debt ratio and Tobin's Q in the year 2012.

Hypothesis 90:

$H90_o$: Debt to equity ratio (DE) has no significant Tobin's Q in listed real estate companies of Chinese stock exchange during year 2012

$H90_a$: Debt to equity ratio (DE) has a significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2012

Table 5.105 The analysis of relationship between debt to equity ratio and Tobin's Q in the year 2012

Variable	Coefficient	Std. Error	t-Statistic	Prob.
DE	0.0072	0.0024	2.9407	0.0040

The result of the hypothesis is shown in Table 5.105. The result from the p-value of the debt to equity ratio equals 0.0040, which is less than 0.05, the null hypothesis H_{o90} can be rejected at a 5% level of significance. The coefficient value equals 0.0072. This means that the debt to equity ratio has a positive significant relationship with Tobin's Q in year 2012.

Hypothesis 91:

$H91_o$: Short-term debt ratio (STD) has no significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2012

H91$_a$: Short-term debt ratio (STD) has a significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2012

Table 5.106 The analysis of relationship between short term debt ratio and Tobin's Q in the year 2012

Variable	Coefficient	Std. Error	t-Statistic	Prob.
STD	-0.0533	0.0139	-3.8420	0.0002

The result of the hypothesis is shown in Table 5.106. The result from the p-value of the short term debt ratio equals 0.0002, which is less than 0.05, the null hypothesis H$_{o91}$ can be rejected at a 5% level of significance. The coefficient value equals -0.0533. This means that the short term debt ratio has a negative significant relationship with Tobin's Q in year 2012.

Hypothesis 92:

H92$_o$: Long-term debt ratio (LTD) has no significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2012

H92$_a$: Long-term debt ratio (LTD) has a significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2012

Table 5.107 The analysis of relationship between long term debt ratio and Tobin's Q in the year 2012

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LTD	-0.0520	0.0134	-3.8810	0.0002

The result of the hypothesis is shown in Table 5.107. The result from the p-value of the long term debt ratio equals 0.0002, which is less than 0.05, the null hypothesis H$_{o91}$ can be rejected at a 5% level of significance. The coefficient value equals -0.0520. This means that the long term debt ratio has a negative significant relationship with Tobin's Q in year 2012.

Hypothesis 93:

H93$_o$: Size has no significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2012

H93$_a$: Size has a significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2012

Table 5.108 The analysis of relationship between size and Tobin's Q in the year 2012

Variable	Coefficient	Std. Error	t-Statistic	Prob.
SALE	0.0000	0.0000	0.0526	0.9581

The result of the hypothesis is shown in Table 5.108. The result from the p-value of the size equals 0.9581, which is more than 0.05, the null hypothesis H$_{o93}$ cannot be rejected at a 5% level of significance. It means there is no relationship between size and Tobin's Q in the year 2012.

Hypothesis 94:

H94$_o$: Growth of sales has no significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2012

H94$_a$: Growth of sales has a significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2012

Table 5.109 The analysis of relationship between growth of sales and Tobin's Q in the year 2012

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GR_SALE	-0.0002	0.0008	-0.2791	0.7807

The result of the hypothesis is shown in Table 5.109. The result from the p-value of the growth of sales equals 0.7807, which is more than 0.05, the null hypothesis H$_{o94}$ cannot be rejected at a 5% level of significance. It means there is no relationship between growth of sales and Tobin's Q in the year 2012.

Hypothesis 95:

H95$_o$: Asset tangibility ratio (TANG) has no significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2012

H95$_a$: Asset tangibility ratio (TANG) has a significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2012

Table 5.110 The analysis of relationship between asset tangibility ratio and Tobin's Q in the year 2012

Variable	Coefficient	Std. Error	t-Statistic	Prob.
TANGAS	0.0644	0.0214	3.0092	0.0033

The result of the hypothesis is shown in Table 5.110. The result from the p-value of the asset tangibility ratio equals 0.0033, which is less than 0.05, the null hypothesis H$_o$95 can be rejected at a 5% level of significance. The coefficient value equals 0.0644. This means that the asset tangibility ratio has a positive significant relationship with Tobin's Q in year 2012.

Hypothesis 96:

H96$_o$: Age has no significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2012

H96$_a$: Age has a significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2012

Table 5.111 The analysis of relationship between age and Tobin's Q in the year 2012

Variable	Coefficient	Std. Error	t-Statistic	Prob.
AGE	0.0045	0.0213	0.2099	0.8341

The result of the hypothesis is shown in Table 5.111. The result from the p-value of the age equals 0.8341, which is more than 0.05, the null hypothesis H$_o$96 cannot be rejected at a 5% level of significance. It means there is no relationship between age and Tobin's Q in the year 2012.

Hypothesis 97:

H97$_o$: Debt ratio (DR) has no significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2009 — 2012

H97$_a$: Debt ratio (DR) has a significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2009 — 2012

Table 5.112 The analysis of relationship between debt ratio and return on asset during the year 2009 —2012

Variable	Coefficient	Std. Error	t-Statistic	Prob.
DR	-0.0207	0.0115	-1.8083	0.0712

The result of the hypothesis is shown in Table 5.112. The result from the p-value of the debt ratio equals 0.0712, which is more than 0.05, the null hypothesis H$_{o97}$ cannot be rejected at a 5% level of significance. It means there is no relationship between debt ratio and return on asset during the year 2009 — 2012.

Hypothesis 98:

H98$_o$: Debt to equity ratio (DE) has no significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2009 — 2012

H98$_a$: Debt to equity ratio (DE) has a significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2009 — 2012

Table 5.113 The analysis of relationship between debt to equity ratio and return on asset during the year 2009 —2012

Variable	Coefficient	Std. Error	t-Statistic	Prob.
DE	-0.0084	0.0054	-1.5466	0.1226

The result of the hypothesis is shown in Table 5.113. The result from the p-value of the debt to equity ratio equals 0.1226, which is more than 0.05, the null hypothesis H$_{o98}$ cannot be rejected

at a 5% level of significance. It means there is no relationship between debt to equity ratio and return on asset during the year 2009 — 2012.

Hypothesis 99:

H99$_o$: Short-term debt ratio (STD) has no significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2009 — 2012

H99$_a$: Short-term debt ratio (STD) has a significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2009 — 2012

Table 5.114 The analysis of relationship between short term debt ratio and return on asset during the year 2009 —2012

Variable	Coefficient	Std. Error	t-Statistic	Prob.
STD	-0.0157	0.0202	-0.7747	0.4389

The result of the hypothesis is shown in Table 5.114. The result from the p-value of the short term debt ratio equals 0.4389, which is more than 0.05, the null hypothesis H$_o$99 cannot be rejected at a 5% level of significance. It means there is no relationship between short term debt ratio and return on asset during the year 2009 — 2012.

Hypothesis 100:

H100$_o$: Long-term debt ratio (LTD) has no significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2009 — 2012

H100$_a$: Long-term debt ratio (LTD) has a significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2009 — 2012

Table 5.115 The analysis of relationship between long term debt ratio and return on asset during the year 2009 —2012

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LTD	0.0192	0.0193	0.9954	0.3201

The result of the hypothesis is shown in Table 5.115. The result from the p-value of the long term debt ratio equals 0.3201, which is more than 0.05, the null hypothesis H_{o100} cannot be rejected at a 5% level of significance. It means there is no relationship between long term debt ratio and return on asset during the year 2009 — 2012.

Hypothesis 101:

$H101_o$: Size has no significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2009 — 2012

$H101_a$: Size has a significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2009 — 2012

Table 5.116 The analysis of relationship between size and return on asset during the year 2009 —2012

Variable	Coefficient	Std. Error	t-Statistic	Prob.
SALE	-0.0000	0.0000	-0.2058	0.8370

The result of the hypothesis is shown in Table 5.116. The result from the p-value of the size equals 0.8370, which is more than 0.05, the null hypothesis H_{o101} cannot be rejected at a 5% level of significance. It means there is no relationship between size and return on asset during the year 2009 — 2012.

Hypothesis 102:

$H102_o$: Growth of sales has no significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2009 — 2012

$H102_a$: Growth of sales has a significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2009 — 2012

Table 5.117 The analysis of relationship between growth of sales and return on asset during the year 2009 —2012

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GR_SALE	0.0000	0.0000	0.6342	0.5263

The result of the hypothesis is shown in Table 5.117. The result from the p-value of the growth of sales equals 0.5263, which is more than 0.05, the null hypothesis H_{o102} cannot be rejected at a 5% level of significance. It means there is no relationship between growth of sales and return on asset during the year 2009 — 2012.

Hypothesis 103:

$H103_0$: Asset tangibility ratio (TANG) has no significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2009 — 2012

$H103_a$: Asset tangibility ratio (TANG) has a significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2009 — 2012

Table 5.118 The analysis of relationship between asset tangibility ratio and return on asset during the year 2009 —2012

Variable	Coefficient	Std. Error	t-Statistic	Prob.
TANGAS	-0.0053	0.0309	-0.1708	0.8644

The result of the hypothesis is shown in Table 5.118. The result from the p-value of the asset tangibility ratio equals 0.8644, which is more than 0.05, the null hypothesis H_{o103} cannot be rejected at a 5% level of significance. It means there is no relationship between asset tangibility ratio and return on asset during the year 2009 — 2012.

Hypothesis 104:

$H104_0$: Age has no significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2009 — 2012

$H104_a$: Age has a significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2009 — 2012

Table 5.119 The analysis of relationship between age and return on asset during the year 2009 —2012

Variable	Coefficient	Std. Error	t-Statistic	Prob.
AGE	-0.0215	0.0401	-0.5349	0.5930

The result of the hypothesis is shown in Table 5.119. The result from the p-value of the age equals 0.5930, which is more than 0.05, the null hypothesis H_{o104} cannot be rejected at a 5% level of significance. It means there is no relationship between age and return on asset during the year 2009 — 2012.

Hypothesis 105:

$H105_o$: Debt ratio (DR) has no significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2009 — 2012

$H105_a$: Debt ratio (DR) has a significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2009 — 2012

Table 5.120 The analysis of relationship between debt ratio and return on equity during the year 2009 —2012

Variable	Coefficient	Std. Error	t-Statistic	Prob.
DR	-0.0357	0.0431	-0.8265	0.4089

The result of the hypothesis is shown in Table 5.120. The result from the p-value of the debt ratio equals 0.4089, which is more than 0.05, the null hypothesis H_{o105} cannot be rejected at a 5% level of significance. It means there is no relationship between debt ratio and return on equity during the year 2009 — 2012.

Hypothesis 106:

$H106_o$: Debt to equity ratio (DE) has no significant effect on return on equity (ROE) in listed

real estate companies of Chinese stock exchange during year 2009 — 2012

H106$_a$: Debt to equity ratio (DE) has a significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2009 — 2012

Table 5.121 The analysis of relationship between debt to equity ratio and return on equity during the year 2009 —2012

Variable	Coefficient	Std. Error	t-Statistic	Prob.
DE	0.0050	0.0203	0.2457	0.8060

The result of the hypothesis is shown in Table 5.121. The result from the p-value of the debt to equity ratio equals 0.8060, which is more than 0.05, the null hypothesis H$_{o106}$ cannot be rejected at a 5% level of significance. It means there is no relationship between debt to equity ratio and return on equity during the year 2009 — 2012.

Hypothesis 107:

H107$_o$: Short-term debt ratio (STD) has no significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2009 — 2012

H107$_a$: Short-term debt ratio (STD) has a significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2009 — 2012

Table 5.122 The analysis of relationship between short term debt ratio and return on equity during the year 2009 —2012

Variable	Coefficient	Std. Error	t-Statistic	Prob.
STD	0.0363	0.0761	0.4773	0.6334

The result of the hypothesis is shown in Table 5.122. The result from the p-value of the short term debt ratio equals 0.6334, which is more than 0.05, the null hypothesis H$_{o107}$ cannot be rejected at a 5% level of significance. It means there is no relationship between short term debt ratio and return on equity during year 2009 — 2012.

Hypothesis 108:

H108$_o$: Long-term debt ratio (LTD) has no significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2009 — 2012

H108$_a$: Long-term debt ratio (LTD) has a significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2009 — 2012

Table 5.123 The analysis of relationship between long term debt ratio and return on equity during year 2009 —2012

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LTD	0.1815	0.0726	2.5006	0.0127

The result of the hypothesis is shown in Table 5.123. The result from the p-value of the long term debt ratio equals 0.0127, which is less than 0.05, the null hypothesis H$_{o108}$ can be rejected at a 5% level of significance. And the coefficient value equals 0.1815. It means there is positive relationship between long term debt ratio and return on equity during the year 2009 — 2012.

Hypothesis 109:

H109$_o$: Size has no significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2009 — 2012

H109$_a$: Size has a significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2009 — 2012

Table 5.124 The analysis of relationship between size and return on equity during the year 2009 —2012

Variable	Coefficient	Std. Error	t-Statistic	Prob.
SALE	-0.0000	0.0001	-0.1002	0.9202

The result of the hypothesis is shown in Table 5.124. The result from the p-value of the size equals 0.9202, which is more than 0.05, the null hypothesis H$_{o109}$ cannot be rejected at a 5% level of significance. It means there is no relationship between size and return on equity during

the year 2009 — 2012.

Hypothesis 110:

$H110_o$: Growth of sales has no significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2009 — 2012

$H110_a$: Growth of sales has a significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2009 — 2012

Table 5.125 The analysis of relationship between growth of sales and return on equity during the year 2009 —2012

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GR_SALE	0.0000	0.0000	1.5890	0.1128

The result of the hypothesis is shown in Table 5.125. The result from the p-value of the growth of sales equals 0.1128, which is more than 0.05, the null hypothesis H_{o110} cannot be rejected at a 5% level of significance. It means there is no relationship between growth of sales and return on equity during the year 2009 — 2012.

Hypothesis 111:

$H111_o$: Asset tangibility ratio (TANG) has no significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2009 — 2012

$H111_a$: Asset tangibility ratio (TANG) has a significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2009 — 2012

Table 5.126 The analysis of relationship between asset tangibility ratio and return on equity during the year 2009 —2012

Variable	Coefficient	Std. Error	t-Statistic	Prob.
TANGAS	0.1549	0.1161	1.3345	0.1827

The result of the hypothesis is shown in Table 5.126. The result from the p-value of the asset tangibility ratio equals 0.1827, which is more than 0.05, the null hypothesis H_{o111} cannot be rejected at a 5% level of significance. It means there is no relationship between asset tangibility ratio and return on equity during the year 2009 — 2012.

Hypothesis 112:

$H112_o$: Age has no significant effect on return on asset (ROE) in listed real estate companies of Chinese stock exchange during year 2009 — 2012

$H112_a$: Age has a significant effect on return on asset (ROE) in listed real estate companies of Chinese stock exchange during year 2009 — 2012

Table 5.127 The analysis of relationship between age and return on equity during the year 2009 —2012

Variable	Coefficient	Std. Error	t-Statistic	Prob.
AGE	0.0400	0.1509	0.2651	0.7911

The result of the hypothesis is shown in Table 5.127. The result from the p-value of the age equals 0.7911, which is more than 0.05, the null hypothesis H_{o112} cannot be rejected at a 5% level of significance. It means there is no relationship between age and return on equity during the year 2009 — 2012.

Hypothesis 113:

$H113_o$: Debt ratio (DR) has no significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2009 — 2012

$H113_a$: Debt ratio (DR) has a significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2009 — 2012

Table 5.128 The analysis of relationship between debt ratio and Tobin's Q during the year 2009 —2012

Variable	Coefficient	Std. Error	t-Statistic	Prob.
DR	0.0061	0.0033	1.8361	0.0670

The result of the hypothesis is shown in Table 5.128. The result from the p-value of the debt ratio equals 0.0670, which is more than 0.05, the null hypothesis H_{o113} cannot be rejected at a 5% level of significance. It means there is no relationship between debt ratio and Tobin's Q during the year 2009 — 2012.

Hypothesis 114:

$H114_o$: Debt to equity ratio (DE) has no significant Tobin's Q in listed real estate companies of Chinese stock exchange during year 2009 — 2012

$H114_a$: Debt to equity ratio (DE) has a significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2009 — 2012

Table 5.129 The analysis of relationship between debt to equity ratio and Tobin's Q during the year 2009 —2012

Variable	Coefficient	Std. Error	t-Statistic	Prob.
DE	0.0060	0.0016	3.8455	0.0001

The result of the hypothesis is shown in Table 5.129. The result from the p-value of the debt to equity ratio equals 0.0001, which is less than 0.05, the null hypothesis H_{o114} can be rejected at a 5% level of significance. And the coefficient value equals 0.0060. It means there is positive relationship between debt to equity ratio and Tobin's Q during the year 2009 — 2012.

Hypothesis 115:

$H115_o$: Short-term debt ratio (STD) has no significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2009 — 2012

$H115_a$: Short-term debt ratio (STD) has a significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2009 — 2012

Table 5.130 The analysis of relationship between short term debt ratio and Tobin's Q during the year 2009 — 2012

Variable	Coefficient	Std. Error	t-Statistic	Prob.
STD	-0.0431	0.0059	-7.3368	0.0000

The result of the hypothesis is shown in Table 5.130. The result from the p-value of the short term debt ratio equals 0.0000, which is less than 0.05, the null hypothesis H_{o115} can be rejected at a 5% level of significance. And the coefficient value equals -0.0431. It means there is negative relationship between short term debt ratio and Tobin's Q during the year 2009 — 2012.

Hypothesis 116:

$H116_o$: Long-term debt ratio (LTD) has no significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2009 — 2012

$H116_a$: Long-term debt ratio (LTD) has a significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2009 — 2012

Table 5.131 The analysis of relationship between long term debt ratio and Tobin's Q during the year 2009 — 2012

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LTD	-0.0470	0.0056	-8.3838	0.0000

The result of the hypothesis is shown in Table 5.131. The result from the p-value of the long term debt ratio equals 0.0000, which is less than 0.05, the null hypothesis H_{o116} can be rejected at a 5% level of significance. And the coefficient value equals -0.0470. It means there is negative relationship between long term debt ratio and Tobin's Q during the year 2009 — 2012.

Hypothesis 117:

$H117_o$: Size has no significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2009 — 2012

$H117_a$: Size has a significant effect on Tobin's Q in listed real estate companies of Chinese

stock exchange during year 2009 — 2012

Table 5.132 The analysis of relationship between size and Tobin's Q during the year 2009 —2012

Variable	Coefficient	Std. Error	t-Statistic	Prob.
SALE	-0.0000	0.0000	-0.5257	0.5993

The result of the hypothesis is shown in Table 5.132. The result from the p-value of the size equals 0.5993, which is more than 0.05, the null hypothesis H_{o117} cannot be rejected at a 5% level of significance. It means there is no relationship between size and Tobin's Q during the year 2009 — 2012.

Hypothesis 118:

$H118_o$: Growth of sales has no significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2009 — 2012

$H118_a$: Growth of sales has a significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2009 — 2012

Table 5.133 The analysis of relationship between growth of sales and Tobin's Q during the year 2009 —2012

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GR_SALE	-0.0000	0.0000	-0.6487	0.5168

The result of the hypothesis is shown in Table 5.133. The result from the p-value of the size equals 0.5168, which is more than 0.05, the null hypothesis H_{o118} cannot be rejected at a 5% level of significance. It means there is no relationship between growth of sales and Tobin's Q during the year 2009 — 2012.

Hypothesis 119:

H119$_o$: Asset tangibility ratio (TANG) has no significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2009 — 2012

H119$_a$: Asset tangibility ratio (TANG) has a significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2009 — 2012

Table 5.134 The analysis of relationship between asset tangibility ratio and Tobin's Q during the year 2009 —2012

Variable	Coefficient	Std. Error	t-Statistic	Prob.
TANGAS	-0.0080	0.0090	-0.8979	0.3697

The result of the hypothesis is shown in Table 5.134. The result from the p-value of the asset tangibility ratio equals 0.3697, which is more than 0.05, the null hypothesis H$_{o119}$ cannot be rejected at a 5% level of significance. It means there is no relationship between asset tangibility ratio and Tobin's Q during the year 2009 — 2012.

Hypothesis 120:

H120$_o$: Age has no significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2009 — 2012

H120$_a$: Age has a significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2009 — 2012

Table 5.135 The analysis of relationship between age and Tobin's Q during the year 2009 —2012

Variable	Coefficient	Std. Error	t-Statistic	Prob.
AGE	-0.0022	0.0117	-0.1887	0.8504

The result of the hypothesis is shown in Table 5.135. The result from the p-value of the age equals 0.8504, which is more than 0.05, the null hypothesis H$_{o120}$ cannot be rejected at a 5%

level of significance. It means there is no relationship between age and Tobin's Q during the year 2009 — 2012.

CHAPTER 6

SUMMARY OF FINDINGS, CONCLUSION, AND RECOMMENDATIONS

Chapter six presents the summary of the findings, as well as conclusion and recommendations. The summary of findings, based on the result is present first. Then the conclusion and discussion are presented next. Recommendations follows last.

6.1 Summary of Findings

The study analyzes effect of firm's internal factors to firm performance of real estate sector in Chinese stock exchange during 2009 to 2012. The data include four years database from year 2009 to 2012, on a total of 117 firms in both Shanghai stock market and Shenzhen stock market of China. The summaries of findings are shown as: Table 6.1 shows the summary of hypothesis results with regard to firm performance (return on asset, return on equity, Tobin's Q) in year 2009. Table 6.2 shows the summary of hypothesis results with regard to firm performance (return on asset, return on equity, Tobin's Q) in year 2010. Table 6.3 shows the summary of hypothesis results with regard to firm performance (return on asset, return on equity, Tobin's Q) in year 2011. Table 6.4 shows the summary of hypothesis results with regard to firm performance (return on asset, return on equity, Tobin's Q) in year 2012. Table 6.5 shows the summary of hypothesis results with regard to firm performance (return on asset, return on equity, Tobin's Q) in year 2009 to 2012.

Table 6.1 The summary of hypothesis results with regard to firm performance (return on asset, return on equity, Tobin's Q) in year 2009.

No.	Null hypothesis(H_0)	Coefficient	Prob.	Result
H1	Debt ratio (DR) has no significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2009	-0.0381	0.4083	Fail to reject H_0
H2	Debt to equity ratio (DE) has no significant	-0.0019	0.8925	Fail to

	effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2009			reject H_0
H3	Short-term debt ratio (STD) has no significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2009	-0.0375	0.3958	Fail to reject H_0
H4	Long-term debt ratio (LTD) has no significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2009	0.0148	0.7635	Fail to reject H_0
H5	Size has no significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2009	0.0002	0.2569	Fail to reject H_0
H6	Growth of sales has no significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2009	0.0023	0.0672	Fail to reject H_0
H7	Asset tangibility ratio (TANG) has no significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2009	-0.0688	0.1826	Fail to reject H_0
H8	Age has no significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2009	0.0082	0.9224	Fail to reject H_0
H9	Debt ratio (DR) has no significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2009	-0.8521	0.0004	Reject H_0
H10	Debt to equity ratio (DE) has no significant effect on return on equity (ROE) in listed real	0.1740	0.0137	Reject H_0

	estate companies of Chinese stock exchange during year 2009			
H11	Short-term debt ratio (STD) has no significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2009	0.0959	0.6681	Fail to reject H_0
H12	Long-term debt ratio (LTD) has no significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2009	0.3055	0.2210	Fail to reject H_0
H13	Size has no significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2009	0.0005	0.4686	Fail to reject H_0
H14	Growth of sales has no significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2009	-0.0007	0.9096	Fail to reject H_0
H15	Asset tangibility ratio (TANG) has no significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2009	-0.0279	0.9147	Fail to reject H_0
H16	Age has no significant effect on return on asset (ROE) in listed real estate companies of Chinese stock exchange during year 2009	0.4606	0.2818	Fail to reject H_0
H17	Debt ratio (DR) has no significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2009	-0.0025	0.8868	Fail to reject H_0
H18	Debt to equity ratio (DE) has no significant Tobin's Q in listed real estate companies of Chinese stock exchange during year 2009	0.0052	0.3198	Fail to reject H_0
H19	Short-term debt ratio (STD) has no significant	-0.0351	0.0364	Reject H_0

177

	effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2009			
H20	Long-term debt ratio (LTD) has no significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2009	-0.0448	0.0167	Reject H_0
H21	Size has no significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2009	-0.0001	0.1458	Fail to reject H_0
H22	Growth of sales has no significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2009	0.0004	0.4297	Fail to reject H_0
H23	Asset tangibility ratio (TANG) has no significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2009	0.0509	0.0095	Reject H_0
H24	Age has no significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2009	-0.0119	0.7077	Fail to reject H_0

Table 6.2 The summary of hypothesis results with regard to firm performance (return on asset, return on equity, Tobin's Q) in year 2010.

No.	Null hypothesis(H_0)	Coefficient	Prob.	Result
H25	Debt ratio (DR) has no significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2010	-0.0025	0.9662	Fail to reject H_0
H26	Debt to equity ratio (DE) has no significant effect on return on asset (ROA) in listed real	-0.0053	0.7011	Fail to reject H_0

	estate companies of Chinese stock exchange during year 2010			
H27	Short-term debt ratio (STD) has no significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2010	-0.0391	0.5571	Fail to reject H_0
H28	Long-term debt ratio (LTD) has no significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2010	0.0025	0.9696	Fail to reject H_0
H29	Size has no significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2010	0.0001	0.5980	Fail to reject H_0
H30	Growth of sales has no significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2010	0.0000	0.6383	Fail to reject H_0
H31	Asset tangibility ratio (TANG) has no significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2010	-0.0143	0.8388	Fail to reject H_0
H32	Age has no significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2010	-0.0897	0.3521	Fail to reject H_0
H33	Debt ratio (DR) has no significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2010	-0.5811	0.0002	Reject H_0
H34	Debt to equity ratio (DE) has no significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange	-0.0142	0.6930	Fail to reject H_0

	during year 2010			
H35	Short-term debt ratio (STD) has no significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2010	0.4471	0.0116	Reject H_0
H36	Long-term debt ratio (LTD) has no significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2010	0.5729	0.0014	Reject H_0
H37	Size has no significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2010	0.0002	0.5519	Fail to reject H_0
H38	Growth of sales has no significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2010	0.0000	0.1056	Fail to reject H_0
H39	Asset tangibility ratio (TANG) has no significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2010	-0.0978	-0.5295	Fail to reject H_0
H40	Age has no significant effect on return on asset (ROE) in listed real estate companies of Chinese stock exchange during year 2010	-0.1626	-0.6448	Fail to reject H_0
H41	Debt ratio (DR) has no significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2010	0.0005	0.9670	Fail to reject H_0
H42	Debt to equity ratio (DE) has no significant Tobin's Q in listed real estate companies of Chinese stock exchange during year 2010	0.0078	0.0033	Reject H_0
H43	Short-term debt ratio (STD) has no significant effect on Tobin's Q in listed real estate	-0.0464	0.0003	Reject H_0

No.	Null hypothesis(H₀)	Coefficient	Prob.	Result
	companies of Chinese stock exchange during year 2010			
H44	Long-term debt ratio (LTD) has no significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2010	-0.0425	0.0010	Reject H₀
H45	Size has no significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2010	0.0000	0.1803	Fail to reject H₀
H46	Growth of sales has no significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2010	0.0000	0.2615	Fail to reject H₀
H47	Asset tangibility ratio (TANG) has no significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2010	0.0411	0.0026	Reject H₀
H48	Age has no significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2010	0.0032	0.8627	Fail to reject H₀

Table 6.3 The summary of hypothesis results with regard to firm performance (return on asset, return on equity, Tobin's Q) in year 2011.

No.	Null hypothesis(H₀)	Coefficient	Prob.	Result
H49	Debt ratio (DR) has no significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2011	-0.0153	0.7510	Fail to reject H₀
H50	Debt to equity ratio (DE) has no significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2011	-0.0107	0.3397	Fail to reject H₀

181

H51	Short-term debt ratio (STD) has no significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2011	0.0440	0.4261	Fail to reject H_0
H52	Long-term debt ratio (LTD) has no significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2011	0.0035	0.9499	Fail to reject H_0
H53	Size has no significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2011	0.0001	0.3121	Fail to reject H_0
H54	Growth of sales has no significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2011	0.0040	0.2059	Fail to reject H_0
H55	Asset tangibility ratio (TANG) has no significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2011	0.0186	0.8139	Fail to reject H_0
H56	Age has no significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2011	-0.0197	0.8075	Fail to reject H_0
H57	Debt ratio (DR) has no significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2011	-0.6155	0.0001	Reject H_0
H58	Debt to equity ratio (DE) has no significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2011	-0.0246	0.4760	Fail to reject H_0
H59	Short-term debt ratio (STD) has no significant	0.6278	0.0004	Reject H_0

	effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2011			
H60	Long-term debt ratio (LTD) has no significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2011	0.6112	0.0006	Reject H_0
H61	Size has no significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2011	0.0002	0.3615	Fail to reject H_0
H62	Growth of sales has no significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2011	0.0193	0.0519	Fail to reject H_0
H63	Asset tangibility ratio (TANG) has no significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2011	0.0074	0.9759	Fail to reject H_0
H64	Age has no significant effect on return on asset (ROE) in listed real estate companies of Chinese stock exchange during year 2011	-0.0896	0.7209	Fail to reject H_0
H65	Debt ratio (DR) has no significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2011	0.0027	0.7107	Fail to reject H_0
H66	Debt to equity ratio (DE) has no significant Tobin's Q in listed real estate companies of Chinese stock exchange during year 2011	0.0038	0.0260	Reject H_0
H67	Short-term debt ratio (STD) has no significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2011	-0.0274	0.0015	Reject H_0

H68	Long-term debt ratio (LTD) has no significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2011	-0.0245	0.0047	Reject H_0
H69	Size has no significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2011	0.0000	0.3093	Fail to reject H_0
H70	Growth of sales has no significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2011	0.0008	0.1022	Fail to reject H_0
H71	Asset tangibility ratio (TANG) has no significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2011	0.0314	0.0103	Reject H_0
H72	Age has no significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2011	0.0016	0.8969	Fail to reject H_0

Table 6.4 shows the summary of hypothesis results with regard to firm performance (return on asset, return on equity, Tobin's Q) in year 2012.

No.	Null hypothesis(H_0)	Coefficient	Prob.	Result
H73	Debt ratio (DR) has no significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2012	0.0026	0.9542	Fail to reject H_0
H74	Debt to equity ratio (DE) has no significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2012	-0.0165	0.0606	Fail to reject H_0
H75	Short-term debt ratio (STD) has no significant effect on return on asset (ROA) in listed real	0.0218	0.6608	Fail to reject H_0

184

	estate companies of Chinese stock exchange during year 2012			
H76	Long-term debt ratio (LTD) has no significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2012	0.0436	0.3631	Fail to reject H_0
H77	Size has no significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2012	0.0000	0.3994	Fail to reject H_0
H78	Growth of sales has no significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2012	0.0042	0.1366	Fail to reject H_0
H79	Asset tangibility ratio (TANG) has no significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2012	0.0387	0.6125	Fail to reject H_0
H80	Age has no significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2012	-0.0740	0.3319	Fail to reject H_0
H81	Debt ratio (DR) has no significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2012	-0.4000	0.0012	Reject H_0
H82	Debt to equity ratio (DE) has no significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2012	-0.0363	0.1215	Fail to reject H_0
H83	Short-term debt ratio (STD) has no significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange	0.3911	0.0039	Reject H_0

	during year 2012			
H84	Long-term debt ratio (LTD) has no significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2012	0.4708	0.0004	Reject H_0
H85	Size has no significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2012	0.0003	0.0453	Reject H_0
H86	Growth of sales has no significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2012	0.0090	0.2337	Fail to reject H_0
H87	Asset tangibility ratio (TANG) has no significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2012	-0.0146	0.9434	Fail to reject H_0
H88	Age has no significant effect on return on asset (ROE) in listed real estate companies of Chinese stock exchange during year 2012	-0.2526	0.2175	Fail to reject H_0
H89	Debt ratio (DR) has no significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2012	0.0006	0.9653	Fail to reject H_0
H90	Debt to equity ratio (DE) has no significant Tobin's Q in listed real estate companies of Chinese stock exchange during year 2012	0.0072	0.0040	Reject H_0
H91	Short-term debt ratio (STD) has no significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2012	-0.0533	0.0002	Reject H_0
H92	Long-term debt ratio (LTD) has no significant effect on Tobin's Q in listed real estate	-0.0520	0.0002	Reject H_0

	companies of Chinese stock exchange during year 2012			
H93	Size has no significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2012	0.0000	0.9581	Fail to reject H_0
H94	Growth of sales has no significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2012	-0.0002	0.7807	Fail to reject H_0
H95	Asset tangibility ratio (TANG) has no significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2012	0.0644	0.0033	Reject H_0
H96	Age has no significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2012	0.0045	0.8341	Fail to reject H_0

Table 6.5 The summary of hypothesis results with regard to firm performance (return on asset, return on equity, Tobin's Q) in year 2009-2012.

No.	Null hypothesis(H_0)	Coefficient	Prob.	Result
H97	Debt ratio (DR) has no significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2009-2012	-0.0207	0.0712	Fail to reject H_0
H98	Debt to equity ratio (DE) has no significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2009-2012	-0.0084	0.1226	Fail to reject H_0
H99	Short-term debt ratio (STD) has no significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2009-2012	-0.0157	0.4389	Fail to reject H_0

H100	Long-term debt ratio (LTD) has no significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2009-2012	0.0192	0.3201	Fail to reject H_0
H101	Size has no significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2009-2012	-0.0000	0.8370	Fail to reject H_0
H102	Growth of sales has no significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2009-2012	0.0000	0.5263	Fail to reject H_0
H103	Asset tangibility ratio (TANG) has no significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2009-2012	-0.0053	0.8644	Fail to reject H_0
H104	Age has no significant effect on return on asset (ROA) in listed real estate companies of Chinese stock exchange during year 2009-2012	-0.0215	0.5930	Fail to reject H_0
H105	Debt ratio (DR) has no significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2009-2012	--0.0357	0.4089	Fail to reject H_{00}
H106	Debt to equity ratio (DE) has no significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2009-2012	0.0050	0.8060	Fail to reject H_0
H107	Short-term debt ratio (STD) has no significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange	0.0363	0.6334	Fail to reject H_0

	during year 2009-2012			
H108	Long-term debt ratio (LTD) has no significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2009-2012	0.1815	0.0127	Reject H_0
H109	Size has no significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2009-2012	-0.0000	0.9202	Fail to reject H_0
H110	Growth of sales has no significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2009-2012	0.0000	0.1128	Fail to reject H_0
H111	Asset tangibility ratio (TANG) has no significant effect on return on equity (ROE) in listed real estate companies of Chinese stock exchange during year 2009-2012	0.1549	0.1827	Fail to reject H_0
H112	Age has no significant effect on return on asset (ROE) in listed real estate companies of Chinese stock exchange during year 2009-2012	0.0400	0.7911	Fail to reject H_0
H113	Debt ratio (DR) has no significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2009-2012	0.0061	0.0670	Fail to reject H_0
H114	Debt to equity ratio (DE) has no significant Tobin's Q in listed real estate companies of Chinese stock exchange during year 2009-2012	0.0060	0.0001	Reject H_0
H115	Short-term debt ratio (STD) has no significant effect on Tobin's Q in listed real estate	-0.0431	0.0000	Reject H_0

	companies of Chinese stock exchange during year 2009-2012			
H116	Long-term debt ratio (LTD) has no significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2009-2012	-0.0470	0.0000	Reject H$_0$
H117	Size has no significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2009-2012	-0.0000	0.5993	Fail to reject H$_0$
H118	Growth of sales has no significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2009-2012	-0.0000	0.5168	Fail to reject H$_0$
H119	Asset tangibility ratio (TANG) has no significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2009-2012	-0.0080	0.3697	Fail to reject H$_0$
H120	Age has no significant effect on Tobin's Q in listed real estate companies of Chinese stock exchange during year 2009-2012	-0.0022	0.8504	Fail to reject H$_0$

In this study, if the p-value is less than the level of significance (5% or 0.05), the null hypothesis will be rejected. On the contrary, if the p-value is more than the level of significance (5% or 0.05), the null hypothesis cannot be rejected. From the result of hypothesis of year 2009, the null hypothesis of debt ratio and debt to equity towards return on equity is rejected; and the null hypothesis of short term debt ratio, long term debt ratio and asset tangibility ratio towards Tobin's Q are also rejected. From the result of hypothesis of year 2010, the null hypothesis of debt ratio, short term debt ratio and long term debt ratio towards return on equity are rejected; and the null hypothesis of debt to equity ratio, short term debt ratio, long term debt ratio and asset tangibility ratio towards Tobin's Q are also rejected. From the result of hypothesis of year

2011, the null hypothesis of debt ratio, short term debt ratio and long term debt ratio towards return on equity are rejected; and the null hypothesis of debt to equity ratio, short term debt ratio, long term debt ratio and asset tangibility ratio towards Tobin's Q are also rejected. From the result of hypothesis of year 2012, the null hypothesis of debt ratio, short term debt ratio, long term debt ratio and size towards return on equity are rejected; and the null hypothesis of debt to equity ratio, short term debt ratio, long term debt ratio and asset tangibility ratio towards Tobin's Q are also rejected. From the result of hypothesis of year 2009-2012, the null hypothesis of long term debt ratio towards return on equity is rejected; and the null hypothesis of debt to equity ratio, short term debt ratio and long term debt ratio towards Tobin's Q are also rejected.

6.2 Discussion and Conclusion

There was a real estate bubble in China between years 2005 to 2009 which can be represented as the bubble of Chinese property (Patrick, 2009). The market price increased three times between years 2005 to 2009. The reasons for this phenomenon possibly were the policies of China, and the traditional attitudes of Chinese culture. The evidence for the bubble were showed by the high quantity of the unoccupied residential and business units, as well as the high market price compared to the income of Chinese people, and compared to the rental rates (Patrick, 2009). The bubble of real estate in China had showed the standards of relatively conservative mortgage lending. At the end of 2011, the growing real estate bubble have ended with the decreasing of the market price of property, from the report of government, the people in middle class were not capable to pay for the property in the big cities in China (Patrick, 2009). So, it is necessary to slow down China's economy in 2012 making real estate bubble blown. From the property analysts' statement that there were more than 64 million houses and apartments empty in year 2011 and it showed that the market supply of real estate was more than demand, and it would lead to some serious problem after year 2011 (Patrick, 2009). From the report of National Bureau of Statistics, the main cause for the China economic growth and increase of employment is the development of real estate. There was nineteen percent of nominal GDP investment in real estate sector of China in 2012 (source: the National Bureau of Statistics of China 2012).

The result of analysis showed that debt ratio has a significant negative effect on return on equity in the year 2009, 2010, 2011 and 2012. It means when the debt ratio decrease, the return on equity will increase. When real estate companies borrow less money used to finance companies effectiveness on operation, the profitability of firm will be greater. This is because the real estate sector has high gross margin in China, so less borrowing can make profitability greater. It is similar to Krivogorsky et.al (2009) who determined a negative relationship between firm performance and debt ratio. Likeothers, Cheng (2009) explained anticipated debt ratio is to be negatively related to operation performance.

Additonally, the result also showed that debt to equity ratio has a significant positive effect on return on equity only in year 2009. On the contrary, debt to equity ratio has a significant positive effect on Tobin' Q in year 2010, 2011, 2012 and the year during 2009 to 2012. It means that when the debt to equity ratio increased, the return on equity and Tobin's Q also increased. But the positive relationship between debt to equity ratio and return on equity only showed in year 2009. This maybe because it was the beginning year of the recovery after the real estate bubble, the manager of company borrowed more money from investors. The debt to equity ratio increase will lead to the value of company including both accounting value and market value in stock market increased. The higher debt to equity ratio will show the high evaluation of firm covered by stock market. In Mohamad and Abdullah, (2012)'s study, "DTER (debt to equity ratio) stipulates a 1% confidence to be negatively related with ROE but negatively insignificant association with RETURN ON ASSET and ROC, and a positive return of the firms can be obtained by reducing the DTER level".

After analysis, researcher observed that the short term debt ratio has a significant positive effect on return on equity in year 2010, 2011, and 2012. And short term debt ratio has a significant negative effect on Tobin's Q in year 2009, 2010, 2011, 2012 and year during 2009 to 2012. It means when company borrowed more short term debt from investors, the return on equity will be greater, but the Tobin's Q will be low, the value of company will be decreased in stock market. Getting more borrowed short term debt, will make more profitability; however, the stock price of company will decrease. The reason for this maybe that in year 2009 to 2012, investors were very interested in the investment of real estate sectors by the fast growing market

price, so there were many short term debt increase the real estate sector of China, so the profitability was better. However, because there were so many investments, which will lead the stock price down, in year 2009 to 2012, the stock price of real estate of China cooled down and stable. Myers (1998) clarified that firms in the great growth rate and better performance showed in high short-term debt ratio. Contrarily, Zeitun & Tian (2007) analyze that short-term debt ratio is positively and significantly associated to Tobin's Q which is the measurement of market performance of company.

The result also showed that long term debt ratio has a significant positive effect on return on equity in year 2010, 2011, 2012 and during 2009 to 2012. And long term debt ratio has a significant negative effect on Tobin's Q in year 2009, 2010, 2011, 2012 and during 2009 to 2012. The more the long term debt borrowed by company, the higher the return on equity, but it will be lower Tobin's Q. If company get more long term debt, the profitability will be greater, but the evaluation of company will decrease as the price of stock gets lower. In the year 2009 to 2012, there was fast growth of investment in real estate sector of China, people were interested in real estate as the method of investment, so companies get long term debt that would help to increase the profitability. But there was big bubble in year 2009 to 2012 of real estate sector, so the stock price of market decreased at that time. However, from the previous study, Abor (2005) established that long-term debt ratio is negatively and strongly associated to return on equity. And Sadeghian et al (2012) concluded, an increase in debts (short-term, long-term, and total debts) will result in a decrease in corporations' performance.

Size has a significant positive effect on return on equity only in year 2012. It means more sales that company can make, will cause higher return on equity which will be greater profitability. In the year 2009 to 2012, people were willing to purchase real estate property as the way to keep their wealth from the growth of inflation, so the sales of real estate increased tremendously much. Hill (1985) found that size is positively correlated with firm performance, also in order to earn better outcomes in stock market, bigger company can leverage its size. On the contrary, Banz (1981) described that size is negative hypothesis with firm performance, and when one firm is growing, it is hard to sustain its extraordinary performance.

193

However, growth opportunity has no significant effect on firm performance in year 2009, 2010, 2011, 2012, and four year between 2009 to 2012. There are some studies that showed the relationship with firm performance: Zeitun and Tian (2007) have provided evidence that growth opportunities have influenced company to get more profit from funding. There is a significant and positive correlation between growth opportunity and return on asset that is the measurement of firm performance; however, for other measurement of performance, there is no any evidence to determine the relationship with growth opportunities (Zeitun & Tian, 2007).

The result also showed that asset tangibility ratio has significant positive effect on Tobin's Q in year 2009, 2010, 2011, 2012. It means the more asset tangibility ratio, the greater Tobin's Q. If company invests more money on the fixed asset, such as property, plant and equipment, the evaluation of company on the stock market will be greater and the price of stock will increase. This may be due to investors usual, evaluate one company by evaluating its fixed asset, if the fixed asset has huge amount, investor will think the companyis trustable when some crisis happen, company can still pay the debt by selling its fixed asset. Akintoye (2008) described that firm will have lower costs of financial distress rather than that the firm only count on intangible asset, when firm preserve huge investments in tangible assets.

The result also showed that age has no significant effect on firm performance in year 2009, 2010, 2011, 2012, and four years between 2009 to 2012. It means no matter how many years that company listed on real estate stock market, the firm performance will not be influenced. The reason for this is maybe because the real estate sectors make more impact on the ability of money invested, it is not related with the age. New Real Estate Company will also have strong ability to get debt and get profit as well, which is the key to success because people are interested in investment of real estate with low risk. However, Loderer and Waelchli (2010) stated that there is a relationship between firm age and firm performance. Majumdar (1997) reached a conclusion form his research that old firms perform more profitably and also Loderer and Waelchli (2010) found that relatively new firms do well. Hopenhayn (1992) shows that under plausible assumptions, older firms enjoy higher profits and value. According to Adams, Almeida and Ferreira (2005), incorporation age is negative affect to the variability of stock profits, and Cheng (2008) also explained that the listing age has similar relationship with variability of stock

returns.

6.3 Recommendations

This study can help managers, investors, and lenders to better understand the relationship between firm internal factors and firm performance of real estate sector in China. This will be also very useful for the owner of company to promote the company's value. Moreover, the study could help the manager of finance department in a company, to make decision for the right or proper capital structure.

This study aims at examining the effect of firm internal factors on firm performance with a case study of Real Estate industry on Chinese stock exchange during 2009 and 2012. Managers, investors, lenders and researchers can use this information for insight into the relationship between capital structure and firm performance in China, which can be an important instrument in evaluation company, and understand the mix of leverage to enhance firm performance.

According to the results of this study, a number of implications and recommendations can be made. as follows:

1. To get greater profitability, it is suggested that a firm borrow less money used to finance companies effectiveness on operation, and also increase the sales.

2. To get higher evaluation of company and higher stock price, a firm should increase the debt to equity ratio, borrow less short term and long term debt.

3. To get better return on equity, company should borrow more short term and long term debt.

4. Another way to increase the evaluation of company and stock price, is invests more money on the fixed asset, such as property, plant and equipment.

6.4 Further Study

The researcher chose to study on real estate industry in China from 2009 to 2012. There is a 4-year limitation for data collecting from 2009 to 2012. It is suggested that further studies could research on other time period and other location of real estate industry.

Researcher was not able to find out independent variables except the eight factors of capital structure namely debt ratio, debt to equity ratio, short-term debt ratio, long-term debt ratio, size, growth opportunity, asset tangibility ratio, and age that have effect on three factors of firm performance which are return on asset, return on equity, and Tobin's Q. Researcher suggest that further studies can apply other dependent variables such as gross margin, net profit, and other independent variables such as location, business groups, GDP, unemployment, government policy, economy and political stability, inflation rate, real interest rate, and CPI. Different results can be created by time series, as the frequency of data may change from yearly to quarterly or even monthly. Better results can be obtained by using more data on each study.

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197

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